
Mental Health Services

Improving Care for Minorities: Can Quality Improvement Interventions Improve Care and Outcomes For Depressed Minorities? Results of a Randomized, Controlled Trial

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Objective. Ethnic minority patients often receive poorer quality care and have worse outcomes than white patients, yet practice-based approaches to reduce such disparities have not been identified. We determined whether practice-initiated quality improvement (QI) interventions for depressed primary care patients improve care across ethnic groups and reduce outcome disparities.

Study Setting. The sample consists of 46 primary care practices in 6 U.S. managed care organizations; 181 clinicians; 398 Latinos, 93 African Americans, and 778 white patients with probable depressive disorder.

Study Design. Matched practices were randomized to usual care or one of two QI programs that trained local experts to educate clinicians; nurses to educate, assess, and follow-up with patients; and psychotherapists to conduct Cognitive Behavioral Therapy. Patients and physicians selected treatments. Interventions featured modest accommodations for minority patients (e.g., translations, cultural training for clinicians).

Data Extraction Methods. Multilevel logistic regression analyses assessed intervention effects within and among ethnic groups.

Principal Findings. At baseline, all ethnic groups (Latino, African American, white) had low to moderate rates of appropriate care and the interventions significantly improved appropriate care at six months (by 8–20 percentage points) within each ethnic group, with no significant difference in response by ethnic group. The interventions significantly decreased the likelihood that Latinos and African Americans would report probable depression at months 6 and 12; the white intervention sample did not differ from controls in reported probable depression at either follow-up. While the intervention significantly improved the rate of employment for whites and not for minorities, precision was low for comparing intervention response on this outcome. It is important to note that minorities remained less likely to have appropriate care and more likely to be depressed than white patients.

Conclusions. Implementation of quality improvement interventions that have modest accommodations for minority patients can improve quality of care for whites and underserved minorities alike, while minorities may be especially likely to benefit

clinically. Further research needs to clarify whether employment benefits are limited to whites and if so, whether this represents a difference in opportunities. Quality improvement programs appear to improve quality of care without increasing disparities, and may offer an approach to reduce health disparities.

Key Words. Mental health, quality improvement, ethnic minorities, depression, managed health care

Ethnic minority individuals in the United States who identify themselves as members of historically disadvantaged ethnic groups experience poorer health and premature mortality (Williams and Collins 1995; Ren and Amick 1994; Navarro 1990) when compared with those who identify themselves as white. Although etiologies of these health disparities are inadequately understood and are undoubtedly multidetermined, one focus for improving the health outcomes of ethnic minorities has been through improving the health care received by this population. Because health care received by ethnic minorities is often of poorer quality than that of whites (e.g., Ayanian et al. 1993; Escarce et al. 1993; Winneker and Epstein 1989), reducing these inequities could help reduce health disparities. Interventions that improve the quality of care for ethnic minorities should be developed and evaluated; yet to date, we are unaware of any such evaluations.

Quality improvement (QI) programs are implemented widely in managed care settings to encourage adherence to practice guidelines for chronic conditions (i.e., hypertension, diabetes, depression) (Brown, Shy, and McFarland 1995). Recently we reported evidence from a randomized,

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controlled trial, the Partners in Care (PIC) study, that a QI intervention intended to increase appropriate diagnosis and treatment of depression improved rates of appropriate care and patient outcomes when implemented in diverse managed primary care settings (Wells et al. 2000). The intervention improved both mental health outcomes and retention of employment over a year. However, the extent to which QI programs, such as PIC, benefit historically disadvantaged populations such as Latinos and African Americans is unknown. The PIC study oversampled organizations serving Latinos. The present study examines the impact of the quality improvement intervention on Latinos and African Americans as compared with white participants.

Quality improvement programs for depression in primary care settings are particularly appropriate for examining benefits for ethnic minorities. First, depression is highly prevalent among all U.S. ethnic groups (Kessler et al. 1994) and soon is expected to be the second leading cause of disability worldwide (Murry and Lopez 1996). Second, although both medications and brief psychotherapy are recommended in national practice guidelines (Depression Guidelines Panel 1993), treatment rates in managed primary care settings are low to moderate (Wells et al. 1996; Wells et al. 1999) and especially low for ethnic minorities (see Results below). Third, because ethnic minority patients are less likely to use outpatient specialty mental health services (Neighbors et al. 1992; Takuichi and Uehara, 1996; Miranda and Green 1999), QI programs that bridge specialty and primary care may particularly benefit ethnic minorities.

To date, efficacy studies of antidepressant medications and brief therapies have not included adequate samples of ethnic minority patients to evaluate differential responses to treatment (U.S. Department of Health and Human Services 2001), although some studies suggest that minorities do respond to these treatments (Brown et al. 1999; Organista, Muñoz, and González 1994; Arean and Miranda 1996). Studies have repeatedly shown that ethnic minorities are less likely to obtain mental health care than are whites, and recent results suggest if they do obtain mental health care, they are less likely to obtain evidence-based treatments than are whites (U.S. Department of Health and Human Services 2001). Quality improvement interventions in primary care settings may be particularly suited for identifying strategies for improving rates of appropriate care for this population. For example, ethnic groups may differ in their preference for antidepressant medication or psychotherapy (Dwight-Johnson et al. 2000), so QI programs that offer a range of treatment choices and elicit and accommodate patient preferences for treatment may be successful at

improving treatment rates for ethnic minorities. Also, many ethnic minority patients face language and cultural barriers to care (Woodward, Dwinell, and Arons 1992), so that QI interventions including culturally and linguistically appropriate educational and intervention materials may be necessary. Because these factors were present in the PIC intervention approach, and practices were asked to increase rates of appropriate treatment for all patients, including ethnic minorities, we hypothesized that the PIC QI interventions would increase quality of care and clinical outcomes for ethnic minorities and whites. Because ethnic minorities might have less prior treatment exposure, we thought they might also be more responsive as a group to new opportunities to obtain treatment, leading to greater improvement in health for this group.

Two types of outcomes are examined, continued depression and retention in employment. Ethnic minority and white participants may have differential responsiveness to these two types of outcomes. As mentioned above, because ethnic minorities may generally obtain less mental health care, this population may be more responsive to care in terms of improvement in the depression. On the other hand, more ethnic minorities than whites may lack the resources (educational background, employment experiences, fluency in English) necessary to achieve substantial gains in areas such as employment.

In summary, we examine prospectively the quality of care for underserved minorities, as compared with white patients, under managed primary care. We assess whether a QI intervention was effective in improving quality of care across ethnic groups. We then determine whether the intervention improved health and employment outcomes among ethnic minorities and whether these groups improved more than whites, in a study specifically designed to facilitate comparison of whites and underserved ethnic minorities.

METHODS

We use data from the Partners in Care (PIC), a Patient Outcomes Research Team (PORT-II) study sponsored by the Agency for Healthcare Research and Quality (AHRQ). The study is a group-level randomized controlled trial (Murray 1998). The methodology is described in detail elsewhere (Brown, Shye, and MacFarland 1995; Wells 1999).

Participants

Organizations, Clinics, and Providers. We recruited six managed care organizations, selected to be diverse in geography and organization and to oversample

Latinos. We approached one or two regions per organization; one region refused and seven agreed. Of 48 primary care practices with at least two clinicians, 46 participated.

We grouped practice clusters into matched blocks of three per block, based on patient demographics, clinician specialty, and distance to mental health providers. We created nine blocks, one each for six regions and three for the seventh (stratified by low, intermediate, or high percentage of Latino patients). The clinic clusters are randomized by blocks, to usual care or one of two QI intervention conditions.

Primary care clinicians were recruited before learning the assignment their clinic would receive; 97 percent ($n = 181$) agreed to participate. The clinicians were 87 percent internists or family practice physicians and 13 percent nurse practitioners; 32 percent were minority, including 2 percent African American, 18 percent Latino, and 12 percent other minorities.

Patients. Consecutive patient visitors were screened over a 5- to 7-month period between June 1996 and March 1997. Patients were eligible for the study if they intended to use the clinic as a source of care for the next year, were older than age 17, did not have an acute medical emergency, spoke English or Spanish, and had either insurance or a public-pay arrangement that covered the intervention care. Eligible patients were screened for depression using the “stem” items for major depressive and dysthymic disorder from the 12-month Composite International Diagnostic Interview (CIDI), version 2.1 (World Health Organization 1995), and items assessing depressed symptoms in the past month. Specifically, we defined patients as having probable disorder if they had two weeks or more of depressed mood or loss of interest in pleasurable activities during the last year or persistent depression over the year, plus having at least one week of depression in the last 30 days. Patients learned of their intervention status after enrollment.

Of 27,332 patients screened, 3,918 were potentially eligible for the study. Of those, 2,417 confirmed insurance eligibility; 241 were found ineligible. Of those who read the informed consent, 1,356 (79 percent) enrolled.¹ The enrolled patients completed the CIDI to determine depressive diagnoses, and a telephone interview to determine presence of comorbid anxiety disorders, income, wealth, and employment. Self-administered mail surveys were obtained at baseline, and every six months for two years. Survey response rates were 95 percent for the telephone interview, 88 percent for the baseline survey, and 83 percent for 6- and 12-month surveys. Nonresponse weights are used to adjust for differential enrollment probabilities (McCaffey, Duan, and Morton 2000).

Interventions

The interventions were designed to increase access to and adherence with some form of appropriate care for depression, either medication or psychotherapy. The interventions were developed by the study investigators but implemented locally by the practices, that is, the practices were trained to help themselves improve care under naturalistic practice conditions. We compare usual care versus two interventions, QI-MEDS and QI-THERAPY. Because the two intervention conditions are similar in nature, we combine them in this paper to test our primary hypothesis that QI intervention improves care and outcomes for minority patients.

The interventions included three common components. First, the practices provided in-kind resources amounting to one-half the estimated costs of implementing the interventions plus the time costs for participating in the evaluation; the other half was paid by the study.

Second, the study trained local expert leaders to implement quality improvement onsite. The expert leaders team included a primary care provider, a nursing supervisor, and a mental health specialist from each site. They participated in a two-day workshop on the study's depression treatment model and collaborative care principles; written manuals were provided to team members. Prior to patient recruitment, expert leaders oriented clinicians, distributed clinician manuals, initiated monthly lectures, and provided academic detailing as needed. They also held monthly meetings using intervention staff records to provide feedback on treatment patterns.

Third, the study trained local staff nurses in a one-day workshop to serve as "depression specialists." These nurses provided brief clinical assessments to patients who screened positive for depression, and then used materials developed by the study (written and videotaped) to educate the patient and help activate them to engage in treatment. Local experts provided supervision for the nurses. Using information from the nurse visit, the primary care clinician then met with the patient to formulate a treatment plan. Intervention clinicians and patients were free to use these nurses or not.

Each intervention also had intervention-specific resources. In the QI-MEDS intervention, trained nurses were available to provide follow-up assessments and support for adherence to treatment for 6 months (with half the patients randomized to 12 months). In the QI-THERAPY intervention, the study trained local psychotherapists to provide individual and group Cognitive Behavioral Therapy for 8 to 12 sessions and provided them

with patient and therapist manuals (Muñoz and Miranda 1986; Muñoz, Aguilar-Gaxiola, and Guzman 1986). The organizations reduced copay for psychotherapy to the primary care amount (i.e., \$0–\$10 versus \$20–\$30). In usual care, no study resources were available, although clinic medical directors were mailed written copies of national practice guidelines. The QI-THERAPY patients could receive antidepressant medications, but did not have access to QI-MEDS study resources, such as follow-up by the nurse. Further, usual care and QI-MEDS patients did not have access to the study-sponsored CBT-therapists, but could use other local therapists.

In all conditions, patients and providers had full choice over treatments; the conditions differed only in availability of resources. All patients could receive psychotherapy, but only QI-THERAPY patients had access to the specially trained providers and lowered copayments. All patients could receive medications, but only QI-MEDS patients had access to nurse follow-up resources.

Adaptation of the Interventions for Minorities

Within the overall aim of improving rates of appropriate care, the interventions had a secondary aim of insuring inclusion of minorities in opportunities for care. Accordingly, experts in mental health interventions for minority patients participated in designing the QI educational materials. All intervention materials were available in English and Spanish; Latino and African American providers were shown in videotapes that were included in the intervention material for all patients. Information regarding cultural beliefs and ways of overcoming barriers to appropriate treatment for Latino and African American patients was included in provider training materials. Furthermore, English- and Spanish-language materials were provided to improve psychotherapy for depression for ethnically diverse (Muñoz and Miranda 1986) and Latino (Muñoz, Aguilar-Gaxiola, and Guzman 1986) patients. Finally, minority investigators provided direct supervision to the local experts throughout the intervention.

Measures

Appropriate Care. We examine the rate of appropriate care during each 6-month assessment period. We define appropriate care as identifying need for care and providing guideline concordant treatments. Appropriate treatment with antidepressant medications requires that they are given at guideline daily dosage (i.e., at or above the minimum dosage recommended in the AHRQ

Guidelines, with comparable criteria for newer antidepressant medications) (Depression Guidelines Panel 1993; Wells et al. 1994; Katon et al. 1992) for 25 days or more. Appropriate treatment with psychotherapy requires at least four specialty mental health visits with an active component (e.g., engaging in pleasant activities, solving problems). At baseline and at 6-month follow-up, all depressed subjects were considered in need of care because they met screening criteria for probable depression within the prior 6 months (i.e., at baseline, 6-month follow-up, or both). However, at 12-month follow-up some patients receiving no treatments could have appropriate care if they had been free of depression for several months. To capture this change in the indicator of appropriate care, for 12-month follow-up we defined two groups as follows: persons with depression at 12- or 6-month follow-up who received no appropriate treatment in the prior 6 months were designated as not having appropriate care; and those who were either similarly symptomatic and had appropriate treatment or those who were well with or without treatment were considered to have appropriate care. In this paper, we use the term "appropriate care" to refer to the indicator that applies to each follow-up point, in effect, any appropriate treatment for baseline and 6 months and the indicator described above for 12 months.

Clinical Outcomes. We use an indicator for probable continued depressive disorder, based on administration at each follow-up of the screener measure for probable disorder, as described above, but referring to the 6-month period just prior to measurement (omitting the dysthymia stem item, which applies only to a 2-year time period). We classify patients as having probable disorder for each 6-month follow-up. The contrast category is probable remission.

Employment. Items from the screener and baseline telephone survey assessed whether respondents were employed at baseline. The 6- and 12-months surveys assessed employment status at these follow-up times.

Data Analysis

We apply patient-level intent-to-treat logistic regression analyses, with intervention status (being in either type of intervention clinic versus a care as usual clinic), ethnicity (African Americans, Latinos, whites), and randomization blocks as the independent variables. We include interactions between intervention and ethnicity to examine the differential intervention effects by ethnic group. Because patients are clustered within clinics, we adjust for the cluster effect.

We control for patient baseline characteristics, including all socio-demographic and clinical differences between the samples.

To help interpret the results, we present standardized predictions of the intervention effects for each outcome (Graubard and Korn 1999). We use the regression parameters and individual's actual values for the covariates other than intervention status to generate a predicted value for each individual within their ethnic group, first as an intervention subject and then as a control subject. We then average the intervention and control predictions for each ethnic group.

Nonresponse weights are used to mitigate potential bias due to enrollment nonresponse and wave nonresponse (McCaffey, Duan, and Morton 2000). We use multiple imputation for missing data at the item level. We impute five datasets, average the regression coefficients and predictions, and adjust the standard errors for the uncertainty due to imputation (Schafer 1997; Rubin 1996, 1998).

RESULTS

Overall Results

As reported earlier (Wells et al. 2000), patients in QI did not differ from patients in the intervention at baseline. However, at 6 months, QI patients were more likely than controls to receive counseling or use antidepressant medications at an appropriate dosage (50.9 percent versus 39.7 percent, $p < .001$), with a similar pattern at 12 months ($p = .006$). At 6 months, QI patients were less likely than controls to meet criteria for probable depressive disorder (39.9 percent versus 49.9 percent, $p = .001$), with a similar pattern at 12 months ($p = .005$). Initially, employed QI patients were more likely to be working at 12 months relative to controls (89.7 percent versus 84.7 percent, $p = .05$).

Ethnic Group Differences at Baseline

Patient baseline characteristics are presented by ethnicity in Table 1. The ethnic groups differ substantially in demographic and clinical characteristics. The differences are generally reflective of demographic differences among ethnic groups in the United States.² African American patients were more likely to be female and unmarried than white patients. Latino and African American patients were younger than white patients. Latinos had less formal education than white and African American patients. Latino patients were

Table 1: Characteristics of Enrolled Patients by Ethnicity

Characteristic	Latino (N= 398)	African American (N= 93)	White (N= 778)
	Weighted Mean (SD) or %	Weighted Mean (SD) or %	Weighted Mean (SD) or %
Demographics			
Mean age (SD)	40.8 (13.8) ⁺⁺	41.9 (13.4)*	45.6 (15.8)
Female	72.2	79.8*	68.9
Married	52.5	42.3*	57.0
Education			
< High school	39.2 ^{++aa}	12.8	9.3
High school	28.0	26.6	31.4
Some college	26.8 ^a	42.3	31.7
College	5.9 ^{++aa}	18.2	27.6
Clinical			
Chronic conditions			
0	24.5	18.7	21.2
1	25.3	23.3	23.8
2	20.3	29.3*	18.2
3+	29.9*	28.7	36.8
Health-related QOL			
Mean MCS-12 (SD)	36.9 (11.1)*	38.3 (11.0) ⁺	35.0 (10.3)
Mean PCS-12 (SD)	44.1 (11.2)	45.5 (9.9)	45.4 (12.0)
Depressive disorders^A			
Double depression	12.1	7.9	11.5
Single depression	40.9*	38.3	47.5
Lifetime and current symptoms only	23.2	21.7	20.1
Symptoms only	23.8	32.2*	20.9
Concurrent anxiety	48.9*	37.8	40.4
Baseline appropriate care	12.8 ⁺⁺	29.4	35.3
Any baseline care	31.6 ⁺⁺	42.3	50.6
Employment status	60.9	74.1	64.5

SD: Standard deviation for numerical variables.

^ABased on CIDI diagnosis.

*Differ significantly from white with $p < .05$.

⁺Differ significantly from white with $p < .01$.

⁺⁺Differ significantly from white with $p < .001$.

^aHispanic differ from African American with $p = 0.05$.

^{aa}Hispanic differ from African American with $p < .001$.

more likely to have co-occurring anxiety disorder than white patients; white patients were more likely to meet criteria for major depression than Latino patients. Latinos were less likely to receive prior appropriate care when compared with white participants and less likely to receive any depression

care than were white participants. African Americans were more likely to report depressive symptoms in the absence of current or lifetime disorder. African Americans were more likely to be employed than were Latinos.

Appropriate Care. At baseline, Latinos were less likely to receive appropriate care for depression than were white patients (12.8 percent versus 35.3 percent, $p < .001$). Approximately 29.4 percent of African American patients were receiving appropriate care.

Intervention Effects by Ethnic Groups

Appropriate Care. There was no significant interaction between intervention and ethnic group for the rate of appropriate care. As shown in Table 2, the interventions' effect on quality of care was evident for all ethnic groups. For Latinos, the rate of appropriate care for those in the intervention clinics was 8–13 percentage points higher than among those in control clinics, with the difference reaching statistical significance at month 12. For African Americans, the rate of appropriate care for those in the intervention clinics was 12–21 percentage points higher than among those in the control clinics, and was statistically significant at month 6. For the white sample, rate of appropriate care for those in the intervention clinics was 8–9 percentage points higher than among those in the control clinics and was statistically significant at month 6.

Under usual care, the minorities continue to receive less appropriate care over time. As shown in table 2, at month 12, 53.7 percent of white patients received appropriate care; whereas, only 35.2 percent of African American and 26.4 percent of Latino patients received appropriate care. This latter difference in rate of appropriate care at 12 months between whites and Latinos is significant ($p = .0002$).

Outcomes. There was a significant interaction between intervention and ethnic group for probable depression ($p = .001$ at month 6 and $p = .11$ at month 12). As shown in Table 2, rate of probable depression was substantially lower among minorities in the intervention as compared with control clinics at month 6 (by about 17 percentage points for Latinos and more than 30 percentage points for African Americans) and at month 12 (about 27 percentage points for Latinos and about 27 percentage points for African Americans); all are statistically significant. The intervention effects on the rate of probable depression for white patients were substantively small and not statistically significant.

Because this pattern of improved results for minorities could be a result of better care in sites with high numbers of Latino patients, we conducted

Table 2: Adjusted Percentage of Patients Receiving Appropriate Care and Positive Outcomes by Ethnicity and Intervention Status^a

	Latino			African American			White		
	Intervention	Control	T (p)	Intervention	Control	T (p)	Intervention	Control	T (p)
	% (95% CI)	% (95% CI)		% (95% CI)	% (95% CI)		% (95% CI)	% (95% CI)	
<i>Appropriate care</i>									
Month 6	30.0 ^a (23.9-36.2)	21.8 (12.9-30.7)	1.54 (.13)	43.1 (33.0-53.2)	28.8 (19.1-38.5)	2.17 (.04)	47.7 (41.6-53.8)	38.9 (32.1-45.7)	1.98 (.05)
Month 12	39.4 ^b (31.7-47.1)	26.4 ^c (17.3-35.5)	2.21 (.03)	55.7 (27.1-84.4)	35.2 (7.8-62.6)	0.98 (.33)	62.1 (57.2-67.1)	53.7 (45.7-61.7)	1.89 (.07)
<i>Outcomes Probable</i>									
depression									
Month 6	47.0 (36.1-57.9)	63.6 ^d (54.6-72.5)	-2.34 (.02)	23.9 ^e (15.5-32.3)	56.1 (46.0-66.2)	-4.64 (.00)	37.1 (31.7-42.5)	40.7 (34.1-47.2)	-0.93 (.36)
Month 12	49.1 (40.1-58.0)	65.6 ^f (55.7-75.5)	-2.35 (.02)	30.7 (19.9-41.4)	58.0 ^g (42.6-73.5)	-2.96 (.01)	37.4 (32.4-47.9)	41.4 (34.9-47.9)	-1.04 (.30)
<i>Working</i>									
Month 6	59.2 (52.4-66.1)	60.0 (52.5-67.6)	-0.26 (.80)	64.7 (52.3-77.0)	66.1 (54.7-77.5)	-20 (.84)	68.0 (60.8-75.3)	61.5 (53.7-69.2)	2.59 (.01)
Month 12	60.1 (51.3-68.8)	56.6 ^h (47.1-65.9)	0.88(.38)	70.3 (56.2-84.4)	75.6 ^h (67.1-84)	-80(.43)	66.0 (58.1-73.8)	59.8 (51.6-68.0)	2.53 (.02)

T (p): T statistic and p-value comparing intervention versus control patients by ethnic groups.

N vary across waves and outcomes: 1,188 at baseline; 1,150-1,156 at 6 months; 1,075-1,126 at 12 months.

All N are at that wave, except for appropriate care at month 12, which requires having data at month 6 and month 12.

^aLatino QI significantly different from white QI with p = .025;

^bLatino QI significantly different from white QI with p = .023;

^cLatino control significantly different from white controls with p = .002;

^dLatino control significantly different from white controls with p = .05;

^eAfrican American QI significantly different from white QI with p = .002;

^fAfrican American control significantly different from white controls with p = .043;

^gLatino control significantly different from white controls p = 0.06;

^hAfrican American control significantly different from white controls with p = .004.

sensitivity analyses including only those sites with a high concentration of Latino patients. The pattern of results remained similar within those sites.

There was no significant interaction between intervention and ethnic group for work status. Reported employment rates for Latinos and African Americans did not substantially increase as a result of the intervention. Among the white sample, rates of employment were 5–7 percentage points higher among those who received the intervention as compared with the control sample; differences are statistically significant for whites at months 6 and 12. We had poor precision for contrasting intervention effects for whites and minority groups for this outcome.

Under usual care, minorities had poorer clinical outcomes than did whites. At month 12, Latinos (65.6 percent) and African Americans (58.0 percent) in the control clinics were more likely to have probable depressive disorder than were whites (41.4 percent) in the control clinics; these differences are statistically significant. However, employment outcomes have a different pattern. At month 12, 56.6 percent of Latinos in control clinics were employed, as compared with 59.8 percent of white participants. At month 12, African Americans in the control clinics were more likely to be employed (75.6 percent) than were white participants.

Reducing Disparities. To determine whether the interventions improved quality of care or health outcomes more for minorities than for whites, we grouped the Latino and African American minorities together and contrasted them with whites. There were no significant interactions between intervention status and minority status for appropriate care at either 6 or 12 months. The intervention–ethnicity interaction was significant, however, in predicting probable depression at 6 months ($t = 2.54$, $p = .02$). The direction of the effect is for more improvement under the interventions among minorities than among whites. There were no significant interactions in predicting employment status.

DISCUSSION

These results offer a promising direction for improving care and outcomes for depressed, ethnic minority primary care patients. We found that when managed care practices implemented a feasible quality improvement program following their own practical goals and largely within their existing resources, they were able to improve by 8 to 20 percentage points the rate of appropriate care for depression. The Latino, African American, and white participants all

improved rates of receiving appropriate care as a result of the intervention, to a roughly similar degree. These gains were made in spite of the modest extent of modification of the basic intervention design to accommodate ethnic minority patients. The major modifications were: including experts in treating ethnic minorities among the intervention team, making information relevant to treatment of ethnic minorities available for providers, and translating patient materials into Spanish.

The intervention specifically improved clinical outcomes among the ethnic minorities. Since the minorities were at substantially greater risk of receiving less appropriate care and having poor outcomes (especially Latinos) without the intervention, this led to a reduction in health disparity by ethnic status among depressed, minority patients. In our knowledge, this is the first evidence that a general quality improvement program is effective for diverse medical patients.

The QI intervention improved clinical outcomes among ethnic minorities but not among whites. This could mean that the populations differ, such that the minorities include a higher proportion of initial treatment responders who have not already been treated and improved. Consistent with this explanation, we found in exploratory analyses that the intervention effects for all ethnic groups were qualitatively stronger among persons not previously receiving care, compared to those previously receiving care. An alternative explanation would be that factors such as social or family support or diet-related metabolic responsiveness to care differed between the ethnic minorities and whites resulting in improved responsiveness to care in the ethnic minority samples.

In contrast, the QI intervention increased employment for white patients, although we did not have the precision to conclude that the response, like the descriptive results, was weaker for minorities. Thus, both groups benefit, but we have the most confidence that the minorities did so clinically while the whites did so functionally through employment. The relationship between depression, its treatment, and employment is poorly understood and it is interesting to note that improvement in one outcome is possible without improvement in the other. Because the whites were more likely to have prior treatment, they may have already improved clinically and the intervention provided further improvement leading to better employment; or the whites may have had better opportunities to respond to any improvement through increasing employment. It is possible that a more sustained intervention or ethnic-focused adaptation would be needed to accomplish a similar employment benefit among minorities. This study raises new questions about the

effects of medical interventions on multiple components of need and disparities.

Several limitations should be noted in this study. First, there was sample loss during enrollment, a factor that could result in under- or overreport of the interventions effects. All measures are self-report, including race or ethnicity. The African American sample was small; generalizations cannot be made to sites serving large numbers of African American patients or to sites with less diversity. The results suggest there may be ethnic differences in outcomes in response to the interventions. The clinical outcomes were primarily among minorities whereas the employment outcomes were primarily among the white patients. These results were not anticipated and, therefore, cannot be clearly interpreted. One possibility is that changes in clinical outcomes associated with QI interventions would only be effective in ethnically diverse settings. However, we would caution against interpreting these findings to indicate that clinical improvements will not be found in white patients when organizations implement these QI interventions. Factors such as prior experience with care may have been associated with ethnic status and could account for the differential response. If this is true, underserved whites, such as those in rural areas, may also show differential clinical response to care. These ethnic findings clearly need replication. Finally, all changes noted as a result of the interventions should be attributed to the QI interventions rather than to depression treatments.

These results suggest that practice-initiated quality improvement programs may offer an approach to improve quality of care equitably with respect to ethnic groups, without increasing disparities in health outcomes, a risk that is common for diffusion of social innovations (Rogers 1996). Moreover, this same approach has the potential to reduce disparities in health-specific outcomes. In this respect, medicine may have a feasible strategy to overcoming some disparities within the context of managed care. This is encouraging news because it implies that some progress on reducing disparities could proceed without much larger changes in public policy. A similar level of implementation and outcome improvement seems feasible for similar practices, which span private and public, rural and urban, network and staff/group practices. Although the intervention in this study provided improved care for the minority patients, minority patients continued to receive lower quality care and incurred poorer health outcomes than did white patients. Even with improved opportunities for care, minorities may face substantial barriers, such as need for child care, demanding work environments, lack of Spanish-speaking providers, failure to include families in

treatment decisions, and so on. Despite the promise of quality improvement interventions, development of interventions specifically to improve care for depressed minorities is needed. For example, strategies to educate and activate minority communities regarding depression care may be necessary to close the gap in care for these populations. Similarly, given the substantial number of patients who were depressed at one year, improvements beyond those achieved via this modest intervention are needed for all depressed medical patients. Nonetheless, these results offer an important initial step in improving the quality of health care for our nation's growing ethnic minority community.

NOTES

1. We excluded 88 patients from these analyses who did not identify themselves as belonging to one of the three ethnic groups with samples large enough for analyses.
2. These differences are reflective of differences in ethnic groups residing in the United States. According to the 1999 Population Estimates Program, U.S. Census Bureau, of those aged 18 and older, African Americans are more likely to be female (52.7 percent) than are whites (51.1 percent); African Americans are more likely to be unmarried (58.3 percent) than are whites (37.6 percent); Latinos have younger mean age (28.7 years) as do African Americans (32.0 years) as compared with whites (38.3 years). According to the 1998 Census Bureau estimates, Latinos attain less formal education than do whites, with 55.7 percent finishing high school, as compared with 83 percent of whites.

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