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Geographic and Racial-Ethnic Differences in Satisfaction With and Perceived Benefits of Mental Health Services

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Abstract

Objective—This study examined whether racial-ethnic differences in satisfaction with and perceived benefits from mental health services vary by geographic region among U.S. adults.

Methods—Drawn from the Collaborative Psychiatric Epidemiology Surveys (CPES), selected samples consisted of 2,160 adults age 18 and older from diverse racial-ethnic groups (Asian, black, Hispanic/Latino, and white) who had used mental health services in the past 12 months. Generalized linear model analysis was conducted for the United States as a whole and separately by geographic region (Northeast, South, Midwest, and West) after adjustment for covariates.

Results—In the national sample, no significant main effects of race-ethnicity and geographic region were found in either satisfaction with or perceived benefits from mental health services. In the stratified analyses for geographic regions, however, significant racial-ethnic differences were observed in the West; blacks in the West were significantly more likely to report higher satisfaction and perceived benefits, whereas Hispanics/Latinos in the West were significantly less likely to do so.

Disclosures

The authors report no competing interests.

Conclusions—The findings suggest that there are regional variations of racial-ethnic differences in satisfaction with and perceived benefits from mental health services among U.S. adults and that addressing needs of Hispanics/Latinos in the West may help reduce racial-ethnic disparities in mental health care. Clinical and policy implications are discussed.

Reducing or eliminating racial-ethnic disparities in mental health care is a national priority. Disparities in mental health care between racial-ethnic minority and non-minority groups in the United States have been well documented. Previous research consistently suggests that people in racial-ethnic minority groups tend to underutilize mental health services compared with non-Hispanic whites (1–7). However, racial-ethnic differences in regard to mental health problems do not always indicate greater need for such services among racial-ethnic minority groups (8–13).

Racial-ethnic disparities in experiences with mental health care also have been reported (14–17). This focus on experiences with mental health care among diverse groups is an important area, because different experiences with mental health care by race-ethnicity are closely linked to differences in the overall quality of mental health care. In a study of mental health service users in England, Asians were more likely than whites to report negative experiences with mental health services they received (17). Another study found greater satisfaction with specialty mental health services among Caribbean blacks in the United States compared with African Americans (15).

One of the important and yet understudied components that may contribute to disparities in mental health care is geography. According to Andersen's (18,19) behavioral model of health service utilization, which is the conceptual framework of this study, individuals' health care access is influenced not only by person-level factors (predisposing, enabling, and health need factors), but also by community-level factors, including geographic location and geographic characteristics. Research suggests the important role of geography in mental health care (20–22), as well as in mental health service use (7,23–25). In a study of adults in 13 states, Ayers and colleagues (25) identified geographic variations in need for mental health services, mental health service use, unmet need for mental health services, overuse of mental health services, and intensity of mental health services. The authors emphasized geographic influences on mental health care, concluding that despite the importance of individual-level characteristics, geographic-level characteristics, such as state population characteristics and state mental health laws, function as strong predictors of variation in mental health service use (25). A recent study of older adults in the United States found that black-white disparities in mental health service use existed in the South, whereas no racial disparities were observed in other regions (7). This suggests that improving access to mental health care in certain geographic regions (the South in this study) may be crucial to reduce racial disparities at the national level.

Despite the reported importance of geography in mental health care disparities, very little is known about whether experiences with mental health services vary by geographic area. To our knowledge, there is no published research on geographic variation of racial-ethnic differences in subjective experiences of mental health care received. In order to fill gaps in the literature on this topic, this study aimed to examine whether racial-ethnic differences in

satisfaction with and perceived benefits from mental health services vary by geographic region among U.S. adults who have utilized mental health services. Because of the lack of previous research on this topic in this country and the exploratory nature of these analyses, specific hypotheses were not made regarding how geographic regions might differ in terms of racial-ethnic differences.

Methods

Sample

The sample was drawn from the Collaborative Psychiatric Epidemiology Surveys (CPES), a combined data set of three nationally representative surveys conducted between 2001 and 2003: the National Comorbidity Survey–Replication (NCS-R), the National Survey of American Life (NSAL), and the National Latino and Asian American Study (NLAAS). The CPES was specifically designed to examine the prevalence, correlates, and risk factors associated with mental disorders and mental health service utilization in the United States, with a special emphasis on racial-ethnic minority populations. It has been well documented that researchers can use the CPES data as a single, nationally representative study to provide the first national data with sufficient power to explore cultural influences (26). Using a multistage probability sampling procedure to randomly select participants from 252 geographic areas (U.S. Metropolitan Statistical Areas, single counties, or groups of counties), the CPES collected responses from 20,013 adults age 18 or older; there was no possibility of double recruitment. The weighted response rates were 70.9% for the NCS-R, 72.3% for the overall NSAL, 75.5% for the NLAAS of the Latino population, and 65.6% for the NLAAS of the Asian population. More detailed information about sample designs and sampling methods is given elsewhere (26).

In order to focus on experiences with mental health services received in this study, we selected people who had used mental health services in the past 12 months (N=2,160). Four racial-ethnic groups were included in our analyses: Asians (N=144, 6.7%), blacks (N=528, 24.4%), Hispanics/Latinos (N=412, 19.1%), and whites (N=1,076, 49.8%). A screening measure of mental health service use is described in the next section. The institutional policies in place did not require this project to go through institutional review board review because the CPES is publicly available.

Measures

Screening measure: mental health service use—Respondents were asked whether they had ever gone to see any professionals for “problems with emotions, nerves, mental health, or use of alcohol or drugs.” A list of professionals typically seen for such problems included those in the specialty mental health sector (psychiatrist, psychologist, counselor, social worker, any other mental health professional, or mental health hotline), general medical sector (general practitioner or family doctor, any other medical doctor, nurse, occupational therapist, or other health professional), and any other service sector (religious or spiritual advisor or any other healer, such as an herbalist, chiropractor, or spiritualist). Our sample included respondents who had received services within the past 12 months from any of the professionals listed.

Outcome variables: satisfaction with and perceived benefits from mental health services—Respondents who indicated that they had seen any of the listed professionals within the past 12 months were subsequently asked to indicate both level of satisfaction with the services received (“satisfaction with mental health services” in this study) and the extent to which the respondent felt that the professional had helped him or her (“perceived benefits from mental health services” in this study). If respondents had seen more than one type of professional, their satisfaction with and perceived benefits were assessed individually for each type of professional and scores were combined. Satisfaction with mental health services was rated on a 5-point Likert scale ranging from 1, very dissatisfied, to 5, very satisfied. Amount of perceived benefit from the professional’s services was rated on a 4-point scale (1, not at all; 2, a little; 3, some; and 4, a lot).

Geographic region—The CPES collects data on geographic region where respondents reside as defined by the U.S. Census Bureau. Four U.S. census regions (Northeast, Midwest, South, or West) were included in data analyses.

Covariates—The following background characteristics were adjusted in analyses for potential differences: age (<40, 40–59, or 60), sex (male or female), marital status (married or cohabiting, divorced or widowed, or never married), educational attainment (0–11 years, 12 years, 13–15 years, or 16 years), household income (<\$20,000, \$20,000–\$34,999, \$35,000–\$74,999, or \$75,000), the diagnosis of any *DSM-IV* psychiatric disorder in the past year (assessed with the World Health Organization Composite International Diagnostic Interview), and type of services (specialty mental health sector, general medical sector, and other service sector).

Analyses

Our main analysis focused on the extent to which racial-ethnic disparities were estimated to exist in the levels of satisfaction with and perceived benefits from mental health services when variation in the geographic context was taken into account. Percentages or means and standard deviations were used to present descriptive sample characteristics. Generalized linear model (GLM) analyses were conducted in two steps. First, we examined the main effects of race-ethnicity and U.S. census region, as well as the interaction effect between the two on satisfaction and perceived benefits. In order to more specifically investigate geographic locales, the second set of models retained race-ethnicity as the independent variable of interest and all covariates, but census region was controlled by analyzing the Northeast, South, Midwest, and West independently. Post hoc assessments for the GLM models relied on Bonferroni correction where confidence limits were restricted. Data were weighted in analyses in order to adjust variance for the design effects associated with sample clustering. All analyses were performed in SAS version 9.3.

Results

Sample

Table 1 shows descriptive characteristics for the entire sample and by separate U.S. census region. Our study sample represented the four major census regions (Northeast, South, Midwest, and West), with the South having the largest number of study participants.

GLM analyses

Satisfaction with mental health services—Table 2 shows findings from GLM analyses for satisfaction with mental health services. As shown for the United States as a whole, there were no statistically significant differences for region or race-ethnicity. However, differences were observed for age, education, income, indication of any *DSM-IV* psychiatric disorder, and sectors where mental health services were sought (specialty mental health sector, general medical sector, and other medical sector).

The stratified analyses for the census regions in Table 2 showed that only the West region had significant racial-ethnic differences in satisfaction, after analyses adjusted for covariates. In the West, blacks and whites had significantly higher average satisfaction levels than Hispanics/Latinos.

Perceived benefits from mental health services—Table 3 summarizes findings from GLM analyses for perceived benefits from mental health services. Similar to the findings for satisfaction, results from GLM analyses for the full United States showed no statistically significant differences for region or race-ethnicity. Again, however, differences were observed for age, sex, education, income, indication of any *DSM-IV* psychiatric disorder, and sector where mental health services were sought (specialty mental health sector and general medical sector).

Analyses by region revealed significant racial-ethnic differences only in the West (Table 3). Also in the West, estimates of benefits perceived by blacks and whites were significantly higher than those perceived by Hispanics/Latinos, after adjustment for covariates.

Discussion

Our findings provide clear evidence of regional variation in racial-ethnic differences in satisfaction with and perceived benefits from mental health services among U.S. adults who had received mental health treatment in the past year. Significant disparities appeared only in the West. Compared with other racial-ethnic groups, black mental health service users in the West reported significantly higher levels of satisfaction and perceived benefits, and Hispanic/Latino mental health service users in the West reported significantly lower levels. Another interesting finding among covariates was regional differences in the association with *DSM-IV* disorders, showing that those with disorders in the West reported significantly lower levels of satisfaction and perceived benefits than those without. Our findings suggest the importance of considering geographic location beyond individual-level predictors as a significant contributor to disparities in experiences with mental health care among those who received services. To our knowledge, this is the first investigation of geographic

variation in racial-ethnic differences in experiences with mental health care in the United States, which are good indicators of mental health care quality (27–29). This study gives us insight into potential ways to improve the quality of mental health care among racial-ethnic minority groups in this country, as well as to reduce racial-ethnic disparities in mental health care.

The most intriguing finding concerns racial-ethnic differences in experiences with mental health care, which were significant only by region but not for the United States as a whole. At first glance, the absence of racial-ethnic disparities at the national level seems to be promising; however, this finding does not necessarily mean that our nation is entirely free of racial-ethnic disparities in experiences with mental health care at more specific levels of geography. Our finding of significant racial-ethnic disparities in the West emphasizes the importance of examining disparities in mental health care at the regional level, as well as the strong need to further investigate disparities at even lower levels of geography (such as at state and county levels) in order to better understand the reasons for racial-ethnic disparities.

Significant racial-ethnic differences observed in the West were of particular interest. Although mental health service users in the West in general had more positive experiences than those in other regions, it is noteworthy that this geographic pattern was not true for all four racial-ethnic groups. In the West, blacks reported the most positive experiences and Hispanics/Latinos reported the least positive experiences. On the basis of these findings, we can speculate that delivery of mental health services to blacks may be more effective in the West than in other regions. At the same time, findings that Hispanics/Latinos reported less positive experiences in the West than in other regions imply that delivery of mental health services to Hispanics/Latinos may not be as effective in the West. Improving mental health care delivery for Hispanics/Latinos in the West through culturally and linguistically appropriate services may be necessary in order to reduce existing racial-ethnic disparities. Future research should further elucidate potential mechanisms or reasons for greater racial-ethnic disparities in the West by considering regional or state characteristics, which will inform researchers and policy makers of important implications for policy interventions that are modifiable.

The greater racial-ethnic disparities in the West relative to other regions warrants discussion. First, racial-ethnic minority groups' different population characteristics by geographic region may be related to their different experiences with mental health care. For example, Hispanics/Latinos and Asians in the West have different socioeconomic status, insurance coverage, and immigration-related characteristics (including country of origin, immigration status, number of years in the United States, and English-speaking ability) (30–33), and these differences are likely to influence mental health care-seeking patterns that are closely linked to the overall quality of mental health care (23,34).

Second, state mental health policies may be associated with racial-ethnic disparities in experiences with mental health care by geographic area. For example, at the time of CPES data collection, the 1996 Mental Health Parity Act (35)—the law requiring employers with more than 50 employees to offer health insurance as well as mental health coverage—was in effect but had not been adopted by states equivalently. Whereas some states—Oregon,

Connecticut, and Vermont—had enacted laws requiring equal coverage of a broad range of mental conditions, many other states had enacted limited-parity laws (those limiting equal coverage to a specific list of mental health conditions) or a no-parity law (with little or no mandated mental health coverage). These differential levels of mental health care coverage may have influenced patients' general experiences with mental health care.

Third, mental health care delivery systems in the West may not capture special needs of Hispanics/Latinos, such as culturally and linguistically tailored mental health care. Fourth, geographic variation in residential stability (high versus low population turnover) of specific racial-ethnic subgroups may have influenced our results. A recent study found that residential stability was a significant predictor of the West's high suicide rates in comparison with other regions (36). Finally, other state-level characteristics in the West might have hindered effective mental health treatment for Hispanics/Latinos but not for other racial-ethnic minority groups. For example, provider characteristics (such as provider race-ethnicity and gender), which are closely linked to patients' satisfaction with and perceived benefits from care they receive, may be different by state. Thus future research should elucidate potential reasons for the disparities by considering geographic characteristics that are unique in certain states, which will inform directions for future policy interventions.

We note some study limitations to bear in mind when interpreting the results of this study. First, the lowest geographic level examined was census region. Future investigation focusing on lower levels of geography (such as state, county, census tract, or block) and rural-urban distinctions may provide more guidance for future policy interventions to reduce disparities in mental health care at the area level. Second, ethnic subgroup differences within the Asian and Hispanic/Latino groups were not examined because of small numbers in each subgroup. Given the reported heterogeneous characteristics of the Asian and Hispanic/Latino groups (37), future research should consider investigating subgroup differences within each racial-ethnic group. Third, other important culture- or immigration-related factors, such as English proficiency and nativity, might have contributed to the results (13); this area may be worth examining in future research. Fourth, measurement equivalence of our outcome measures across different racial-ethnic groups was not established. Given that people from different cultural groups may have different ways of thinking and expressing mental health symptoms (38,39), self-reported personal experiences with mental health services should be interpreted carefully. Finally, nonresponse rates related to mental health-related questions in each racial-ethnic group may be worth exploring in future research.

Conclusions

This study provides clear evidence of regional variations in racial-ethnic differences in satisfaction with and perceived benefits from mental health services among U.S. adults in treatment. Our findings suggest that focusing on Hispanics/Latinos in the West may help reduce disparities in satisfaction with and benefits from mental health services, which may in turn help to improve the overall quality of mental health care for all U.S. adults. More practically, policy makers could use this information to identify areas where policy can intervene to improve the quality of care for mental health among racial-ethnic minority

groups. In-depth qualitative interviews focusing on Hispanics/Latinos and blacks in the West would help identify key factors contributing to disparities. Future research should focus on more fine-grained levels of geography to investigate the effect of state-level characteristics on disparities in mental health service use and the quality of mental health care; such research may help in developing specific policy intervention strategies to reduce racial-ethnic disparities. Clinicians serving patients from racial-ethnic minority groups should recognize that gaps in satisfaction with and perceived benefits from mental health services between minority and nonminority patients may differ by geographic region. Identifying specific reasons for the lower levels of satisfaction and perceived benefits among Hispanics/Latinos in the West may be a logical next step for research, which may help reduce racial-ethnic disparities in mental health care and eventually improve the overall quality of mental health care in general populations.

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Characteristics of 2001–2003 CPES respondents who had used mental health services in the past 12 months^a

Table 1

Characteristic	U.S. (N=2,160)		Northeast (N=372)		South (N=794)		Midwest (N=389)		West (N=574)	
	N	%	N	%	N	%	N	%	N	%
Race-ethnicity										
Black	528	24	118	32	266	34	67	17	72	13
White	1,076	50	163	44	342	43	174	45	378	66
Hispanic/Latino	412	19	64	17	141	18	104	27	97	17
Asian	144	7	27	7	45	6	44	11	27	5
Age										
<40	999	46	163	44	362	46	186	48	270	47
40–59	904	42	165	44	345	44	151	39	233	41
60	257	12	44	12	87	11	52	13	71	12
Sex										
Male	676	31	112	30	251	32	128	33	179	31
Female	1,484	69	260	70	543	68	261	67	395	69
Educational attainment (years)										
0–11	412	19	81	22	139	18	89	23	100	17
12	581	27	98	26	217	27	112	29	146	25
13–15	626	29	96	26	248	31	96	25	173	30
16	541	25	97	26	190	24	91	23	155	27
Income										
<\$20,000	643	32	131	38	262	36	104	29	136	27
\$20,000–\$34,999	314	16	51	15	115	16	68	19	77	15
\$35,000–\$74,999	589	30	98	28	209	29	104	29	168	33
\$75,000	441	22	66	19	148	20	89	24	132	26
Marital status										
Married or cohabiting	988	46	159	43	341	43	193	50	284	49
Divorced, separated, or widowed	610	28	111	30	225	28	105	27	158	28
Never married	562	26	102	27	228	29	91	23	132	23
DSM-IV disorder										

Characteristic	U.S. (N=2,160)		Northeast (N=372)		South (N=794)		Midwest (N=389)		West (N=574)	
	N	%	N	%	N	%	N	%	N	%
Yes	1,094	51	198	53	399	51	208	53	272	47
No	1,066	50	174	47	395	50	181	47	302	53
Specialty mental health sector										
Yes	1,189	55	201	54	446	56	227	58	294	51
No	971	45	171	46	348	44	162	42	280	49
General medical sector										
Yes	1,020	47	179	48	357	45	179	46	291	51
No	1,140	53	193	52	437	55	210	54	283	49
Other service sector										
Yes	1,268	59	220	59	477	60	227	58	329	57
No	892	41	152	40	317	40	162	42	245	43
Outcome variable										
Satisfaction with mental health system (M±SD) ^b	4.00±1.10		3.96±1.14		4.03±1.10		3.96±1.13		4.02±1.06	
Perceived benefit from mental health system (M±SD) ^c	3.15±1.01		3.11±1.03		3.18±.98		3.12±1.03		3.17±1.02	

^aCPES, Collaborative Psychiatric Epidemiology Surveys

^bPossible scores range from 1, very dissatisfied, to 5, very satisfied.

^cPossible scores range from 1, not at all, to 4, a lot.

Table 2
 CPES respondents' satisfaction with mental health services nationally and by U.S. region, 2001–2003^a

Characteristic	U.S.			Northeast			South			Midwest			West		
	LSM	95% CL	p	LSM	95% CL	p	LSM	95% CL	p	LSM	95% CL	p	LSM	95% CL	p
Region			.966												
Northeast	4.03	3.78–4.28													
South	4.06	3.89–4.22													
Midwest	4.00	3.79–4.21													
West	4.08	3.83–4.32													
Race-ethnicity			.065			.522			.548			.176			.001
Black	4.17	3.96–4.37		4.01	3.74–4.27		4.13	3.97–4.30		4.01	3.70–4.31		4.34	4.09–4.60	
White	4.12	4.05–4.19		4.11	3.89–4.34		4.03	3.88–4.17		4.23	4.02–4.44		4.10	3.96–4.23	
Hispanic/Latino	3.91	3.74–4.07		3.88	3.55–4.20		3.99	3.79–4.19		3.91	3.66–4.16		3.63	3.40–3.86	
Asian	3.97	3.62–4.32		3.86	3.41–4.31		3.97	3.64–4.31		4.08	3.73–4.43		3.82	3.42–4.22	
Covariate															
Age			.005			.603			.367			.045			.009
<40	3.91	3.79–4.04		3.95	3.72–4.17		3.94	3.78–4.09		3.84	3.64–4.03		3.78	3.60–3.95	
40–59	4.07	3.94–4.20		3.87	3.65–4.09		4.03	3.88–4.18		4.00	3.78–4.22		4.07	3.90–4.24	
60	4.14	3.96–4.32		4.08	3.66–4.49		4.12	3.86–4.39		4.33	3.99–4.67		4.08	3.79–4.36	
Sex			.406			.142			.281			.308			.057
Male	4.02	3.89–4.15		3.87	3.60–4.13		4.08	3.91–4.25		4.12	3.89–4.35		3.88	3.68–4.08	
Female	4.06	3.94–4.18		4.06	3.86–4.27		3.98	3.89–4.12		3.99	3.80–4.17		4.07	3.91–4.22	
Educational attainment (years)			.001			.440			.495			.544			.193
0–11	4.06	3.90–4.21		4.08	3.77–4.40		4.14	3.92–4.36		4.04	3.77–4.31		4.09	3.86–4.33	
12	4.00	3.86–4.15		3.96	3.67–4.25		4.06	3.87–4.25		4.09	3.83–4.34		3.96	3.75–4.17	
13–15	3.92	3.78–4.07		4.03	3.74–4.32		3.97	3.80–4.15		3.92	3.65–4.19		3.82	3.62–4.03	
16	4.18	4.03–4.32		3.78	3.49–4.07		3.95	3.76–4.14		4.17	3.89–4.46		4.02	3.79–4.24	
Income			.001			.130			.044			.777			.001
<\$20,000	3.87	3.73–4.01		3.76	3.51–4.01		3.98	3.73–4.18		4.02	3.77–4.27		3.73	3.52–3.95	
\$20,000–\$34,999	4.22	4.06–4.38		4.06	3.72–4.41		3.96	3.74–4.19		4.06	3.76–4.35		4.29	4.03–4.54	
\$35,000–\$74,999	4.02	3.88–4.16		3.84	3.57–4.11		4.23	4.04–4.41		3.98	3.73–4.24		3.87	3.67–4.07	

Characteristic	U.S.			Northeast			South			Midwest			West		
	LSM	95% CL	p	LSM	95% CL	p	LSM	95% CL	p	LSM	95% CL	p	LSM	95% CL	p
\$75,000	4.05	3.90-4.20	.479	4.19	3.84-4.54	.529	3.96	3.73-4.18	.232	4.16	3.87-4.45	.767	4.00	3.78-4.23	.001
Marital status															
Married or cohabiting	4.08	3.96-4.21		3.88	3.64-4.12		4.13	3.98-4.28		4.07	3.87-4.27		4.15	3.97-4.33	
Divorced, separated, or widowed	4.01	3.87-4.15		4.07	3.80-4.33		4.01	3.82-4.20		3.99	3.73-4.24		3.72	3.51-3.92	
Never married	4.03	3.88-4.18		3.95	3.64-4.25		3.95	3.76-4.15		4.11	3.82-4.41		4.06	3.83-4.29	
DSM-IV disorder			.001			.085			.397			.956			.004
Yes	3.92	3.79-4.04		3.85	3.61-4.10		4.00	3.84-4.15		4.05	3.85-4.26		3.84	3.67-4.02	
No	4.17	4.04-4.29		4.08	3.86-4.29		4.07	3.92-4.21		4.06	3.85-4.27		4.10	3.93-4.28	
Service sector															
Specialty mental health			.001			.007			.001			.007			.001
Yes	3.81	3.68-3.94		3.79	3.57-4.01		3.79	3.64-3.93		3.87	3.67-4.08		3.78	3.60-3.96	
No	4.27	4.14-4.40		4.14	3.90-4.38		4.28	4.12-4.44		4.24	4.02-4.46		4.17	3.99-4.34	
General medical			.001			.002			.001			.001			.001
Yes	3.82	3.70-3.95		3.75	3.52-3.98		3.81	3.65-3.96		3.82	3.61-4.02		3.74	3.55-3.92	
No	4.26	4.13-4.39		4.18	3.94-4.42		4.26	4.10-4.41		4.29	4.08-4.51		4.21	4.03-4.39	
Other			.990			.046			.474			.946			.643
Yes	4.04	3.92-4.17		4.09	3.88-4.31		4.06	3.91-4.21		4.05	3.86-4.25		4.00	3.82-4.17	
No	4.04	3.91-4.17		3.84	3.60-4.08		4.00	3.84-4.16		4.60	2.84-4.28		3.95	3.78-4.13	

^a CPES, Collaborative Psychiatric Epidemiology Surveys. Least squares mean (LSM) and confidence limit (CL) values are presented. Satisfaction scores could range from 1, very dissatisfied, to 5, very satisfied.

Table 3
Benefits of mental health services perceived by CPES respondents nationally and by U.S. region, 2001–2003^a

Characteristic	U.S.				Northeast				South				Midwest				West			
	LSM	95% CL	p		LSM	95% CL	p		LSM	95% CL	p		LSM	95% CL	p		LSM	95% CL	p	
Region			.698																	
Northeast	3.15	2.92–3.39																		
South	3.28	3.13–3.44																		
Midwest	3.16	2.97–3.36																		
West	3.26	3.04–3.49																		
Race-ethnicity			.853	.644				.335				.969							.001	
Black	3.26	3.07–3.45		3.14	2.90–3.37		3.18	3.04–3.33		3.20	2.93–3.47		3.51	3.26–3.77						
White	3.24	3.17–3.30		3.24	3.04–3.43		3.21	3.08–3.34		3.24	3.06–3.43		3.25	3.11–3.38						
Hispanic/Latino	3.18	3.02–3.33		3.15	2.86–3.44		3.36	3.18–3.54		3.26	3.03–3.49		2.87	2.65–3.10						
Asian	3.17	2.86–3.51		2.98	2.58–3.37		3.29	3.00–3.59		3.18	2.86–3.50		3.18	2.79–3.57						
Covariate																				
Age			.001	.466			.247					.037							.019	
<40	3.07	2.96–3.18		3.04	2.84–3.24		3.16	3.03–3.30		3.00	2.83–3.18		3.01	2.84–3.17						
40–59	3.24	3.12–3.36		3.05	2.86–3.25		3.28	3.14–3.41		3.23	3.03–3.43		3.23	3.06–3.40						
60	3.33	3.17–3.50		3.28	2.92–3.65		3.34	3.11–3.57		3.43	3.12–3.74		3.38	3.10–3.66						
Sex			.034	.005			.084					.369							.015	
Male	3.16	3.04–3.29		2.96	2.73–3.19		3.33	3.18–3.48		3.17	2.96–3.38		3.09	2.90–3.28						
Female	3.26	3.15–3.38		3.29	3.11–3.47		3.19	3.07–3.31		3.27	3.11–3.44		3.32	3.17–3.47						
Educational attainment (years)			.001	.480			.518					.771							.164	
0–11	3.28	3.14–3.43		3.29	3.02–3.57		3.34	3.15–3.54		3.22	2.97–3.46		3.39	3.16–3.62						
12	3.07	2.94–3.20		3.11	2.85–3.37		3.23	3.06–3.39		3.14	2.91–3.36		3.10	2.89–3.31						
13–15	3.15	3.02–3.28		3.09	2.83–3.34		3.19	3.04–3.35		3.23	2.99–3.47		3.12	2.92–3.32						
16	3.35	3.22–3.49		3.01	2.76–3.27		3.28	3.11–3.45		3.30	3.04–3.56		3.20	2.98–3.42						
Income			.002	.061			.033					.471							.030	
<\$20,000	3.07	2.94–3.20		2.89	2.67–3.12		3.21	3.06–3.35		3.13	2.90–3.35		2.96	2.76–3.17						
\$20,000–\$34,999	3.35	3.20–3.50		3.16	2.85–3.46		3.34	3.14–3.54		3.31	3.05–3.58		3.35	3.10–3.60						
\$35,000–\$74,999	3.23	3.11–3.36		3.08	2.84–3.32		3.39	3.22–3.55		3.14	2.90–3.37		3.22	3.02–3.41						

Characteristic	U.S.			Northeast			South			Midwest			West			p
	LSM	95% CL	p	LSM	95% CL	p	LSM	95% CL	p	LSM	95% CL	p	LSM	95% CL	p	
\$75,000	3.20	3.06-3.34	.112	3.38	3.07-3.69	.768	3.11	2.91-3.31	.218	3.31	3.05-3.57	.665	3.29	3.07-3.51	.118	
Marital status																
Married or cohabiting	3.18	3.06-3.29		3.08	2.86-3.29		3.28	3.15-3.42		3.15	2.97-3.33		3.27	3.10-3.45		
Divorced, separated, or widowed	3.29	3.16-3.41		3.12	2.89-3.35		3.34	3.17-3.50		3.27	3.04-3.50		3.06	2.86-3.26		
Never married	3.18	3.04-3.32	.001	3.18	2.91-3.45	.118	3.15	2.99-3.34	.109	3.24	2.97-3.50	.680	3.28	3.05-3.50	.008	
DSM-IV disorder																
Yes	3.12	3.00-3.24		3.04	2.82-3.25		3.20	3.06-3.34		3.20	3.01-3.38		3.09	2.91-3.26		
No	3.31	3.19-3.42		3.21	3.02-3.41		3.32	3.19-3.45		3.24	3.06-3.43		3.32	3.15-3.49		
Service sector																
Specialty mental health			.001			.001			.001			.001			.001	
Yes	2.97	2.85-3.08		2.91	2.71-3.11		3.00	2.87-3.13		2.99	2.81-3.17		3.03	2.85-3.21		
No	3.46	3.34-3.58		3.34	3.13-3.55		3.52	3.38-3.66		3.45	3.26-3.65		3.38	3.21-3.55		
General medical			.001			.001			.001			.001			.001	
Yes	2.97	2.85-3.09		2.83	2.63-3.04		3.04	2.90-3.18		2.97	2.79-3.16		2.95	2.77-3.12		
No	3.46	3.34-3.58		3.42	3.21-3.63		3.48	3.35-3.62		3.47	3.28-3.66		3.46	3.29-3.63		
Other			.542			.671			.146			.662			.387	
Yes	3.20	3.09-3.32		3.15	2.96-3.34		3.32	3.18-3.45		3.20	3.02-3.37		3.24	3.07-3.41		
No	3.23	3.11-3.35		3.10	2.89-3.31		3.21	3.07-3.34		3.25	3.05-3.44		3.16	2.99-3.34		

^a CPES, Collaborative Psychiatric Epidemiology Surveys. Least squares mean (LSM) and confidence limit (CL) values are presented. Perceived benefit scores could range from 1, not at all, to 4, a lot.