The Association Between Rural Residence and the Use, Type, and Quality of Depression Care

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ABSTRACT

Objective: To assess the association between rurality and the use, type (pharmacotherapy versus psychotherapy), and quality of depression care. **Methods**: Data were extracted for 10,319 individuals with self-reported depression in the Medical Expenditure Panel Survey. Pharmacotherapy was defined as an antidepressant prescription fill, and adequate pharmacotherapy was defined as receipt of at least four antidepressant fills at a minimally adequate dosage during a year. Psychotherapy was defined as an outpatient counseling visit, and adequate psychotherapy was defined as at least eight visits in a year. Rurality was defined using Metropolitan Statistical Areas and Rural Urban Continuum Codes (RUCCs). **Results**: 65.1% received depression treatment, including 58.8% with at least one antidepressant prescription fill and 24.5% with at least one psychotherapy visit. Among those in treatment, 56.2% had adequate pharmacotherapy treatment and 36.3% had adequate psychotherapy treatment. There were no significant rural-urban differences in receipt of any depression treatment. Rural residence was associated with significantly higher odds of receiving pharmacotherapy (MSA: OR= 1.16, p=0.04 and RUCC: OR=1.04, p=0.05), but not with the adequacy of pharmacotherapy. Rural residence was associated with significantly lower odds of receiving psychotherapy (MSA: OR=0.6, p<0.01 and RUCC: OR=0.91, p<0.001), and significantly lower odds of receiving minimally adequate psychotherapy (MSA: OR=0.5, p<0.01 and RUCC: OR=0.92, p=0.02). Psychiatrists per capita was found to be a mediator in the psychotherapy analyses. **Conclusions**: Rural individuals are more reliant on pharmacotherapy than psychotherapy, which may be a concern if this is due to poor access to psychotherapy rather than a preference for antidepressants.

Key words – rural, depression, utilization, quality

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INTRODUCTION

According to the National Comorbidity Study Replication (NCS-R), there are no significant rural-urban differences in the 12-month prevalence of major depressive disorder (MDD) in the US population.[1] NCS-R defined rural as residing in a county with <10,000 population, and results were consistent across bivariate analyses and multivariate analyses that controlled for socio-demographic characteristics.[1] In the larger National Health Interview Survey (NHIS), the 12-month prevalence of MDD was significantly, but not substantially, higher in a bivariate analysis comparing urban and rural respondents (5.2% in urban versus 6.1% in rural, p=0.017). The NHIS defined rural as residing in a Non-Metropolitan Statistical Area as specified by the Office of Management and Budget.[2] In a multivariate analysis that controlled for socio-demographic characteristics, there were no significant rural-urban differences in prevalence.[2] This finding suggests that any small rural-urban differences in prevalence that may exist are not related to rural residence itself, but with socio-demographic factors that are correlated with both depression and rural residence.

Many individuals in rural areas with depression face barriers to treatment such as long travel times, poverty, stigma, lack of anonymity, culture of self-reliance, and lack of culturally acceptable treatments.[3] However, few national studies have examined rural-urban differences in the use and quality of services specifically among individuals with depression. Just over half (56.7%) of individuals with MDD in the NCS-R received any treatment (formal or informal) for depression, and among those receiving any treatment, only 41.7% received minimally adequate treatment.[4] According to the NCS-R, individuals with a mental health disorder who live in a rural area (defined as living >50 miles form the central city of a metropolitan statistical area) are significantly less likely to receive any treatment (formal or informal) for their disorder.[5] Similar findings have been reported among other populations with a mental health disorder,[6]

populations with self-reported poor mental health[3], and the general adult population.[3, 7] In the NCS-R, individuals with a mental health disorder who received any formal treatment were significantly less likely to receive specialty mental health treatment if they lived in a rural area.[5] Those receiving specialty mental health care in the NCS-R were significantly more likely to receive minimally adequate treatment (62.3%) compared to those receiving general medical care only (42.4%).[4] Consequently, as a result of poor access to mental health specialists, rural individuals may receive lower quality of depression care than urban individuals. Perhaps because of relatively good access to primary care providers in rural areas, rural individuals in the NCS-R with a mental health disorder who receive general medical care are equally as likely to receive minimally adequate care as those living in urban areas.[5] Although not nationally representative, other studies of individuals with depression report similar findings. Individuals with depression in rural areas are more likely to rely on general medical providers than individuals living in urban areas.[8] Likewise, individuals with depression who travel longer distances to seek treatment for depression have lower odds of receiving treatment in concordance with clinical guidelines.[9]

Despite the potential for rural disparities in the use, type and quality of care, there are no studies which have examined these issues among a nationally representative population of individuals with depression. The purpose of the project was to assess the association between rurality and the use, type (pharmacotherapy versus psychotherapy), and quality of care among individuals with self-reported depression. Because primary care providers treat most patients with depression and are typically available in both rural and urban areas, we did not hypothesize that individuals with depression in rural areas would be less likely to receive any treatment compared to individuals with depression in urban areas. However, because mental health

specialists are less available in rural areas, we hypothesized that individuals with depression in rural areas would be less likely to receive psychotherapy compared to their urban counterparts. To compensate for the lack of psychotherapy services in rural areas, we hypothesized that individuals with depression in rural areas would be more likely to receive pharmacotherapy than individuals with depression in urban areas. We also hypothesized that rural individuals receiving pharmacotherapy or psychotherapy would have lower quality of care than urban individuals due to the lack of mental health specialists in rural areas. Finally, we also hypothesized that rural-urban differences in the type and quality of care would be mediated by the local supply of mental health providers (i.e., rural-urban differences would not be significant when controlling for the supply of mental health specialists). Specifically, we hypothesized that the supply of psychiatrists would be positively correlated with use and quality of pharmacotherapy. We also hypothesized that the supply of all types of mental health providers (i.e., psychiatrists, psychologists and counselors) would be positively correlated with the use and quality of psychotherapy. These hypotheses were tested with several different definitions of rurality to determine the consistency of the findings.

METHODS

Data

This study uses data from the 2000 to 2004 Medical Expenditure Panel Survey (MEPS), a nationally representative survey sponsored by the Agency for Healthcare Research and Quality (AHRQ) that is conducted annually. The MEPS employs an overlapping panel design collecting data for individuals over a two-year period through a baseline interview and four follow-up interviews and can be used for cross-sectional or longitudinal analysis[10]. The MEPS Household

Component (HC) collects detailed information on health care utilization and expenditures, health status, health insurance coverage, and demographic information and is designed to produce annual estimates of these measures. The MEPS HC sample is drawn from a subsample of households included in the previous year's National Health Interview Survey. In the 2000, 2001 2002, 2003, and 2004 MEPS HC, there are a total of 25,096, 33556, 39165, 34215, and 34403 individuals respectively. The data in the MEPS HC for 2000 to 2004 are described in detail at www.meps.ahrq.gov.

Individuals With Depression

Individuals with depression were identified using the MEPS HC medical conditions file. The medical conditions file contains an observation for each self-reported medical condition the individual experiences during the year. During each interview, respondents were asked about medical conditions that were experienced during the four or five months since the previous interview. Thus, all conditions are self-reported by respondents. Self-reported conditions were mapped onto 3-digit *International Classification for Diseases, 9th Revision* (ICD-9) codes by AHRQ. We classified conditions with ICD-9 codes of 296.2X, 296.3X or 311.xx as depression, excluding bipolar disorder. In this study, the term "depression" is used to identify these individuals. Using this method, 1,293, 1,917, 2,489, 2270, and 2350 individuals were identified as having depression in 2000, 2001, 2002, 2003 and 2004 respectively.

Antidepressant Treatment

Antidepressant treatment was identified using the Prescribed Medicines Event File of each year's MEPS HC. In the 2000, 2001 2002, 2003, and 2004 Prescribed Medicines Event

File, there are 182,677, 277,866, 339,308, 304,324, and 317,065 prescribed medicine records respectively. Each record represents one household reported prescribed medicine purchased or obtained during each year. Antidepressant medications were identified by the drug name. The drugs classified as antidepressants were amitriptyline, amoxapine, bupropion, citalopram, clomipramine, desipramine, doxepin, fluoxetine, fluvoxamine, imipramine, isocarboxazid, maprotiline, mirtazapine, nefazodone, nortriptyline, paroxetine, phenelzine, protriptyline, sertraline, tranylcypromine, trazodone, trimipramine, Cymbalta and venlafaxine.

We calculated the daily dosage for each antidepressant prescription using the pill dosage and the number of pills in the prescription. It was assumed that each antidepressant prescription was for 30 days and that if fewer than 30 pills were prescribed, the days supplied in the prescription equaled the number of pills supplied in the medication. From 2000 to 2004, of the 75,201 prescriptions for antidepressants, 16,412 (22%) contained fewer than 30 pills. The daily dosages were then compared to the minimum adequate daily dosage developed by Weilburg and colleagues utilizing consensus of expert opinion and manufacturers' guidelines.[11] Because the purpose of this study is not to assess absolute rates of adequate treatment, but to investigate differences in rates of treatment between groups, these assumptions should not introduce bias into the analysis.

Psychotherapy or Mental Health Counseling Visits

Psychotherapy or mental health counseling visits are identified using the MEPS Outpatient Visit File (n=80,148) and MEPS Office-Based Medical Provider Visits File (N=742,154) from 2000 to 2004. These files contain one observation for each self-reported visit to a hospital-based outpatient clinic or office-based medical provider during each year. For each

visit, the respondent was asked which category best described the care provided during the visit. One possible category of response was "Psychotherapy or Mental Health Counseling". All visits described as a psychotherapy or mental health counseling visit are referred to as a "psychotherapy/counseling" visit.

Adequate Depression Care

Adequate depression treatment over a one-year period was defined as receiving either: 1) at least 4 antidepressant prescriptions (120 days of medication) at the minimum adequate daily dosage; or 2) at least 8 outpatient/office-based psychotherapy/counseling visits. This definition was based on evidence based treatment guidelines[12, 13] and is similar to that used by Kessler and colleagues in their analysis of depression care using data from the National Comorbidity Survey Replication.[1]

Rurality

Rurality is defined dichotomously and continuously. The dichotomous definition is based on the Office of Management and Budget's definition of a Metropolitan Statistical Area (MSA) which include all counties that contain an urbanized area (i.e., population >50,000) or that are adjacent to an MSA county and 25% of the employed population commutes to the urbanized area (or visa versa). The strengths of the MSA definition are that it is stable over time and it is familiar to policy makers. The main weakness is that it does not differentiate well between nonmetropolitan counties. Rurality is measured continuously and categorically using the Rural Urban Continuum Codes (RUCCs). In the RUCC classification system, urbanized counties (i.e., population >50,000) are categorized into four groups, based on size of the county's

population. Nonmetropolitan counties (i.e., population <50,000) are categorized into six groups, based on total urban population of the county and whether it is adjacent or nonadjacent to a metropolitan county. While the RUCC classification scheme better differentiates non-metropolitan counties, is less familiar to policy makers and counties are more likely to change categories over time.

We specifically chose RUCC over Rural Urban Commuting Area Codes (RUCA) and Urban Influence Codes (UIC) rural-urban classification schemes . The RUCA and UIC systems use commuting data, in addition to population size, to classify geographic areas. Thus, RUCA and UIC account for the improved access of commuting workers to services in metropolitan areas. We did not want to characterize the rurality of individuals with depression based on the commuting patterns of employed persons because individuals with depression have lower employment rates[14-17] , and thus the access to care for individuals with depression is less likely to be impacted by commuting.

To classify an individual using the RUCC system, it is necessary to know their zipcode or county of residence, neither of which is available in the public use MEPS dataset because zipcodes are considered personal identifiers. Therefore, we traveled to the AHRQ Data Center in Rockville MD to merge a cross-walk of RUCC codes to zip codes, which are available in the master MEPS dataset. Zipcodes where then dropped from the analytical dataset and all statistical analyses were conducted on the de-identified analytical dataset.

Supply of Mental Health Specialists

Health system data for 2000 from the Area Resource File (maintained by the Health Resources and Services Administration) was used to determine the number of psychiatrists,

psychologists, and social workers per 1000 people in the county.[18] Mental health specialist supply was linked to each individual in the dataset based on their county of residence.

Caximx Measures

The analysis examined differences in adequate care by race/ethnicity, age, sex, insurance type, income, education, and marital status. Race/ethnicity consisted of four mutually exclusive groups: Caucasian, African-American, Latino, and other. Any respondent who identified him/herself as Latino was categorized as Latino, regardless of race. Age was coded as: under 18, 18 to 34, 35 to 64, and 65 and over. Insurance type was categorized as any private insurance, Medicaid, Medicare, both Medicaid and Medicare, and uninsured. Income was measured as a percentage of the poverty level and placed into five categories: poor (<100% of the federal poverty level), near poor (100-124%), low income (125-199%), middle income (200-399%), and high income (>399%). Education was included as a dichotomous variable coded 1 if the individual had a college education or better, 0 otherwise. Marital status was classified as married, widowed, divorced/separated, and never married. Self-perceived health and mental health status, and functional limitations were derived from responses from the MEPS HC. Respondents rated overall health as excellent, very good, good, fair, or poor at three points during the calendar year. Respondents rated mental health using the same categories. Respondents were also asked about functional limitations using the activities of daily living scale and the instrumental activities of daily living scale. A dummy variable was coded 1 if the individual had at least one limitation on the activities of daily living scale, 0 otherwise. A dummy variable was coded in the same way for the instrumental activities of daily living scale.

All health and functional status variables used measures collected during the first interview of the calendar year.

Statistical Analysis

Logistic regression was employed, as all dependent variables were dichotomous. The first regression examined receipt of either at least one antidepressant prescription or attendance of at least one mental health counseling session. The second regression examined receipt of at least one antidepressant prescription among depressed individuals. The third regression examined the receipt of an adequate course of antidepressants among depressed individuals who had received at least one antidepressant prescription. The fourth regression examined attendance of at least one mental health counseling session. The fifth regression examined receipt of an adequate course of psychotherapy among depressed individuals who made at least one counseling session. Models were estimated using the survey procedures of Stata statistical software using weights to account for the complex sampling strategy and to produce nationally representative estimates. The first set of analyses examined the impact of rurality specified dichotomously as residence in a metropolitan statistical area or not, the second set of analyses specified rurality continuously (RUCC=1-9), and the third set of analyses specified rurality categorically as a series of dummy variables (RUCC = 1, 2, 3, 4, 5, 6, 7, 8, or 9). However, because some regressions (e.g., quality of psychotherapy) have relatively few subjects in RUCC categories 7, 8, and 9, we also conducted a sensitivity analyses by combining these three groups into one.

To test whether the local supply mental health specialists is a mediator for rurality, we used the steps outlined by Baron and Kenny.[19] First, we estimated three regression equations with psychiatrists per 1000 population, psychologists per 1000 population and social workers per

1000 populations as the dependent variables and rurality specified continuously ((RUCC=1-9) as the explanatory variable. If rurality is a significant predictor of supply of psychiatrists, we then added psychiatrists per 1000 population to the pharmacotherapy regressions. If rurality was a significant predictor of psychologists per 1000 population and social workers per 1000 population, we added all types of mental health specialist supply to the psychotherapy regressions. If mental health specialist supply is found to be a significant predictor and the significance of rurality decreases when mental health specialist supply is added to the regression, we concluded that the supply of mental health specialists is a mediator for rurality.

RESULTS

There were 10,319 individuals with self-reported depression in the 2000-2004 MEPS samples. Sample characteristics are presented in Table 2. Similar to the general U.S. population, 19% of the sample lived outside a MSA. Consistent with the epidemiology of depression, most were middle aged (age 18-64) and female. Less than half were married, nearly a third were of minority race/ethnicity, almost half lived below 200% of the federally designated poverty level and three quarters did not have a college education. Over half (58.2%) had private insurance and almost a third (29.2%) had public insurance.

Two thirds (65.1%) received some form of depression treatment during the previous year including: 58.8% with at least one antidepressant prescription fill and 24.5% with at least one psychotherapy/counseling session. Among those receiving at least one antidepressant prescription, 56.2% had adequate pharmacotherapy treatment. Among those with at least one psychotherapy session, 36.3% had adequate psychotherapy treatment. The top half of Figures 1

and 2 display how the proportion receiving pharmacotherapy and psychotherapy, and adequacy of these treatments vary across the 9 RUCC codes.

Any Formal Treatment

In multivariate analyses, residence in a non-metropolitan statistical area was not significantly associated with receiving any formal depression treatment compared to residence outside a metropolitan statistical area (OR=1.08, p=0.32). When rurality is specified continuously (i.e., RUCC=1-9), it was not associated with significantly different odds (OR=1.02, p=0.29) of receiving any formal depression treatment. When the RUCC categories were specified categorically as dummy variables in the multivariate analyses, RUCC categories 2, 3, and 5 all had significantly ($p<0.05$) higher odds of receiving any formal depression treatment compared to RUCC category 1 (the most urban area).

Pharmacotherapy

Residence in a non-metropolitan statistical area was associated with significantly higher odds of receiving pharmacotherapy (OR= 1.16, p=0.04) compared to residence in a metropolitan statistical area, but not significantly different odds of receiving adequate pharmacotherapy treatment (OR=1.1, p=0.23). Likewise, when RUCC codes are specified continuously, greater rurality was associated with significantly higher odds (OR=1.04, p=0.05) of receiving pharmacotherapy, but not significantly different odds of receiving adequate pharmacotherapy (OR=1.03, p=0.20). The lower half of Figure 1 presents the odds ratios for each RUCC category when the RUCC categories are specified categorically as dummy variables in the multivariate analysis. Significant ($p<0.05$) odds ratios are highlighted in black. RUCC

categories 3, 5, 6 and 8 all had significantly ($p<0.05$) higher odds of receiving pharmacotherapy treatment relative to RUCC category 1. In the analysis examining receipt of minimally adequate pharmacotherapy treatment, only RUCC category 9 had significantly different odds (OR=2.02, p=0.02) compared to RUCC 1. When RUCC category 7, 8 and 9 were combined into one category as a sensitivity analysis, this rural group did not have significantly different odds of receiving pharmacotherapy treatment, or receiving minimally adequate pharmacotherapy. Thus, any significant rural-urban differences observed individually in high rural RUCC codes, were likely anomalies resulting from small cell sizes.

Psychotherapy

Residence in a non-metropolitan statistical area was associated with significantly lower odds of receiving psychotherapy (OR=0.6, $p<0.01$), and significantly lower odds of receiving minimally adequate psychotherapy treatment (OR=0.5, $p<0.01$) compared to residence in a metropolitan statistical area. Likewise, when RUCC codes are specified continuously in the multivariate analysis, greater rurality was associated with significantly lower odds (OR=0.91, $p<0.001$) of receiving psychotherapy and significantly lower odds (OR=0.92, p=0.02) of receiving adequate psychotherapy. The lower half of Figure 2 presents the odds ratios for each RUCC category when the RUCC categories are specified categorically in the multivariate analysis. Significant ($p<0.05$) odds ratios are highlighted in black. RUCC category 4, 6, 7 and 9, had significantly ($p<0.05$) lower odds of receiving psychotherapy relative to RUCC category 1. Only RUCC category 9 had significantly different odds (OR=0.21, p=0.04) of receiving adequate psychotherapy treatment compared to RUCC category 1. However, this was likely an anomaly resulting from small cell sizes because when RUCC category 7, 8 and 9 were combined into one

category as a sensitivity analysis, the most rural areas (RUCC categories 7, 8, and 9) did not collectively have significantly different odds of receiving adequate psychotherapy treatment compared to RUCC category 1. However, the sensitivity analysis did confirm that the most rural areas (RUCC categories 7, 8, and 9) collectively have significantly lower odds of receiving psychotherapy.

Mediators

Rurality specified continuously ((RUCC=1-9) was a significant predictor of psychiatrists per 1,000 population ($p<0.001$), psychologists per 1,000 population ($p<0.001$), and social workers per 1000 population ($p<0.001$). However, when psychiatrists per capita is added as an independent variable in the multivariate analyses with rurality specified continuously, it is not a significant (OR=0.86, p=0.45) predictor of receiving pharmacotherapy, and therefore it cannot be considered a mediator. Likewise, psychiatrists per capita is not a significant (OR=1.16, p=0.60) predictor of receiving adequate pharmacotherapy. For receipt of psychotherapy, rurality is no longer a significant predictor of receiving psychotherapy (OR=0.97, p=0.11) or receiving adequate psychotherapy (OR=0.98, p=0.55) when psychiatrists, psychologists and social workers per capita are added as independent variables in the multivariate analysis with rurality specified continuously. In these regressions, psychiatrists per capita (OR=1.8, p=0.03) and social workers per capita are significant (OR=1.1, $p<0.01$) predictors of receiving psychotherapy and psychiatrists per capita is a significant (OR=2.4, p=0.02) predictor of receiving adequate psychotherapy. Thus, the supply of mental health specialists was a mediator for rurality in the analysis of psychotherapy.

Discussion

Two thirds of those with self-reported depression received formal treatment in the prior year and receipt of formal treatment was not associated with rural residence. Over half of individuals with depression received pharmacotherapy and a quarter received psychotherapy. Rates of minimally adequate pharmacotherapy and psychotherapy were poor and similar to previous findings from studies with nationally representative samples.[20-22] As hypothesized, rural residence was associated with a significantly higher likelihood of receiving pharmacotherapy, and this difference was not mediated by the supply of mental health specialists. Contrary to our hypothesis, rural residence was not significantly associated with receipt of minimally adequate pharmacotherapy. Also as hypothesized, rural residence was associated with a significantly lower likelihood of receiving psychotherapy and a significantly lower likelihood of receiving minimally adequate psychotherapy. Rural-urban differences in psychotherapy were mediated by the supply of mental health specialists. Results were consistent across the different definitions of rurality.

These findings suggest that the lack of access to psychotherapists in rural areas may force rural individuals with depression to rely more on antidepressant medications than on counseling. If a higher proportion of individuals in rural areas turn to antidepressants due to lack of options rather than a preference for pharmacotherapy, it may be that pharmacotherapy outcomes are suboptimal in rural areas. However, this conclusion is not supported by our finding that adequacy of pharmacotherapy is similar in rural and urban areas. Perhaps a greater concern is that, compared to their urban counterparts, individuals in rural areas who do initiate counseling are less likely to receive minimally adequate number of sessions and thus, are likely to experience suboptimal outcomes. These findings underscore the importance of developing

innovative models of delivering psychotherapy to remote locations such as telephonic, interactive video and/or internet delivery modalities, or developing educational programs to train primary care staff to deliver effective time-limited therapy.

Our results should be interpreted with several limitations in mind. First, the identification of individuals with depression was based on self-report. It is possible that some individuals with depression were not identified as having depression and that some individuals identified as having depression did not meet diagnostic criteria for depression. It is also possible that the self reporting of depression varies by rural-urban residence, which could bias our findings. It is worth noting that any rural-urban differences in the self reporting of depression are less likely to bias our analysis of adequate treatment because all individuals in this analytical sub-sample were judged by a clinician to have depression severe enough to warrant treatment. With respect to adequacy of treatment, another limitation is that the days of medication supplied were not known and the type of psychotherapy was not known. Moreover, because only treatments that were provided during the calendar year were included in the MEPS dataset, some individuals may have initiated a treatment regimen before the beginning of the calendar year and some may have continued treatment after the end of the calendar year. Consequently, similar to other studies [20-23] the rates of minimally adequate treatment should be considered to be overly conservative. However, because we were primarily interested in rural-urban differences in adequacy of treatment rather than the actual prevalence of adequate treatment, these limitations should not affect the findings as long as the measurement errors were distributed randomly among respondents.

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Table 1 – Rural Urban Continuum Code (RUCC) Definitions

Code	Definition
RUCC1	MSA >1 million
RUCC2	MSA of 250,000 - 1 million
RUCC3	MSA of < 250,000
RUCC4	Urban pop of >20,000, adjacent to MSA
RUCC5	Urban pop of >20,000, not adjacent to MSA
RUCC6	Urban pop of 2,500 - 19,999, adjacent to MSA
RUCC7	Urban pop of 2,500 - 19,999, not adjacent to MSA
RUCC8	< 2,500 urban pop, adjacent to MSA
RUCC9	< 2,500 urban pop, not adjacent to MSA

Table 2: Characteristics Of People With Self-Reported Depression

	N	%
Rurality		
RUCC1	4892	48.4
RUCC2	2114	20.9
RUCC3	1069	10.6
RUCC4	653	6.5
RUCC5	301	3.0
RUCC6	636	6.3
RUCC7	285	2.8
RUCC8	44	0.4
RUCC9	121	1.2
Age		
Under 18	799	7.8
18 to 34	2171	21.3
35 to 64	5752	56.4
65 and Over	1473	14.4
Sex		
Male	3153	30.6
Female	7166	69.4
Race/Ethnicity		
Caucasian	7320	70.9
African-American	868	8.4
Latino	1858	18.0
Other	273	2.6
Marital Status		
Married	4092	43.5
Widowed	857	9.1
Divorced/Separated	1776	18.9
Never Married	2686	28.5
College Education		
Yes	2339	22.7

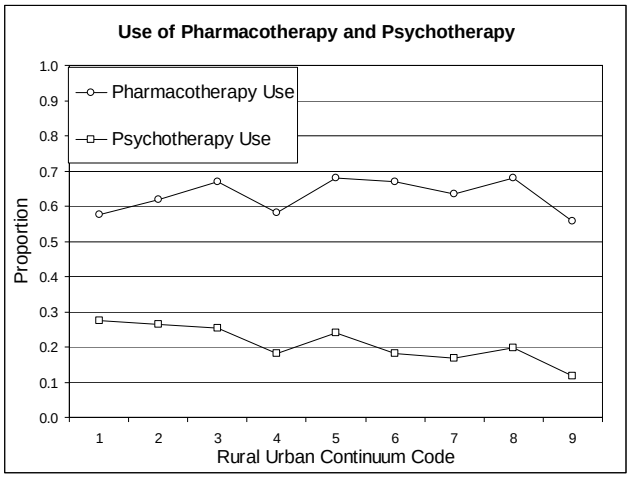
Data are from the 2000 to 2004 Medical Expenditure Panel Survey - Household Component.
FPL refers to the Federal Poverty Level.

Table 2: Characteristics Of People With Self-Reported Depression (Continued)

	N	%
Income Category		
Poor (<100% of FPL)	2325	22.5
Near Poor (100-124% of FPL)	679	6.6
Low Income (125-199% of FPL)	1677	16.2
Middle Income (200-399% of FPL)	2910	28.2
High Income (> 399% of FPL)	2728	26.4
Health Status		
Poor	1342	13.2
Fair	2134	21
Good	3071	30.2
Very Good	2425	23.8
Excellent	1203	11.8
Mental Health Status		
Poor	801	7.9
Fair	2228	21.9
Good	3535	34.7
Very Good	2205	21.7
Excellent	1407	13.8
Any ADL Limitation		
Yes	541	5.3
No	9644	94.7
Any IADL Limitation		
Yes	1058	10.4
No	9118	89.6
Insurance		
No insurance	1300	12.6
Private	6009	58.2
Medicaid	1696	16.4
Medicare	688	6.7
Both Medicaid and Medicare	626	6.1

Data are from the 2000 to 2004 Medical Expenditure Panel Survey – Household Component.
FPL refers to the Federal Poverty Level.

Figure 1. Relationship between Rurality and Proportion/Odds of Receiving Depression Treatment



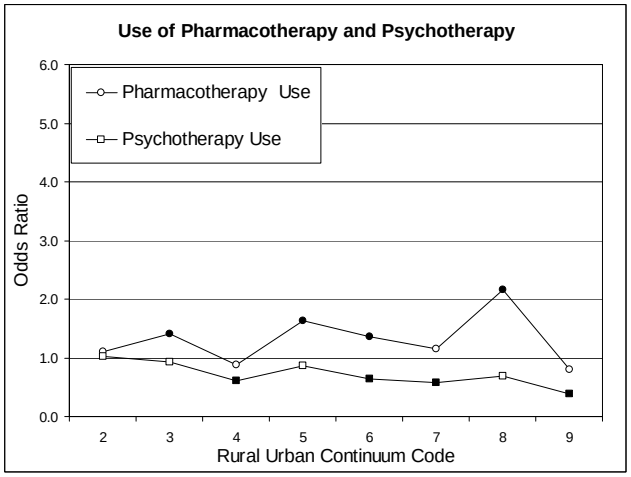


Figure 2. Relationship between Rurality and Proportion/Odds of Receiving Minimally Adequate Depression Treatment