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Race and Beliefs about Mental Health Treatment Among Anxious Primary Care Patients

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Abstract

Large racial disparities in the utilization of mental health care persist. Differences in treatment preferences could partially explain the differences in care between minority and non-minority populations. We compared beliefs about mental illness and treatment preferences among adult African Americans, Hispanics, Asian Americans, Native Americans, and whites, with diagnosed anxiety disorders. Measures of beliefs about mental illness and treatment were drawn from the National Comorbidity Survey Replication and from our previous work. There were no significant differences between African-Americans' and whites' beliefs. Hispanics' and Native Americans' beliefs were most distinctive, but the differences were small in magnitude. Across race/ethnicity, the associations between beliefs and service use were generally weak and statistically insignificant. Differences in illness beliefs and treatment preferences do not fully explain the large, persistent racial disparities in mental health care. Other crucial barriers to quality care exist in our health care system and our society as a whole.

Keywords

CALM study; race; beliefs; mental illness; help-seeking; primary care

INTRODUCTION

It is well known that some patterns of mental health service use vary by race (Alegria et al, 2002; Breslau et al, 2005; Wang et al, 2005; Williams et al, 2007) and that large racial disparities in utilization of mental health care have persisted over time (Kessler et al, 2005; McGuire et al, 2008; Wells et al, 2001). Based on the Institute of Medicine's (IOM's) definition in the *Unequal Treatment* report, a health care disparity is a difference in health care access and utilization not attributed to "allowable" differences in health care needs or preferences of the patient. According to this IOM definition, disparities are driven by "unallowable" differences such as inequalities in access to high quality providers, differences in insurance coverage, or even discrimination by health professionals in the routine clinical encounter (Institute of Medicine, 2002; McGuire et al, 2006). When using this IOM model, it is critical to first determine if significant "allowable" differences in beliefs about mental health care and treatment preferences exist across race. If significant "allowable" differences are found, they could partially explain the gap in care between minority and non-minority populations. If the differences in preferences are small in magnitude or statistically insignificant and if there is no statistical association between these preferences and actual service use across race/ethnicity, then it is imperative to seek out, understand, and eventually eliminate the "unallowable" provider- and system-level barriers to achieve more equitable care.

Many factors are involved in an individual's decision to seek help for mental health problems and a number of models have been proposed to conceptualize decision-making related to help-seeking (Ajzen, 1996; Andersen, 1995; Montano et al, 2002). Regardless of the specific model, beliefs about illness and treatment preferences are typically integral components in models of help-seeking. Help-seeking behaviors may be embedded in the individual's beliefs about the natural course of mental disorders and the effectiveness of available treatments. Such beliefs may, in turn, be influenced by shared views held by the cultural group(s) to which an individual belongs, including the individual's ethnic or racial group (Anglin et al, 2008; Givens et al, 2007; Shim et al, 2009; Wong, 2010). Research suggests that, compared to white patients, individuals from ethnic minority groups tend to view psychotropic medications as less acceptable or effective and are more likely to believe that medications are addictive (Cooper et al, 2003; Dwight-Johnson et al, 2000; Givens et al, 2007). Ethnic minority groups often prefer psychotherapy and believe that counseling is equally effective relative to medication (Cooper et al, 2003; Dwight-Johnson et al, 2000; Givens et al, 2007). Findings about help-seeking attitudes, perceived stigma, and social norms across ethnic groups, in contrast, have been inconsistent (Abe-Kim et al, 2007; Anglin et al, 2006; Cooper et al, 2003; Shim et al, 2009) in both community-based and clinical populations. We know little about the extent to which beliefs about the course of mental illness and the effectiveness of treatment are influenced by experience with treatment or how predictive they truly are of individual behavior (Aikens et al, 2005; Diala et al, 2000; Edlund et al, 2008; Edlund et al, 2002).

In this paper we compare mental health treatment beliefs and preferences of four racial groups (African Americans, Hispanics, Asian Americans, Native Americans) to those of whites, and then we investigate whether the beliefs and preferences are associated with service use (e.g., use of psychiatric medication, mental health counseling) across race/ethnicity. Participants were recruited from a diverse group of primary care clinics in the Coordinated Anxiety Learning and Management (CALM) study (Sullivan et al, 2007), the largest effectiveness trial conducted to date of primary care patients with anxiety disorders. Specifically, we describe beliefs about medication and psychotherapy, beliefs related to seeking help for mental health problems, and beliefs about the natural course of mental illness and perceptions of treatment effectiveness. Based on findings from previous research

(Abe-Kim et al, 2007; Cooper et al, 2003; Oetzel et al, 2007; Spencer et al, 2010), we hypothesized that minority participants would have more negative beliefs about psychotropic medication than whites but would have more positive beliefs about psychotherapy. We also expected minority participants would report more reluctance to seek mental health care relative to whites and their actual service use in the past six months would be associated with their beliefs about mental illness and treatment preferences. Research has examined varying views of mental health treatment among African-Americans, Hispanics, Asian-Americans, Native Americans, and whites (Abe-Kim et al, 2007; Cooper et al, 2003; Grandbois, 2005; Spencer et al, 2010), but none to our knowledge have included a large, diverse cohort of primary care of participants with anxiety disorders—a population that has not been studied sufficiently with respect to beliefs about mental illness and treatment preferences.

METHODS

CALM Participants

Between June 2006 and April 2008, 1004 adult (aged 18–75) primary care patients with panic disorder (PD), generalized anxiety disorder (GAD), social anxiety disorder (SAD), or post-traumatic stress disorder (PTSD) were enrolled in the CALM study (Sullivan et al, 2007). Co-occurring major depression was permitted. Exclusion criteria included not being able to speak Spanish or English, already undergoing cognitive behavioral therapy (CBT), or having unstable medical conditions, marked cognitive impairment, active suicidal intent or plan, psychosis, or bipolar I disorder. Alcohol and/or marijuana abuse (but not dependence) were permitted but other drug abuse was exclusionary. All participants gave informed, written consent to participate in this study, which was approved by each institution’s Institutional Review Board.

CALM Measures

We report baseline survey data collected prior to the participants’ beginning the intervention. Assessments included general demographics and employment status and income (see Table 1). Participants selected all that applied from a list of six racial or ethnic groups: (1) American Indian or Alaska Native, (2) Asian including East Indian, Native Hawaiian or other Pacific Islander, (3) Black or African American, (4) white/Caucasian not of Hispanic descent, (5) white/Caucasian of Hispanic descent, and (6) Other. We recognize that there is a clear distinction between race and ethnicity, with race being an externally imposed and socially constructed characterization by other often more powerful and resourced groups, and ethnicity relating to the group’s own cultural identity (Markus, 2008). For the purposes of this analysis, we are most interested in cultural identity but unfortunately lack detailed information on this from participants. For this reason we are using self-designated race as a proxy for ethnicity and use the terms interchangeably in this paper.

Participants reported past six-month mental health service use, including use of psychiatric medication, mental health counseling, and alternative treatment use. Clinical measures included brief measures of the four anxiety disorders (PDSS-SR, GADS-modified, Social Phobia Inventory, and PLC) (Connor et al, 2000; Houck et al, 2002; Shear et al, 2006), the PHQ-8 and PHQ-9 for depression (Kroenke et al, 2001), and a chronic medical condition checklist (Sherbourne et al, 1991). Functional status was assessed with the SF-12v2 (Ware et al, 2002), the Sheehan disability scale (Sheehan et al, 1996), and self-report of restricted activity days (NCS-R, 2010).

Participants indicated their level of agreement or disagreement with statements regarding medication and psychotherapy: “Medications are important in the treatment of anxiety”;

“Medication for anxiety does not help a person cope better”; “Therapy can help an individual learn new ways of coping with problems”; and “Therapy patients are wasting money” (Bystritsky et al, 2005). Five additional questions regarding comfort with, and beliefs about, mental health treatment were drawn from the National Comorbidity Survey Replication (NCS-R, 2010), a two-part, nationally-representative household survey of approximately 10,000 adults aged 18 or older fielded between 2001 and 2003 (see Table 2).

Analyses

All analyses were cross-sectional. Six participants who identified their ethnicity only as “other” were excluded, leaving 998 (99.4% of the total sample). Of the remaining 998 participants, 865 (87%) selected only one ethnic group. For the 133 (13%) participants who selected more than one ethnic group, the vast majority selected white and one other racial/ethnic group. Because there is no standardized or recommended method of handling these respondents, we chose to use a hierarchical algorithm to place individuals into a single racial group, with Hispanic, African American, and Native American taking priority based on the overarching racial/ethnic distribution of this CALM sample, followed by Asian American/Pacific Islander and white.

Chi square and t-tests were used to assess overall differences across ethnic groups in terms of baseline characteristics (e.g., demographics, illness severity, service use in the past six months). For the nine questions related to beliefs and preferences, each ethnicity is compared to whites and p-values have been adjusted for multiple comparisons using the Hochberg method (Hochberg, 1988). Whereas, beliefs and attitudes have the potential to be altered by experience or through educational interventions, some less mutable factors (such as demographics and illness severity) are also associated with beliefs. Therefore, we also adjusted for these factors using linear multivariate regression models in which we controlled for age, gender, education, income, and baseline physical and mental health composite scores. To measure the association between beliefs and past six month service use, we created two logistic regression models—one with “use of psychiatric medication” as the outcome variable and the other with “mental health counseling” as the outcome variable. The interaction terms between race/ethnicity and beliefs were evaluated. If these interactions were found to be significant, they were included in the final logistic regression models. We controlled for demographic, socioeconomic, and illness severity variables in these two logistic regression models.

RESULTS

Demographics, illness severity, and service use

Of the 998 CALM participants, 607 (61%) were white, 196 (20%) were Hispanic, 116 (12%) were African American, 45 (4%) were Asian American, and 34 (3%) were Native American. The mean age of the sample was 43.5 years (SD of 13.4 and range of 18 to 75 years). Participants were predominantly female (71%), more than a third (36%) were college graduates, more than half were married (54%), and more than two thirds (70%) were working for pay. There was considerable demographic variation across ethnic groups (Table 1). Native Americans tended to be older while Hispanics and Asian/Pacific Islanders were younger. Only about 10% of the African American participants were male and divorce was more common among African Americans. Asian/Pacific Islanders had the highest level of education with more than half (56%) reporting a college degree, were more likely to be working for pay, and reported the highest income. The large majority of whites, African-Americans, and all Native Americans were born in the US while only about 60% of Hispanics and less than half (47%) of Asian/Pacific Islanders were born in the US. As shown in Table 1, there were significant racial differences in some, but not all, measures of

functioning. African Americans were more likely to have three or more anxiety disorders and to report depression co-morbidity. African Americans and Native Americans reported the poorest physical health.

About 70% of both whites and Native Americans reporting taking psychiatric medications in the past six months; about half (51 – 55%) of African Americans and Hispanics had taken medications; while only about 42% of Asian Americans had taken medications. As a whole, 45% of participants had seen a therapist or counselor in the past six months and there were no significant differences across groups. There were no significant differences across groups in satisfaction with treatment. About 1 in 5 participants had used alternative treatments in the past 6 months, with Hispanics the most likely and African Americans the least likely to have used alternative medicines.

Table 2 shows comparisons between each of the four ethnic minority groups and whites, including both adjusted and unadjusted scores. There were no significant differences between whites and African Americans on any of these nine belief items. Compared to whites, in adjusted analyses Hispanics were less likely to believe that medications for anxiety were helpful (3.29 compared to 3.58; $p = 0.005$) and more likely to believe that patients were wasting money on therapy (4.03 compared to 4.20; $p = 0.03$). At the same time Hispanics believed that a greater percent of persons would be helped by a mental health professional than did whites (about 67% compared to 61%; $p = 0.006$). Native Americans held more negative views about the effectiveness of psychotherapy compared to whites. Native Americans were less likely to believe that therapy improved coping (3.82 compared to 4.37; $p < 0.001$) and more likely to believe that therapy was a waste of money (3.82 compared to 4.20; $p = 0.04$). They were far more likely to think that a greater percent of persons with mental health problems would get better without professional help (about 33% compared to 22%; $p = 0.002$). Asian and Pacific Islanders differed from whites on only one of the nine items. They were more likely to believe that therapy patients were wasting money (3.87 compared to 4.20; $p = 0.032$). Regarding the three stigma-related NCS-R items (would go for help, comfort talking with a professional, and embarrassed if others knew), there were no significant differences between whites and any of the four groups.

Table 3 displays the adjusted associations (odds ratios) between beliefs and past six month psychiatric medication use and mental health counseling. After controlling for demographic, socioeconomic, and illness severity variables, there were surprisingly few statistically significant associations between our 9 belief variables and the two service use outcome variables. Even more relevant to the topic of this paper, there were no significant race-belief interaction terms in the model addressing past six month use of mental health counseling. In the model with the psychiatric medication management outcome, the only significant race-belief interaction terms were related to the belief variable about medications being an important part of the treatment of anxiety (OR of 2.48 for whites and OR of 1.99 for Asian/Pacific Islanders). Table 3 also shows the odds ratios of the racial/ethnic groups using psychiatric medication management vs. whites across the 5 separate answers to this belief variable (Strongly disagree to Strongly Agree). Interestingly, the African American and Hispanic participants who strongly agreed that medications are an important part of treating anxiety were much less likely than whites with the same belief to actually use psychiatric medication in the past six months (OR of 0.15 for African Americans and OR of 0.24 for Hispanics). A similar finding was noted among Asian/Pacific Islanders vs. whites who agreed, as opposed to strongly agreed, with this same belief variable (OR of 0.40).

DISCUSSION

We found far less variation by race in mental illness beliefs and treatment preferences than expected. There were no significant differences in any of the measures between African-Americans and whites, either before or after controlling for demographic, socioeconomic, and health status covariates. Asians' beliefs also did not differ significantly from whites' on most measures. This finding is especially interesting considering that Asians were the group most likely to have been born outside the US; therefore, they may have been the least acculturated group. Perhaps most importantly, we found very few statistically significant associations between beliefs and past six month medication and counseling use across all races/ethnicities. The few significant race-belief interaction terms led to interesting and contradictory findings of low medication use among people of color (African American, Hispanic, and Asian participants vs. white participants) who reported positive beliefs about medications in the treatment of anxiety—a clue that suggests there are other systematic or cultural barriers at play among minority groups when seeking and accessing mental health care.

Compared to whites, Hispanics' views of both medication and therapy were less positive, yet Hispanics were the most positive about the chances of being helped by a mental health professional. Hispanics who strongly disagreed with the statement, "Medications are an important part of the treatment of anxiety" were much more likely than whites with the same response to have used psychotropic medications (OR 3.35; $p < 0.05$). These seemingly conflicting responses and reported actions may reflect poor communication between provider and patient about desire for medications, or perhaps they represent a simultaneous cultural respect for authority, or for "professionals," and a cultural discomfort with available biomedical and psychotherapeutic treatments. Previous research has indicated that Hispanics may prefer to manage mental health problems at home with family assistance rather than seeking formal mental health care (Snowden, 2007), but concurrently, a large national survey with a population-based sample demonstrated that cultural factors among Hispanics only played a significant role in service use when the respondents did not meet criteria for a psychiatric disorder (Alegria et al, 2007). It is important to note that all participants in this CALM study had a diagnosed mental health condition; therefore, we would expect smaller effects of cultural influences on mental health service use among this particular sample.

Native Americans were generally positively disposed toward medication as a treatment modality but were, by far, the least convinced of the benefits of psychotherapy. At the same time they tended to believe in a less severe natural course of mental illness -- that is, they believed that about one in three persons with mental illness would recover without treatment. In the US, Native Americans' views of mental health treatment are complicated by centuries of political and cultural imperialism (Gone, 2007; Grandbois, 2005). Further, many Native cultures hold a collectivist worldview that emphasizes mind-body holism and harmony, making little distinction between mental and physical health (Hill, 2006). Native Americans may use biomedical treatments to address acute symptoms but may be more likely to turn to traditional health practices rather than psychotherapy to address the causes of these symptoms (Grandbois, 2005).

Limitations

Because the CALM study population was drawn from treatment settings where the majority was receiving some type of mental health treatment, participants' prior experience of mental health treatment likely impacted to some extent their beliefs about treatment. Perhaps even more importantly, they represent only that sector of each racial group that seeks and obtains primary medical care, and so cannot be considered representative of the broad spectrum of individuals from each racial group, some of whom do not seek or are unable to obtain any

medical care. While acknowledging these limitations with generalizability, the treatment sample could also be considered a study strength; this study provides important initial data on how previous and current treatment experiences are related to beliefs and preferences regarding treatment. As lack of experience with mental health treatment becomes less common over time, these results provide insight into the beliefs and preferences of the treatment-seeking population. Also, it is important to note that the primary care setting is critical when examining racial/ethnic disparities since minority patients are more likely to seek their mental health care in primary care than in specialty mental health care clinics (Alegria et al, 2002). The homogeneity of the participants in CALM might account to some degree for our detection of few differences across racial groups, but it is crucial to recognize that similar results have been found in large community-based, epidemiologic studies, such as the NCS-R, where African Americans and Latinos were found to have similar and sometimes even more positive beliefs toward mental health treatment than whites (Shim et al, 2009). Our findings regarding race, beliefs, and service use should be interpreted with caution, especially our findings for Native Americans (n = 34) and Asian Americans (n = 45), groups with very small sample sizes. Results related to the Asian and Pacific Islander group are of particular concern since this group was likely comprised of many different ethnic sub-groups (e.g., Japanese American, Chinese American, Pacific Islander) with distinctive cultures, making it difficult to interpret findings in an meaningful way (Phinney, 1996; Zane and Sasao, 1992). Regarding Native Americans, many have argued persuasively for inclusion of data about Native Americans and mental health in published reports -- even when the sample size is small -- because of the dearth of information on this population (Burhansstipanov et al, 2000), and we present this data in that spirit. Another caution is that underlying our comparison of beliefs across racial groups was the assumption that beliefs about mental illness and treatment might be a function of culture. While this is a common approach in the literature, our measures of culture (categorical self-designation of race) are rudimentary at best, especially among the Asian American and Hispanic groups that are particularly diverse. About 13% of participants claimed more than one racial group, yet we placed each subject in a single racial category, an approach that does not fully reflect the actual racial diversity. Also, we have no way of knowing the extent to which persons in each of the racial groups actually identify with a given culture. Ideally, the CALM dataset would have included more nuanced measures of generation, social class, and acculturation in the U.S. In some groups, especially the Asian Americans and Native Americans, a high percentage reported being bi-racial (48% of Asians and 82% of Native Americans) and by far the second racial group most commonly reported was white. Consequently, we were surprised to find any significant differences between Native Americans and whites. Despite having large numbers of biracial members, the Native American group is clearly different from whites in some key ways. While we suspect these differences reflect underlying cultural beliefs, we cannot be certain that these differences are not attributable to other, unmeasured factors. However, the fact that we found significant differences even with small sample sizes suggests that we may have underestimated the magnitude of these differences whatever their exact etiology.

A strength of this study is that it included a large, diverse cohort of primary care of participants with anxiety disorders—a population that has not been studied sufficiently with respect to attitudes about mental illness and treatment. Also, the 17 participating clinics from 4 separate geographic areas varied considerably and included large-scale HMOs, free-standing private clinics in the community, some of which were associated with hospital chains, federally funded community-based clinics, and clinics located in university settings. Although this geographic dispersion and clinic diversity might increase the finding's generalizability relative to some other studies, we are still uncertain as to how generalizable our findings are. As a whole our study population was relatively wealthy and insured and, therefore, may represent a more well-to-do segment of each of the five ethnic groups.

CONCLUSIONS

We found virtually no differences in beliefs about mental illness and health care between African Americans and whites and very few differences between Asian-Americans and whites. The differences between whites and Native Americans and between whites and Hispanics were more distinctive, but they remained small in magnitude and appeared congruent with what we know about cultural beliefs of these groups. Also, beliefs and treatment preferences among racial/ethnic minorities were not strongly associated with their past six month service use. Even among racial/ethnic minorities who had strongly positive beliefs about the medication management of anxiety, participants still were much less likely to have accessed treatment in the past 6 months. Similar to recent findings from large community-based samples (Shim et al, 2009), our results in this primary care treatment sample demonstrate few differences in beliefs about mental illness and in preferences for treatment across race/ethnicity. While further investigation is warranted, it is imperative to recognize that differences in illness beliefs and preferences for treatment do not fully explain the large, persistent disparities in mental health care across race/ethnicity. Rather, other crucial barriers to quality care exist in our health care system and in our society as a whole. Researchers should continue the search for these malleable barriers and aim to create interventions to overcome these barriers, so that equity in mental health treatment can be achieved across all racial groups.

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Table 1
Baseline sociodemographic characteristics, illness severity/functioning, and past 6 month treatment history

	Total n=998	White n=607 (61%)	African American n=116 (12%)	Hispanic n=196 (20%)	Native American/ Alaska Native n=34 (3%)	Asian/Pacific Islander n=45 (4%)	P Value
Demographics							
Age							
18–35	32	29	22	42	27	42	.001
36–50	37	36	47	32	32	47	.048
51+	32	35	30	26	41	11	.006
Gender							
Male	29	35	10	20	26	36	<.001
Education							
Less than high school	6	5	5	11	15	2	<.001
High school graduate	17	15	15	24	21	11	.021
Some college	42	42	49	42	38	31	.306
College graduate	36	41	31	22	27	56	<.001
Marital status							
Single/widowed	28	29	31	24	35	20	.289
Married/co-habiting	54	53	39	63	44	64	<.001
Separated/Divorced	18	18	30	14	21	16	.009
Currently Working for pay	71	70	70	75	53	80	.078
Income (multiples of the Federal Poverty Level)	5	5.1	3.2	3.3	2.7	5.5	.006
Born in United States	85	93	97	58	100	47	<.0001
Illness severity/functioning							
# of anxiety disorders							
One	42	46	28	40	38	36	<.001
Two	39	38	42	38	35	40	.927
Three or four	20	16	30	22	27	24	.005
Comorbid Depression	65	61	78	68	62	64	.014
SF-12 Scores*							

	Total n=998	White n=607 (61%)	African American n=116 (12%)	Hispanic n=196 (20%)	Native American/ Alaska Native n=34 (3%)	Asian/Pacific Islander n=45 (4%)	P Value
	%	%	%	%	%	%	
Mental health score	31.8	32.3	29.5	32.1	30.1	30.8	.054
Physical health score	49.1	50.0	45.9	49.4	45.3	52.2	<.001
# of disability days in the past 30 days (mean)	1.5	1.3	1.9	1.5	2.4	1.1	.520
Sheehan disability score [†]	17.0	16.7	18.5	16.9	18.0	16.6	.134
# medical conditions (mean)	2.3	2.3	2.9	1.9	3.5	1.3	<.001
Treatment history past 6 mos							
Ever used psychiatric medication	63	70	51	55	71	42	<.000
Ever had counseling	45	45	37	50	47	47	.292
Ever used alternative medications for mental health problems	21	20	18	24	21	22	.798
Satisfaction with mental health care (mean) [‡]	3.2	3.2	3.4	3.4	3.3	3.2	.157

* Higher numbers indicate better health. General population mean=50

[†] Higher numbers indicate greater disability. Primary care population mean=5-6.

[‡] On a scale of 1-5 where 1=very dissatisfied and 5=very satisfied

Table 2

CALM participants' beliefs compared across racial/ethnic groups

Belief		White		African American		Hispanic		Native American		Asian & Pacific Islander	
		Mean	pval	Mean	pval	Mean	pval	Mean	pval	Mean	pval
<i>Medications are an important part of the treatment of anxiety</i> (1 = strongly disagree, 5 = strongly agree)	Un-adjusted	3.73 (3.65 to 3.81)	0.432	3.65 (3.46 to 3.83)	0.432	3.59 (3.46 to 3.73)	0.217	4.03 (3.70 to 4.36)	0.217	3.40 (3.11 to 3.69)	0.141
	Adjusted	3.71 (3.63 to 3.79)	0.463	3.64 (3.46 to 3.83)	0.463	3.65 (3.50 to 3.79)	0.463	4.03 (3.70 to 4.36)	0.232	3.44 (3.14 to 3.73)	0.232
<i>Medication for anxiety helps a person cope better</i> (1 = strongly disagree, 5 = strongly agree)	Un-adjusted	3.60 (3.51 to 3.68)	0.415	3.46 (3.27 to 3.65)	0.415	3.25 (3.09 to 3.40)	<001	3.44 (3.08 to 3.80)	0.415	3.27 (2.96 to 3.59)	0.162
	Adjusted	3.58 (3.50 to 3.67)	0.249	3.43 (3.23 to 3.63)	0.249	3.29 (3.13 to 3.44)	0.006	3.48 (3.12 to 3.85)	0.563	3.23 (2.91 to 3.55)	0.084
<i>Therapy can help an individual learn new ways of coping with problems</i> (1 = strongly disagree, 5 = strongly agree)	Un-adjusted	4.37 (4.31 to 4.43)	0.163	4.23 (4.10 to 4.36)	0.163	4.33 (4.23 to 4.43)	0.751	3.79 (3.55 to 4.04)	<.001	4.33 (4.13 to 4.54)	0.751
	Adjusted	4.37 (4.31 to 4.43)	0.188	4.23 (4.09 to 4.36)	0.188	4.33 (4.23 to 4.44)	0.689	3.82 (3.58 to 4.07)	<.001	4.32 (4.12 to 4.53)	0.689
<i>Therapy patients are not wasting money</i> (1 = strongly disagree, 5 = strongly agree)	Un-adjusted	4.21 (4.14 to 4.27)	0.361	4.13 (3.99 to 4.28)	0.361	4.02 (3.90 to 4.13)	0.022	3.82 (3.55 to 4.10)	0.022	3.89 (3.65 to 4.13)	0.024
	Adjusted	4.20 (4.13 to 4.27)	0.341	4.13 (3.98 to 4.28)	0.341	4.03 (3.91 to 4.15)	0.039	3.87 (3.60 to 4.14)	0.039	3.87 (3.63 to 4.11)	0.032
<i>If you had a serious emotional problem, would you go for professional help?</i> (1 = definitely go, 4 = definitely not go)	Un-adjusted	1.62 (1.57 to 1.67)	0.522	1.57 (1.46 to 1.69)	0.522	1.52 (1.43 to 1.61)	0.198	1.82 (1.61 to 2.04)	0.198	1.73 (1.55-1.92)	0.454
	Adjusted	1.62 (1.57 to 1.67)	0.756	1.59 (1.47 to 1.71)	0.756	1.51 (1.42 to 1.60)	0.144	1.83 (1.61 to 2.04)	0.183	1.72 (1.54 to 1.91)	0.567
<i>Comfort talking about personal problems with a professional?</i> (High score = not at all)	Un-adjusted	1.64 (1.59 to 1.70)	0.523	1.70 (1.57 to 1.83)	0.523	1.57 (1.48 to 1.67)	0.523	1.94 (1.71 to 2.18)	0.063	1.71 (1.51 to 1.91)	0.523
	Adjusted	1.66 (1.60 to 1.71)	0.829	1.67 (1.54 to 1.80)	0.829	1.53 (1.43 to 1.63)	0.085	1.92 (1.69 to 2.16)	0.085	1.67 (1.47 to 1.87)	0.829
<i>Embarrassed if others knew you had emotional problems?</i> (High score = not at all)	Un-adjusted	2.89 (2.81 to 2.97)	0.936	2.86 (2.67 to 3.05)	0.936	2.90 (2.76 to 3.04)	0.936	2.76 (2.42 to 3.11)	0.936	2.53 (2.24 to 2.83)	0.086
	Adjusted	2.89 (2.81 to 2.97)	0.779	2.83 (2.64 to 3.03)	0.779	2.91 (2.77 to 3.06)	0.779	2.75 (2.41 to 3.10)	0.779	2.58 (2.28 to 2.87)	0.192
<i>Of the people who see a professional for serious emotional problems, what % do you think are helped?</i>	Un-adjusted	61.22 (59.60 to 62.85)	0.327	57.92 (54.21 to 61.63)	0.327	66.89 (64.00 to 69.78)	0.003	60.17 (53.16 to 67.18)	0.773	57.13 (51.12 to 63.13)	0.391

Belief	White		African American		Hispanic		Native American		Asian & Pacific Islander	
	Mean	pval	Mean	pval	Mean	pval	Mean	pval	Mean	pval
Adjusted	61.24 (59.60 to 62.88)	0.136	57.13 (53.33 to 60.92)	0.136	66.86 (63.87 to 69.85)	0.006	61.13 (54.08 to 68.17)	0.990	56.81 (50.75 to 62.87)	0.331
<i>Of those who do not get professional help,</i>										
<i>what % do you think get better, even</i>										
<i>without it?</i>										
Un-adjusted	22.05(20.65 to 23.46)	0.348	19.62 (16.40 to 22.85)	0.348	22.01 (19.53 to 24.49)	0.977	31.41 (25.49 to 37.32)	0.010	27.38 (22.23 to 32.53)	0.151
Adjusted	21.91(20.50 to 23.33)	0.656	20.57 (17.27 to 23.87)	0.656	22.59 (20.02 to 25.15)	0.656	32.69 (26.73 to 38.64)	0.002	27.23 (22.04 to 32.42)	0.179

Table 3

Logistic regressions for associations among past six month service use, race and beliefs, adjusting related variables

Variable	Used psychiatric medication	Had mental health counseling
Beliefs Variables		
<i>Medications are an important part of the treatment of anxiety</i> (1 = strongly disagree, 5 = strongly agree)		0.952 (0.82, 1.10)
(demonstrated significant interaction with race)		
African American vs. white		0.660 (0.41, 1.06)
strongly disagree	1.156 (0.31, 4.33)	
disagree	0.689 (0.28, 1.71)	
neutral	0.411* (0.23, 0.73)	
agree	0.245* (0.14, 0.42)	
strongly agree	0.146* (0.06, 0.33)	
Hispanic vs. white		1.562* (1.04, 2.35)
strongly disagree	3.352* (1.13, 9.94)	
disagree	1.736 (0.83, 3.64)	
neutral	0.899 (0.56, 1.45)	
agree	0.465* (0.29, 0.75)	
strongly agree	0.241* (0.12, 0.50)	
Native American/Alaska Native vs. white		1.230 (0.55, 2.77)
strongly disagree	0.669 (0.03, 15.79)	
disagree	0.611 (0.07, 5.39)	
neutral	0.558 (0.15, 2.05)	
agree	0.510 (0.20, 1.29)	
strongly agree	0.466 (0.10, 2.08)	
Asian/Pacific Islander vs. white		1.270 (0.63, 2.56)
strongly disagree	0.778 (0.10, 6.28)	
disagree	0.625 (0.15, 2.58)	
neutral	0.501 (0.21, 1.21)	
agree	0.403* (0.18, 0.91)	
strongly agree	0.323 (0.09, 1.17)	
<i>Medication for anxiety helps a person cope better</i> (1 = strongly disagree, 5 = strongly agree)	1.058 (0.91, 1.24)	0.998 (0.87, 1.14)
<i>Therapy can help an individual learn new ways of coping with problems</i> (1 = strongly disagree, 5 = strongly agree)	0.789 (0.62, 1.00)	1.138 (0.92, 1.41)
<i>Therapy patients are not wasting money</i> (1 = strongly disagree, 5 = strongly agree)	1.100 (0.89, 1.36)	1.092 (0.90, 1.32)
<i>If you had a serious emotional problem, would you go for professional help?</i> (1 = definitely not go, 4 = definitely go)	1.169 (0.90, 1.53)	1.572* (1.23, 2.01)
<i>Comfortable talking about personal problems with a professional?</i> (High score = very)	1.050 (0.82, 1.34)	0.964 (0.78, 1.20)

Variable	Used psychiatric medication	Had mental health counseling
<i>Embarrassed if others knew you had emotional problems?</i> (High score = not at all)	1.032 (0.88, 1.21)	0.890 (0.77, 1.03)
<i>Of the people who see a professional for serious emotional problems, what % do you think are helped?</i>	0.996 (0.99, 1.00)	0.997 (0.99, 1.00)
<i>Of those who do not get professional help, what % do you think get better, even without it?</i>	0.997 (0.99, 1.01)	1.001 (0.99, 1.01)
Demographics and Health Status Variables		
Age	1.012 [*] (1.00, 1.03)	1.001 (0.99, 1.01)
Gender (Male)	1.103 (0.77, 1.58)	0.883 (0.64, 1.21)
Education		
Less than high school vs. College graduate	0.676 (0.32, 1.44)	0.524 (0.25, 1.08)
High school graduate vs. College graduate	0.932 (0.58, 1.49)	0.951 (0.62, 1.45)
Some college vs. College graduate	1.145 (0.79, 1.66)	1.035 (0.75, 1.44)
Marital status		
Single/widowed vs. Separated/Divorced	1.175 (0.71, 1.95)	0.892 (0.58, 1.38)
Married/co-habiting vs. Separated/Divorced	0.910 (0.59, 1.41)	0.762 (0.52, 1.12)
Currently Working for pay	0.832 (0.57, 1.22)	1.050 (0.75, 1.47)
Income (multiples of the Federal Poverty Level)	1.002 (0.98, 1.02)	1.008 (0.99, 1.03)
Born in United States	0.971 (0.60, 1.57)	1.522 (0.98, 2.37)
Illness severity/functioning		
# of anxiety disorders	1.005 (0.82, 1.23)	0.966 (0.81, 1.16)
Comorbid Depression	0.916 (0.62, 1.34)	0.885 (0.62, 1.26)
SF-12 Scores [†]		
Mental health score	0.982 (0.96, 1.00)	0.997 (0.98, 1.01)
Physical health score	0.962 [*] (0.94, 0.99)	0.980 (0.96, 1.00)
Sheehan disability score [‡]	1.000 (0.97, 1.03)	1.032 [*] (1.00, 1.06)
# of medical conditions	1.105 [*] (1.00, 1.22)	0.961 (0.88, 1.05)

* p<.05

[†]Higher numbers indicate better health. General population mean=50

[‡]Higher numbers indicate greater disability. Primary care population mean=5–6