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Outcomes for Youths From Racial-Ethnic Minority Groups in a Quality Improvement Intervention for Depression Treatment

Victoria K. Ngo, Ph.D., **Joan R. Asarnow, Ph.D.**, **Jane Lange, M.S.**, **Lisa H. Jaycox, Ph.D.**, **Margaret M. Rea, Ph.D.**, **Christopher Landon, M.D.**, **Lingqi Tang, Ph.D.**, and **Jeanne Miranda, Ph.D.**

Dr. Ngo and Dr. Jaycox are affiliated with RAND Corporation, 1776 Main St., Santa Monica, CA 90407 (vngo@rand.org). Dr. Asarnow, Dr. Tang, and Dr. Miranda are with the Semel Institute for Neuroscience and Human Behavior, University of California, Los Angeles. Ms. Lange is with the Department of Biostatistics, University of Washington, Seattle. Dr. Rea is with the School of Medicine, University of California, Davis, Sacramento. Dr. Landon is with, Ventura County Medical Center, Ventura, California

Abstract

Objective—This study examined racial-ethnic differences in the impact of the Youth Partners in Care quality improvement intervention. The intervention was designed to improve access to evidence-based depression care, primarily cognitive-behavioral therapy and medication, through primary care. Previous analyses have shown that the quality improvement intervention was associated with improved depression and quality-of-life outcomes at the end of the six-month intervention period.

Methods—A randomized controlled trial comparing quality improvement and usual care for youths from diverse racial-ethnic groups from five health care organizations, including managed care, the public sector, and academic center clinics, was conducted. Depressed youths (N=325), who self-identified as black (N=59), Latino (N=224), and white (N=42), aged 13–21 years, were included in these analyses. To evaluate intervention effects within racial-ethnic groups, regression models were constructed, which adjusted for baseline and study site variation in depression symptoms, mental health status, satisfaction with mental health care, and mental health service utilization.

Results—Differential intervention effects were found across racial-ethnic groups. Black youths in the intervention group experienced significant reductions in depression symptoms and had higher rates of use of specialty mental health care at the six-month follow-up. Among Latino youths, the intervention was associated with significantly greater satisfaction with care. Intervention effects were weak among white youths.

Conclusions—Quality improvement interventions may help to reduce disparities in mental health care for youths from racial-ethnic minority groups.

Racial-ethnic diversity among children in the United States is increasing. In 2000 children from minority groups accounted for 39% of the population under 18 (1), and the proportion is projected to rise to 48% in the next quarter century (2). Increasingly, evidence-based mental health interventions have been found effective for youths from ethnic minority groups (3,4). Nevertheless, these children are less likely than white youths to receive high-

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quality mental health services (5,6) and more likely to leave treatment prematurely (7). Strategies for addressing mental health disparities among youths are needed, because untreated depression in this population is associated with suicide, school dropout, pregnancy, substance abuse, and depression in adulthood (8-14).

A promising approach to address health disparities has been to improve the quality of mental health services provided in primary care settings (15-18), because primary care is a gateway to mental health care for individuals from racial-ethnic minority groups. Quality improvement interventions in primary care settings aimed at improving access to evidence-based depression treatments have been found to be more effective than usual care for diverse groups of depressed adults (16,17,19), elderly persons (20), and adolescents from diverse backgrounds (21). In the Partners in Care study of adults, intervention effects on clinical outcomes were greatest for blacks and Latinos (22). The quality improvement interventions significantly decreased the likelihood of participant reports of probable depression at six- and 12-month follow-ups for blacks and Latinos in the study, whereas their white counterparts showed no such difference (22). In the IMPACT study of elderly adults, all racial-ethnic groups (blacks, Latinos, and whites) in the quality improvement condition showed greater rates of depression care, lower depression severity, and less health-related functional impairments than patients in the usual care group (23).

No study has examined racial-ethnic differences in the impact of quality improvement interventions in an adolescent population. Youth Partners in Care is the first and largest study to evaluate a quality improvement intervention for depression among youths that was delivered in primary care settings. Results indicated that quality improvement aimed at increasing rates of evidence-based depression care (primarily cognitive-behavior therapy [CBT] and medication) was associated with improved depression and quality-of-life outcomes, satisfaction with care, and increased rates of care—primarily counseling (21). The study reported here examined the differential impact of the quality improvement intervention among racial-ethnic groups, with the overall goal of informing efforts to decrease mental health disparities and improve outcomes for youths from minority groups. We hypothesized that racial-ethnic differences similar to those found in studies of adults would result from the quality improvement intervention, such that black and Latino youths would report greater improvement in depression symptoms than their white counterparts six months after the intervention.

Methods

We used data from Youth Partners in Care, a multisite randomized effectiveness trial conducted between 1999 and 2003 that compared a quality improvement intervention with usual care. The study protocol was approved by the institutional review boards of all participating organizations. All participants over the age of 18 and legal guardians for youths under 18 years of age provided informed consent, with youth under age 18 providing assent. The methodology, including study design, data collection procedures, and measures, have been described in detail elsewhere (21,24).

Sample

Following common adolescent medicine practices (25), we defined adolescence broadly, extending into the transitional-age period. Youths aged 13 through 21 who presented at clinics for a primary care visit were screened. Patients completed brief self-administered screening questionnaires in the clinics. Enrollment eligibility was based on meeting either of two criteria. First, the youth had to endorse “stem items” for major depression or dysthymia from the 12-month Composite International Diagnostic Interview (CIDI) (26) and have a total score of 16 or higher on the Center for Epidemiological Studies Depression Scale

(CES-D) (16). (For adolescents who reported having experienced depression symptoms for at least one week in the past month, the CIDI was modified slightly to conform to *DSM-IV* diagnostic criteria.) Second, the youth had to have a CES-D score of 24 or higher (27,28). Youths were excluded if they did not speak English, had providers who were not in the study, or had a sibling already in the study. Participants' racial-ethnic group was based on self-report; they were provided with a list of racial-ethnic groups and could endorse more than one.

Participants were randomly assigned to either the quality improvement or usual care condition. Staff who conducted the screening and enrollment were blind to randomization status and did not conduct the assessment. The median time delay between screening and random assignment was 21 days. Among the 418 youths enrolled, 344 (82%) completed the six-month follow-up assessment. Follow-up rates did not differ significantly across conditions (171 youths, or 81%, in the quality improvement intervention and 173 youths, or 84%, in usual care). In the analyses for this study, we included only youths classified as Latino, black, or white, which yielded a sample of 325 youths at six-month follow-up.

Usual care and intervention conditions

The usual care condition was enhanced by giving primary care providers training and educational materials on depression evaluation and treatment (21). Participants assigned to usual care had access to usual care at the site, but they did not have access to providers who were trained in quality improvement model which included CBT or care management services.

The quality improvement intervention included expert-led teams at each site that adapted and implemented the intervention; master's- or doctoral-level care managers who supported primary care providers with patient evaluation, education, medication, and psychosocial treatment and linkage to specialty mental health services; training for care managers in manualized CBT for depression; and patient and provider choice of treatment modalities (CBT, medication, combined CBT and medication, care management follow-up, and referral). Primary care providers were informed of patient participation in the study only if the participant was in the quality improvement condition.

Cultural modifications

Youth Partners in Care strategies for addressing cultural issues in the intervention included a focus on training staff on cultural sensitivity issues, tailoring examples to fit the cultural context of each youth and family, ensuring when possible that the care manager and participant spoke the same language (3,21,29), and providing consultation with cultural researchers. We encouraged care managers to attend to cultural issues. For example, the traditional Latino view is that important decisions, including those involving mental health care, should be made by the father, and youths may resent this tradition. The care managers were also reminded of the importance of cultural concepts, such as "simpatico"—warm and caring interactions that emphasize understanding and concern for the welfare of the entire family.

Data collection

Baseline and six-month follow-up assessments were conducted by interviewers from the Battelle Survey Research Institute who were blind to group assignment. Interviews with the youths assessed clinical characteristics, including depression, posttraumatic stress disorder (PTSD), substance abuse, and problem behaviors, including suicidal behaviors. To diagnose depression, the CIDI was used at baseline; the CES-D was administered only at the six-month follow-up. To capture a broad range of youth depression, a diagnosis of major

depression or dysthymia were made along with screening for other comorbidities including mania, PTSD, and substance abuse. The Mental Health Index–5 (MHI-5) (30) was also used to measure general emotional distress at baseline. In addition to clinical characteristics, the six-month interview assessed demographic characteristics, mental health–related quality of life, satisfaction with mental health care, and mental health service use in the past six months.

Measures

The CES-D is a 20-item self-report measure of depression symptoms during the past week (27). The MHI-5 (30) is a five-item general mental health measure constructed from items that best predict a summary score from the 38-item Mental Health Inventory. Items assess symptoms of depression and anxiety, loss of behavioral or emotional control, and psychological well-being in the previous month. The Youth Self Report (YSR) is a self-report questionnaire designed for assessment of adolescents problems (31). The externalizing subscale was used to assess aggressive and delinquent behavior. A single YSR item (suicidal ideation) was also used to assess suicide risk. The Problem Oriented Screening Instrument for Teenagers (POSIT) is a brief dichotomous screening tool for identification of ten functional problem areas among teenagers (32). We used the substance use–abuse subscale (13 items) to identify substance use. A positive response to even one question is considered to reflect a moderate risk of a significant substance abuse problem.

The Primary Care PTSD Screen (PC-PTSD) is a four-item screen (33). Endorsement of any symptom indicates risk for PTSD. The mental component summary scale (MCS-12) (34) is a 12-item self-report measure derived from the Medical Outcomes Study 36-Item Short-Form Health Survey. It is thus a short-form generic measure that assesses quality of life and functioning. The scale is scored with norm-based methods and has a mean of 50 and a standard deviation of 10 in the general U.S. population. Thus all scores above and below 50 are above and below the average in the population. Higher score indicates better health related quality of life and functioning.

Satisfaction with mental health care was assessed with two items that used a 5-point scale ranging from 1, very dissatisfied, to 5, very satisfied (35). Mental health service utilization was assessed by items about receipt of psychotherapy or counseling; mental health specialty services from a psychologist, psychiatrist, or therapist; mental health treatment by primary care provider; and medication for mental health problems (21). The respondent was also asked to report the frequency of psychotherapy visits within the past six months. [A list of items used to assess mental health service utilization is available as a supplement to this article at ps.psychiatryonline.org.]

Data analysis

We examined the association between baseline demographic and clinical characteristics and racial-ethnic group. We used chi square tests for categorical variables and analysis of covariance for continuous variables. Because the study was not powered to detect differential intervention effects across racial-ethnic groups, we focused on intervention effects within each racial-ethnic group (blacks, Latinos, and whites). To increase power, we reallocated the 47 mixed-race participants using the following criteria. Individuals who self-identified as Latino but not as black were classified as Latino (N=21). (These individuals may also have endorsed other racial-ethnic groups on the list provided but not black). Those who self-identified as black and other ethnic group, but not Latino were reclassified as black (N=14). Those who self-identified as both Latino and black, and reported that Spanish was spoken at home were classified as Latino (N=6), because use of the Spanish language is strongly associated with first-generation immigrant status, a lower level of acculturation, and

Latino identity (36,37). Those who self-identified as both black and Latino and who reported that Spanish was not spoken at home were classified as black (N=6), because among blacks who do not speak Spanish at home, black identity and phenotype in the United States are salient and predictive of a wide variety of outcomes, including socioeconomic status, health status, and educational attainment (38-40).

With these criteria, the baseline sample included 390 participants (76 blacks, 261 Latinos, and 53 whites). The six-month follow-up sample included 325 participants (59 blacks, 224 Latinos, and 42 whites). We conducted analyses before and after reallocation of mixed-race participants and found similar results.

We conducted intent-to-treat analyses. Data for participants were analyzed according to the experimental group to which they were assigned regardless of whether they received treatment or used study resources such as care management. We fitted analysis of covariance models for continuous outcomes (CES-D score, MCS-12 score, and satisfaction with mental health care) and logistic regression models for dichotomous outcomes (service use). Independent variables included intervention status, racial-ethnic group, and interactions between intervention status and racial-ethnic group, and analyses adjusted for the baseline measure for the same outcome and study site. Two-step modeling was used by first fitting random intercept models for sites and then including the estimated random effects for sites in the final analysis of covariance model (41). For analysis of CES-D scores at follow-up, we used the baseline MHI-5 score as a covariate because the CES-D was not used at baseline. CES-D and MHI-5 scores were highly correlated at follow-up ($r=.78$, $p<.001$); therefore, the baseline MHI-5 score was used to control for baseline CES-D score.

To show effect sizes, we present adjusted group means and differences as well as odds ratios by intervention and racial-ethnic groups, adjusted for the baseline measure (42). We used nonresponse weighting (43-44) to address missing data for 18% of patients who did not complete the six-month assessment. The objective of nonresponse weighting is to extrapolate from the observed six-month sample to the original intent-to-treat sample. Nonresponse weights were constructed by fitting logistic regression models to predict follow-up status from baseline clinical and demographic characteristics. Separate models were fitted for each intervention group. The reciprocal of the predicted follow-up probability was used as the nonresponse weight for each participant. Intent-to-treat analyses for intervention effects, weighted by nonresponse weights, were conducted by using survey commands in SUDAAN, version 9 (45). Weighted and unweighted analyses yielded similar results, and where results varied, the differences are noted below.

Results

Racial-ethnic group differences at baseline

Baseline characteristics of the sample are presented by race and ethnicity in Table 1. No significant baseline differences were found between racial-ethnic groups in depression and other mental health indicators, including externalizing behavior, PTSD, substance use, and suicidal behavior. However, some differences in demographic characteristics were found. Specifically, blacks were less likely to have at least one parent employed, a greater proportion of Latinos were bilingual, and Latinos were more likely to have immigrant parents. Consistent with the literature indicating less access to high-quality mental health care for individuals from racial-ethnic minority groups (4,5), use of mental health services was significantly higher among whites as measured by provider type (mental health specialty care and mental health treatment by primary care providers), service type (counseling and medication), and frequency of counseling sessions at baseline. No

significant racial-ethnic differences in mental health indicators were found between the quality improvement group and the usual care group at baseline.

Intervention effects by racial-ethnic group

Results showed a significant reduction in depression symptoms among blacks in the intervention group. Among Latinos in the intervention group the only significant improvement was in satisfaction. No intervention effects were found for whites. We did not observe a statistically significant interaction between intervention status and racial-ethnic group in any model.

As shown in Table 2, intervention effects were significant for black youths, who experienced a large reduction in depression symptoms as a result of the quality improvement intervention (p=.001) compared with the other two groups. No intervention effects on depression symptoms were found for Latino and white youths.

No significant racial-ethnic differences in mental health–related quality of life were observed between the intervention and usual care groups. In terms of satisfaction with mental health care, intervention effects were significant only for Latinos (p=.02).

At the six-month follow-up we found that the intervention effects noted above were associated with increased rates of mental health service use, primarily for counseling and psychotherapy (Table 3). Among blacks, youths in the intervention group had greater odds of receiving any counseling (37% compared with 18% of blacks in the usual care group) and specialty mental health care (42% and 9%). No differences between the intervention and usual care groups were found for medication use or mental health care by a primary care clinician. The total amount of psychotherapy visits reported by black patients also significantly increased as a function of the quality improvement intervention. Findings were similar for Latino patients, with significant increases in the intervention group in the proportion using specialty mental health care (28% compared with 17% in the usual care group) and a trend toward significantly greater use of counseling (p=.07). No significant effects were found in rates of medication use or in any mental health care by primary care provider. In contrast, no significant intervention effects were found for whites on the variables related to mental health service use, although the increase in number of psychotherapy visits by those in the intervention group approached significance (p=.055).

Discussion

Findings from Youth Partners in Care, the largest effectiveness trial to evaluate quality improvement in the treatment of depression among youths, support the value of quality improvement for addressing racial-ethnic disparities in health care utilization and outcomes. This is the first practical trial demonstrating that improvements in the quality of depression treatment for youths in primary care settings can improve depression outcomes and rates of use of mental health care (primarily psychotherapy and counseling), particularly among black youths. Although similar trends were found for Latinos, the intervention effect on depression outcomes was strongest for blacks.

Our results also suggest that the intervention may have operated through different mechanisms across racial-ethnic groups. Among Latinos the availability of intervention resources resulted in more satisfaction among youths and greater use of specialty mental health treatment, even though the intervention effect on depression symptoms was weak. These findings suggest that the intervention may have had a different impact on Latino youths than on white or black youths, underscoring the need to clarify racial-ethnic

differences in outcomes. Research should further address differential pathways to care and strategies for improving outcomes for various racial-ethnic minority groups.

It is interesting that no significant intervention effects were found among whites, although a marginal improvement in the frequency of psychotherapy visits was noted. Because more white youths were already receiving mental health treatment at baseline, the Youth Partners in Care intervention algorithm would have encouraged “watchful waiting” by the primary care providers to monitor mental health status and treatment adherence among youths, with coordination of care between primary care providers and mental health providers. Furthermore, as might be expected because of the higher rates of mental health care utilization at baseline, whites in the usual care condition may have showed improvement during the intervention period. Thus the weaker intervention effects among whites may result from earlier access to mental health care, which may have led comparable depression outcomes among the quality improvement and usual care groups at six-month follow-up. This would be consistent with results from adult studies suggesting that quality improvement interventions are particularly needed and powerful among persons from minority groups.

This study has several limitations. Sites were not selected at random. Although analyses adjusted for site, race and ethnicity was not equally distributed across sites and different effects might have emerged in different ethnic groups. Additional research with greater power to detect effects on racial-ethnic groups is needed to further clarify the needs of various racial-ethnic groups and optimal approaches for addressing mental health needs of youths from diverse backgrounds. It is also possible that the null finding for whites could be related to the small sample size, which resulted in low power to detect differences for this group in particular. In addition, outcomes were based on youth self-report. Given our sample size and lack of details of services provided by care managers and primary care providers, results are preliminary and clearly need to be replicated in larger samples.

Conclusions

The Youth Partners in Care results are consistent with findings from large quality improvement studies of depressed adult and elderly populations, in which quality improvement interventions benefited persons from racial-ethnic minority groups more than their white counterparts. Building on prior demonstrations of improved outcomes from quality improvement interventions for adult and late-life depression (16,17,19), our results indicate that this approach can be adapted successfully for younger populations from diverse backgrounds and can yield similar outcomes. Both Youth Partners in Care and the adult Partners in Care (16) achieved a difference of roughly 10 percentage points in the proportion of patients whose CES-D scores indicated clinically significant depression. Because evidence supporting depression treatments is less established for racial-ethnic minority groups, it is significant that similarly designed quality improvement interventions have been effective for youths from racial-ethnic minority groups, for adults, and for elderly persons (22,23). This has clear implications for improving racial-ethnic disparities in mental health care.

The results of this study offer hope that quality improvement interventions in primary health care settings can close the gap in depression care for youths from underserved racial-ethnic minority groups. Future research and service development are needed to clarify optimal strategies for meeting needs and improving mental health outcomes among the diverse youths in our nation.

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Table 1

Characteristics of the baseline sample of 390 youths participating in the Youth Partners in Care study, by racial-ethnic group

	Total sample (N=390)		Black (N=76)		Latino (N=261)		White (N=53)		
Characteristic	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**p**
Demographic									
Age (mean±SD)	17.2±2.1		17.69± 2.04		17.05± 2.03		16.89± 2.3		.04
Female	303	78	58	76	203	78	42	79	.92
Language other than English spoken at home	250	64	7	9.2	234	90	9	17	<.001
Immigrant parent	213	55	6	2	196	51	11	3	<.001
At least one parent employed	344	88	54	71	241	92	49	92	<.01
Clinical									
Diagnosis of depression[a]	164	42	27	36	110	42	27	51	.22
Diagnosis of dysthymia	9	2	3	4	6	2	0	0	.34
Diagnosis of major depressive disorder	161	41	27	36	107	41	27	51	.21
Externalizing symptoms and conduct Problems[b]	109	28	25	33	74	28	10	19	.21
Experienced >2 PTSD symptoms in the past year[c]	87	22	19	25	60	23	8	15	.37
At moderate risk for substance abuse[d]	93	24	17	22	59	23	17	32	.32
Suicidal ideation[e]	99	25	19	25	65	25	15	28	.87
Mental component summary score (mean±SD)[f]	38.7±11.8		39.44±12.7		38.71±11.6		37.52±11.3		.66
Mental Health Index–5 score (mean±SD)[g]	19.31±4.83		19.56±5.16		19.14±4.83		19.77±4.42		.6
Any psychotherapy or counseling in the past 6 months[h]	87	22	10	13	55	21	22	42	<.001
Number of psychotherapy or counseling visits									
None	303	78	66	87	206	79	31	58	<.01
1–11	45	12	5	7	28	11	12	23	<.01
{gtet}12	42	11	5	7	27	10	10	19	<.01
Any specialty mental health care in the past 6 months[i]	84	22	11	14	49	19	24	45	<.001
Any mental health care in the primary care setting in the past 6 months[j]	122	31	27	36	69	26	26	49	<.001
Any medication for mental health problems in the past 6 months	63	16	9	12	32	12	22	42	<.001

[a] Diagnoses are based on the Composite International Diagnostic Interview.

[b] Youths with a T score on the Youth Self-Report of >63. Possible scores range from 0 to 100, with higher score indicating greater externalizing problems.

[c] PTSD, posttraumatic stress disorder. Youth who endorsed any item on the PC-PTSD, a screening tool used in primary care settings for PTSD. (Endoresement of any of the 4 symptoms are considered positive for PTSD

[d] Youths who endorsed any item on the Problem Oriented Screening Instrument for Teenagers

[e] Youths who endorsed the single item on suicidal ideation in the Youth Self Report

[f] Possible scores for MCS-12 range from 0 to 100, with higher scores indicating greater quality of life.

[g] Possible scores for MHI-5 range from 0 to 25, with higher scores indicating greater mental health distress.

[h] In a specialty or primary care setting

[I] Includes psychologist, psychiatrist, social workers, or counselors.

[J] Includes any discussion of mental health content in primary care setting.

Table 2

Outcome measures at the six-month follow-up among 325 youths assigned to the quality improvement intervention or usual care, by racial-ethnic group[a]

	Intervention		Usual care		Difference between groups			
Measure	**M**	**SE**	**M**	**SE**		**95% CI**	**t[b]**	**p**
Center for Epidemiological Studies Depression Scale[c]								
Black	17.61	1.79	25.17	1.76	−7.55	−12.17 to −2.93	−3.22	.001
Latino	18.59	1.07	20.69	1.22	−2.10	−5.26 to 1.06	−1.31	.191
White	18.07	2.43	18.23	2.04	−.16	−6.37 to 6.04	−.05	.959
Mental component summary scale[d]								
Black	47.17	2.05	43.6	2.09	3.57	−1.84 to 8.98	1.30	.195
Latino	45.11	1.01	42.47	1.22	2.64	−.21 to 5.48	1.82	.069
White	45.25	2.47	45.16	1.63	.09	−5.65 to 5.83	.03	.976
Satisfaction with mental health care[e]								
Black	3.84	.19	3.60	.19	.24	−5.65 to 5.83	.90	.369
Latino	3.78	.08	3.49	.09	.28	.06 to .51	2.45	.015
White	3.78	.17	3.47	.22	.31	−.18 to .80	1.25	.213

[a] Nonresponse weighting was used to address missing data for 18% of patients in the intent-to-treat sample who did not complete the six-month assessment. Mean scores are standardized predictions (also known as predictive margins) generated from the fitted regression models. Analysis of covariance models were fitted for continuous outcomes (measures shown); independent variables included intervention status, racial-ethnic group, and their interactions, with adjustment for baseline scores on each measure and study site. Two-step modeling was used by first fitting random intercept models for sites and then including the estimated random effects for sites in the final analysis of covariance model.

[b] df=324

[c] Possible scores on the Center for Epidemiological Studies Depression Scale (CES-D) range from 0 to 60, with scores above 24 indicating severe depression. The CES-D was not included in the baseline assessment; however, scores on the CES-D and the Mental Health Index–5 (MHI-5) were highly correlated (r=.78), and the baseline MHI-5 score was used as the proxy for baseline CES-D.

[d] Possible scores range from 0 to 100, with higher scores indicating greater quality of life.

[e] Based on two items assessing satisfaction. Possible scores range from 0 to 10, with scores higher score indicating greater satisfaction.

Table 3

Mental health service uses during the six-month follow-up period among 325 youths assigned to the quality improvement intervention or usual care, by racial-ethnic group[a]

	Intervention		Usual care					
Measure	**%**	**SE**	**%**	**SE**	**OR**	**95% CI**	**t[b]**	**p**
Any psychotherapy or counseling[c]								
Black	37	9	18	5	3.65	1.09–12.23	2.11	.036
Latino	31	4	21	4	1.99	.94–4.24	1.8	.073
White	37	12	19	6	3.35	.70–16.08	1.52	.13
Any specialty mental health care[d]								
Black	42	9	9	6	9.37	1.58–55.71	2.47	.014
Latino	28	4	17	3	2.03	1.01–4.06	2.01	.046
White	45	12	23	7	3.09	.77–12.39	1.6	.11
Any mental health care by a primary care clinician[d]								
Black	14	5	20	7	.63	.17–2.36	−.68	.494
Latino	22	4	20	4	1.14	.55–2.37	.35	.728
White	34	11	13	6	3.95	.89–17.59	1.81	.071
Any medication								
Black	11	5	12	4	.89	.18–4.36	−.15	.882
Latino	11	3	16	3	.54	.20–1.46	−1.23	.22
White	26	12	17	7	2.27	.30–17.36	.79	.429
Number of psychotherapy or counseling visits[e]								
Black					3.04	1.15–8.01	2.25	.025
0	65	9	83	4				
1–11	13	3	8	2				
{gtet}12	21	6	9	3				
Latino					2.18	.97–4.91	1.89	.06
0	67	5	78	4				
1–11	13	2	10	2				
{gtet}12	20	4	13	3				
White					2.89	.98–8.53	1.92	.055

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Measure	Intervention %	Intervention SE	Usual care %	Usual care SE	OR	95% CI	t[b]	p
0	68	9	85	5				
1–11	13	4	7	2				
{gtet}12	20	6	8	3				

[a] Nonresponse weighting was used to address missing data for 18% of patients in the intent-to-treat sample who did not complete the six-month assessment. Means are standardized predictions (also known as predictive margins) generated from the fitted regression models. Logistic regression models were fitted for dichotomous outcomes (measures shown) of covariance models were fitted for continuous outcomes (measures shown); independent variables included intervention status, racial-ethnic group, and their interactions, with adjustment for each baseline service use measure and study site. Not statistically significant interactions between intervention status and racial-ethnic group were observed.

[b] df=324

[c] In a specialty or primary care setting

[d] Includes any discussion of mental health content in primary care setting.

[e] The odds ratio for number of visits is derived from an ordinal logit model that treated the three-category outcome (no visits, 1–11 visits, and {gtet}12 visits) as an ordinal (ranked) measure. The model assumes that the same OR holds for the two thresholds (0 versus 1–11 and 0 versus {gtet}12).