Understanding Changes in Primary Care Clinicians' Satisfaction From Depression Care Activities During Adoption of Selective Serotonin Reuptake Inhibitors

Diana Shye, PhD, MPH; Jonathan B. Brown, MPP, PhD;
John P. Mullooly, PhD; and Gregory A. Nichols, PhD

Objectives: To describe how primary care clinicians' perceptions about depression care as a clinical activity changed during the adoption of selective serotonin reuptake inhibitors (SSRIs) in their health maintenance organization (HMO).

Study Design: Prospective study of change in primary care clinicians' level of satisfaction from depression care activities from time 1 (mid-1993) to time 2 (early 1995).

Methods: Study subjects were internal medicine and family practice physicians, physician assistants, and nurse practitioners (n = 196) in a large, not-for-profit group-model HMO. We modeled level of satisfaction from depression care activities at time 2 as a function of changes in depression-care-related attitudes and perceptions over the study period, controlling for time 1 level of satisfaction and personal and professional characteristics.

Results: Overall satisfaction showed a small, statistically significant improvement over the study period. Time 2 satisfaction was a function of improved perceptions about the feasibility of primary care treatment of depression, which in turn were related to improved perceptions about the effectiveness of drug treatment. The relevance of clinicians' perceptions about their own depression care skills declined concomitantly.

Conclusions: The adoption of SSRIs in the HMO was associated with improvement in primary care clinicians' perceptions about their ability to successfully treat depression (especially using pharmacology) and in their overall satisfaction from depression care activities. Future research should address whether reliance on SSRIs replaces the use of other depression treatment modalities, and if so, how this reliance affects patient outcomes and satisfaction and overall healthcare costs.

(Am J Manag Care 2002;8:963-974)

den of functional disability, social morbidity, health service utilization, and costs associated with depressive disorders and subclinical levels of depressive symptoms.[3,5-11]

The primary care system has been called the de facto mental healthcare system, and plays a major role in depression care.[12] Most people who obtain treatment of depressive symptoms or disorders receive such care solely in primary care settings.[13,14] But the correspondence between primary care clinicians' depression diagnostic and treatment decisions and specialty mental health guidelines is often low.[15-21] Patient, clinician, and structural factors probably interact to create barriers to optimal treatment of depression in primary care.[22] For example, primary care patients frequently present depressive symptoms somatically and often resist psychiatric labeling and treatment.[23-26] Primary care clinicians often have had little specific training for depression care,[22,27] and they may face structural barriers that prevent ready access to mental health specialists for consultation and referral, as well as financial barriers to patients' access to specialty mental health services. In such circumstances, they may find depression care an unsatisfying clinical activity. The result may be limited therapeutic initiative on the clinicians' part and unnecessary suffering for depressed patients.[22,28]

Heightened awareness of these problems led the US Agency for Health Care Policy and Research (currently the Agency for Healthcare Research and Quality [AHRQ]) to develop a clinical practice guide-

The past decade witnessed a dramatic change in public and professional recognition of depression as a public health problem. Many studies have documented the high prevalence of depression in the community,[1,2] its character as a chronic, recurring condition,[3,4] and the heavy bur-

line on primary care treatment of depression[29,30] and support research to evaluate strategies for implementing the guideline in managed care organizations (HMOs).[31-35] Other researchers also evaluated approaches to enhancing primary care clinicians' depression-related knowledge and skills and improving patient outcomes.[19,36-38] These studies clarified that achieving lasting improvement in depression care outcomes in a primary care setting is challenging.

The advent and aggressive marketing of a new class of antidepressants, the selective serotonin reuptake inhibitors (SSRIs), also dramatically affected professional approaches to and public perceptions about depression care. Claims that SSRIs are as effective as earlier antidepressant agents, have a better side effect profile, and are less dangerous in overdose[39] have made this class of drugs particularly attractive to primary care clinicians, who have been heavily targeted for marketing. The first SSRI (a form of fluoxetine hydrochloride) went on sale in the US market in January 1988. By early 1994, there were more than 6 million users of this drug in the United States alone, and the market for this agent and the others in its class (sertraline hydrochloride and paroxetine) was worth nearly $3 billion.[40] This large market indicates the adoption of these drugs by clinicians other than psychiatrists and suggests that primary care clinicians were undertaking more depression care initiatives.

The SSRI manufacturers' marketing message was not lost on the general public. Early in 1990, *Newsweek* presented fluoxetine as a wonder drug[41] and a possible alternative to time-consuming and expensive psychotherapy.[42] In mid-1993, a psychiatrist published a popular account of his observations of the drug's effects on his patients. Entitled *Listening to Prozac*,[43] this record-breaking best-seller described a drug that quickly and dramatically rendered people suffering from depression "better than well."[43(p. xv)] The appearance in 1994 of a critical challenge to this book, entitled *Talking Back to Prozac*,[44] served to keep public attention focused on the possibilities offered by this new class of antidepressants. Because of this major media attention, patient demand for and satisfaction with SSRIs was undoubtedly a factor in the burgeoning market for them.

In light of the above developments, we might expect that greater ease of administration of SSRIs as a result of their better side effect profile and good patient acceptance of these drugs would increase primary care clinicians' therapeutic initiative in and overall satisfaction from treating depressed patients. However, previous research provides little information about how these developments have affected clinicians' experiences of depression care as a clinical activity. In the present study we describe the depression-care-related attitudinal components of the improvement observed in the overall level of satisfaction from depression care activities reported by primary care clinicians in a large, established, US health maintenance organization (HMO) during the period when SSRIs were being adopted for primary care of depression in the HMO (from mid-1993 [time 1] to early 1995 [time 2]).

METHODS

Study Site

The study site was Kaiser Permanente Northwest Division, a not-for-profit group-model HMO of more than 430 000 members that has provided comprehensive care to members in the Portland, Ore metropolitan area since 1946. The organization's members resemble the overall area population in most health and socio-demographic characteristics.[45,46] Primary care clinicians provide most of the care members receive for depression and anxiety.[13] Physician assistants and nurse practitioners function alongside internists and family medicine physicians as members' personal primary care clinicians.

Background for the Present Analysis

This study involved secondary analysis of some of the data collected in earlier intervention trials that tested the effectiveness of academic detailing (AD)[47] and continuous quality improvement (CQI)[48] as strategies for implementing the HMO's local adaptation[49] of the AHCPR Guideline for the Detection and Treatment of Depression in Primary Care.[29] This local adaptation of the AHCPR guideline replaced an earlier (1990) HMO depression guideline[50] that had focused on antidepressant drug choice. The earlier guideline recommended first- and second-generation tricyclic agents and discouraged the use of SSRIs, which at the time were relatively new on the market.[50] In contrast, the new guideline adopted the AHCPR guideline's recommendations and advocated all classes of antidepressant agents as equally acceptable first-line drugs,[29] thus opening the door to widespread prescribing of SSRIs.[31]

The 2 intervention trials were conducted simultaneously. The CQI intervention was implemented at the group level in "Area A" of the HMO's 2 administrative areas (corresponding to distinct geographical

regions in the service area). Clinicians in "Area B" comprised the control group. In the AD intervention, all primary care clinicians from both areas were randomly allocated to individual exposure to the intervention or to a control group. Changes in depression care outcomes and process were measured in the clinicians' patients. The methodology and findings of the intervention trials have been described elsewhere.[33]

The intervention trials found few changes in depression care process or patient outcomes that could be attributed to exposure to either of the 2 implementation strategies (CQI or AD).[33] However, the findings of that study indicated 2 secular trends that were independent of implementation strategy exposure status. First, the overall rate of antidepressant drug prescribing in the organization increased significantly (the proportion of members receiving antidepressant agents prescribed by primary care clinicians rose from 12% to 15%). Second, among members who received such prescriptions, the proportion receiving SSRIs increased from 29% to 44%.[33]

The intervention trials included a substantial focus on clinicians' depression-related knowledge, attitudes, and self-reported practices, which were measured in baseline and postintervention surveys.[33] As in the case of depression care process and patient outcomes, exposure to AD and/or CQI had few effects on these measures, but we did find a secular trend of small but statistically significant improvements in nearly all the measures of attitudes and self-reported practices during the study period among the primary care clinicians as a whole.[33]

We undertook the present analysis to gain understanding about how this secular trend of improvement in clinicians' depression-related attitudes and overall satisfaction with depression care could occur during the same period that carefully designed and executed CQI and AD implementation strategies failed to substantially affect these same attitudes and behaviors.[33] We considered the pre- to postintervention change in the clinicians' satisfaction from depression care activities (our dependent variable) as a global indicator of the effect of the changes in depression care that occurred during the study period and assumed this change would reflect concomitant adjustments in specific underlying depression-care-related attitudes and perceptions, which constitute the independent variables in this analysis.

Study Population

The study population was the 196 internal medicine and family practice physicians, nurse practi-

tioners, and physician assistants who practiced in the HMO's departments of family practice or internal medicine, had at least 1 year's employment in the organization at the time of the baseline survey (July–September 1993 [time 1]), and remained employed in the HMO at the time of the postintervention survey (January–February 1995 [time 2]). Of these, 168 responded to the baseline survey (85.7%), 162 to the postintervention survey (82.7%), and 134 to both surveys (68.4%). Respondents and nonrespondents did not differ on ascertainable background characteristics (age, sex, and length of employment in the organization). Furthermore, personal, professional, and practice setting characteristics did not differ by survey response status (baseline or postintervention, or both). The exception was a lower response rate to both surveys among the clinicians in Area B. **Table 1** describes the clinicians' personal, professional, and structural and practice setting characteristics and their distribution by survey response status.

Study Measures

Outcome Measure. The outcome was the level of satisfaction clinicians reported deriving from their depression care activities at time 2, measured as the level of agreement with the following questionnaire item: "I find great satisfaction in treating depressed patients." Score range was from 1 (strongly disagree) to 4 (strongly agree).

Independent Variables. Time 2 – time 1 differences (change scores) in clinicians' depression-related attitudes and self-reported practices (recognition of depression, feasibility of primary care treatment of depression, effectiveness of drug treatment, depression care self-efficacy perceptions, and depression care therapeutic activity levels) constituted the predictors of time 2 level of clinician satisfaction from depression care activities. Several of these attitude measures were adapted from questionnaires used in previously published studies.[51-53] The measure of recognition of depression, feasibility of primary care treatment, and effectiveness of drug treatment were constructed with the aid of factor analysis from the items of a larger scale measuring general attitude toward the treatment of depression that was based in part on items from the Physician Belief Scale[51] as used by researchers in the Ambulatory Sentinel Practice Network.[52] Measures of clinicians' depression care therapeutic activity levels were created by adapting elements of a similar measure developed by Orleans et al[53] (also with the aid of factor analysis). We created the measures of

treatment self-efficacy and consultation and referral self-efficacy expressly for this study. On all scales, item responses were averaged to create a mean summary score. The Appendix shows the items that comprised the measures of attitudes and reported practices, the score range for each measure, and the relevant indices of internal consistency (Cronbach's alpha). With the exception of the measure of clinicians' self-reported depression treatment activity levels, the alphas for these measures were moderate (.53-.72) and their pre- and postintervention values highly consistent. These measures and their method of construction have been described in detail elsewhere.[33] (View details at http://www.kpchr.org/info/present/appendix-b-brown.pdf.)

Covariates. Given the general stability of attitude measures over time, in predicting level of satisfaction from depression care activities at time 2, we used level of satisfaction at time 1 as a covariate. We also controlled for the effects of the principal possi-ble confounding factors that previous research has shown to be related to physicians' knowledge, attitudes and practices: (1) personal characteristics (age, sex), (2) professional characteristics (clinician type, years employment in the HMO, amount of professional training devoted to depression care relative to colleagues, knowledge of *Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition, Revised* [DSM-III-R] depression diagnostic criteria); and (3) structural and practice setting characteristics (administrative area in which the clinician worked [as a control for exposure to the CQI implementation strategy], exposure to the AD implementation strategy [Yes/No], and patient visits per hour in the prior year).

We measured the clinicians' knowledge of DSM-III-R depression diagnostic criteria by asking them to classify each of 13 symptoms as to whether the symptom was "a crucial symptom of depression," "a symptom that often indicates depression," or "not a symptom of depression." The clinicians were then

Table 1. Primary Care Clinicians' Personal, Professional, and Workload Characteristics, By Questionnaire Response Status

Clinician Characteristics	Pre-Intervention Questionnaire Only (n = 34)	Postintervention Questionnaire Only (n = 28)	Pre- and Postintervention Questionnaires (n = 134)	Total (n = 196)	P
Personal					
Age, mean (SD) (y)	43.5 (6.0)	43.9 (6.1)	43.3 (6.7)	43.4 (6.5)	.90*
Sex (% women)	31.3	35.7	25.4	27.8	.48†
Professional					
Clinician type (%)					
Internal medicine physician	52.9	57.1	44.0	47.5	.44†
Family practice physician	26.5	17.9	29.9	27.6	
Physician assistant	11.8	17.9	9.7	11.2	
Nurse practitioner	8.8	7.1	16.4	13.8	
Years employment in HMO, mean (SD)	9.4 (6.2)	9.0 (6.0)	8.3 (6.3)	8.6 (6.3)	.64*
Practice setting					
Administrative area (%) .					.01†
Area A	17.7	28.6	44.0	37.2	
Area B	82.4	71.4	56.0	62.8	
Workload					
Patient visits per hour, mean (SD)	2.5 (0.8)	2.5 (0.8)	2.7 (0.6)	2.6 (0.7)	.24*

n = 196.
*P value for *F* (analysis of variance).
 P value for χ^2 (cross-tabulation).
HMO indicates health maintenance organization.

classified into "no knowledge," "low knowledge," and "high knowledge" groups according to the number of correct answers they gave. (View details at http://www.kpchr.org/info/present/appendix-b-brown.pdf.) We used this measure as a covariate because it did not change significantly over the study period. The measure of clinicians' patient visits per hour for the year prior to the relevant survey was calculated using data from the HMO's automated encounter system on the total hours during the year the clinician spent seeing patients and the total number of patients seen.

Data Analysis

Preliminary bivariate and multivariate analyses indicated that clinician age, sex, years of employment in the HMO, number of patient visits per hour, and self-reported treatment and referral activity levels were not significantly correlated with level of satisfaction from depression care activities either at time 1 or time 2 ($P \geq .35$ in all cases). These predictor variables were not included in further analyses.

We then developed a nested hierarchical multivariate linear repression model to predict, among clinicians who responded to both the pre- and postintervention surveys (n = 134), level of satisfaction at time 2, controlling for time 1 level of satisfaction and using time 2 – time 1 *changes* in depression-care-related attitudes and perceptions as independent (predictor) variables. Step 1 of the model introduced the control variables of level of formal training in depression care, clinician type, knowledge of DSM-III-R depression diagnostic criteria, administrative area (as a control for exposure to CQI) and AD exposure status. Step 2 introduced time 1 level of satisfaction. Time 2 – time 1 change scores for the measures of recognition of depression, feasibility of primary care treatment, and depression self-efficacy perceptions entered the model at step 3, followed by the change score for the "effectiveness of drug treatment" measure (step 4). Changes in the betas for previously entered variables that occurred as additional variables entered the model provided evidence about direct and indirect relationships between the independent and dependent variables.

Correlations among the predictor variables in the models were moderate to low ($\leq .42$) and did not present problems of multicollinearity. The final step of the hierarchical model was overfitted. We tested a trimmed model with at least 20 outcome events per variable in the model, but did not find a statistically significant reduction in the R^2 over and above the overfitted model. Thus we present the full final model here.

Given the instability typical of change scores (the independent variables in our central hierarchical model), we undertook to validate the findings of the model by comparing separate hierarchical models that described the correlates of level of satisfaction from depression care activities at time 1 (among respondents to the baseline clinician survey) and at time 2 (among respondents to the postintervention survey). These models contained 2 steps. Step 1 in each was identical to step 1 of the hierarchical model described above for respondents to both surveys, and step 2 introduced the measures of depression-related attitudes at time 1 and time 2, respectively.

RESULTS

Table 2 shows the mean baseline and follow-up values for the satisfaction outcome measure and for clinicians' depression-related knowledge, attitudes, and self-reported practices, along with the absolute and percent changes on these measures (time 2 – time 1). Satisfaction from depression care activities showed a small (6%) but statistically significant improvement from time 1 to time 2 (effect size = .23). Perceptions about the feasibility of primary care treatment of depression increased 3.7% (effect size = .17), whereas views about the effectiveness of drug treatment increased 7.3% (effect size = .45). The significant (10%) *decrease* in self-reported referral activity levels (effect size = .33) was complemented by a 3.7% *increase* in reported treatment activity levels (effect size = .20), indicating that at time 2 clinicians were more willing to treat depressed patients themselves (rather than refer them to mental health specialists).

Table 3 shows the hierarchical multivariate linear regression model predicting satisfaction from depression care activities at time 2 for clinicians who responded to both the pre- and postintervention surveys, controlling for level of satisfaction at time 1 and using changes in scores on the measures of depression-care-related attitude and perceptions as independent variables. Step 1 indicates that time 2 satisfaction from depression care activities was lower among physician assistants, among clinicians with less than average training in depression care, and among clinicians working in administrative area B. The proportion of total variance accounted for at this step was low ($R^2 = .11$). Step 2 indicated— not surprisingly—that time 1 level of satisfaction

Table 2. Secular Change in Clinicians' Knowledge, Attitudes, and Self-Reported Practices

	Time 1 Score		Time 2 Score		Change Score	Percent Change (Time 1 – Time 2)	*P* Value for Significance of Change (Time 2 – Time 1)
	Mean	SD	Mean	SD			
Outcome variable							
"I find great satisfaction in treating depressed patients." (Score range: 1 = strongly disagree, 4 = strongly agree) (n = 123)	2.52	0.66	2.67	0.74	0.15	+6%	.02
Predictor variables							
Knowledge of DSM-III-R depression diagnostic criteria (Score range: 0 = none, 1 = low, 2 = high) (n = 125)	1.02	0.82	1.06	0.71	0.04	+4%	NS
Recognition of depression (Score range: 1 = low, 4 = high) (n = 125)	3.16	0.51	3.29	0.53	0.13	+4%	.007
Feasibility of primary care treatment (Score range: 1 = strongly negative, 4 = strongly positive) (n = 125)	2.70	0.58	2.80	0.60	0.10	+3.7%	.09
"Drug treatment is very effective in treating depression." (Score range: 1 = strongly disagree, 4 = strongly agree) (n = 124)	3.00	0.49	3.22	0.55	0.22	+7.3%	.0001
Treatment self-efficacy perceptions (Score range: 1 = low, 5 = high) (n = 125)	3.37	0.53	3.52	0.49	0.15	+4.5%	.004
Consultation and referral self-efficacy perceptions (Score range: 1 = low, 5 = high) (n = 125)	2.81	1.02	2.95	1.00	0.14	+5%	.08
Treatment activity level (Score range: 1 = low, 4 = high) (n = 125)	3.26	0.59	3.38	0.44	0.12	+3.7%	.08
Referral activity level (Score range: 1 = low, 4 = high) (n = 125)	2.30	0.70	2.07	0.61	−0.23	−10%	.0004

A total of 134 clinicians responded to both the pre- and postintervention questionnaires. Numbers for each item represent the number who had values for the item on both questionnaires, thus permitting the calculation of change scores.
DSM-III-R indicates *Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition, Revised.*

from depression care activities strongly predicted level of satisfaction at time 2. Furthermore, at step 2, the betas for the 3 variables that in step 1 were statistically significant predictors of satisfaction dropped to below significant levels—indicating that in all cases, their effects had been due to differences in baseline satisfaction levels according to these variables. The stability of the beta for baseline satisfaction in subsequent steps of the model served to indicate the validity of this measure. Step 3 showed changes in perceptions about the "feasibility of pri-

mary care treatment" to be a moderately strong independent predictor of time 2 satisfaction. At step 4, the "drug treatment is very effective" change score entered the model, revealing an independent positive contribution of borderline significance to time 2 level of satisfaction. At this step the beta for the "feasibility of primary care treatment" change score dropped slightly, indicating that the change in clinicians' perceptions about the feasibility of primary care treatment was in part a function of the change during the study period in their perceptions

Table 3. Predictors of Satisfaction From Depression Care Activities at Time 2: Hierarchical Linear Regression Analysis (n = 134*)

Predictor Variables	Step 1	Step 2	Step 3	Step 4
Level of professional training in depression care				
Less than average	−0.29[†]	−0.20	−0.25	−0.25[†]
Average (reference category)	—	—	—	—
More than average	−0.15	−0.20	−0.14	−0.18
Clinician type				
Internal medicine physician (reference category)	—	—	—	—
Family practice physician	0.21	0.20	0.17	0.18
Physician assistant	−0.46[‡]	−0.19	−0.19	−0.15
Nurse practitioner	0.27	0.19	0.16	0.16
Knowledge of DSM-III-R depression diagnostic criteria				
No knowledge	−0.22	−0.12	−0.08	−0.08
Low and high knowledge (reference category)	—	—	—	—
Structural/practice setting characteristics				
Administrative medical area				
Area A	0.23[†]	0.07	0.08	0.11
Area B (reference category)	—	—	—	—
Exposure to academic detailing intervention (yes)	−0.007	−0.03	0.04	0.03
Attitudes and self-reported practices (summary measures)				
Baseline level of satisfaction from treating depressed patients		0.55[§]	0.53[§]	0.51[§]
Time 2 – time 1 change in "Feasibility of primary care treatment" score			0.34[§]	0.30[ǁ]
Time 2 – time 1 change in "Recognition of depression" score			0.13	0.10
Time 2 – time 1 change in "Treatment self-efficacy perceptions" score			−0.04	−0.03
Time 2 – time 1 change in "Consultation and referral self-efficacy perceptions" score			−0.01	0.02
Time 2 – time 1 change in "Drug treatment is very effective" score				0.20[†]
Adjusted R^2	.11	.31	.36	.37
Significance of model	.005	.0001	.0001	.0001
n	124	122	122	121

*Numbers (n) at the various steps of the model are less than 134 because some clinicians did not have both time 1 and time 2 values for all attitude variables.
[†]$P \le .10$.
[‡]$P \le .05$.
[§]$P \le .001$.
[ǁ]$P \le .01$.
DSM-III-R indicates *Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition, Revised.*

about the effectiveness of drug treatment. The variables in the final step of the model accounted for 37% of the variance in level of satisfaction from depression care activities at time 2.

We validated the above findings by comparing the hierarchical models describing the correlates of satisfaction from depression care activities at time 1 (for baseline survey respondents) and at time 2 (for postintervention survey respondents) (findings not shown). Covariates introduced at step 1 of each of these models accounted for little of the variance in satisfaction (R^2 = .13 and .15, respectively). At both time 1 and time 2, the addition of the attitude measures at step 2 nearly tripled the total explained variance in satisfaction (to R^2 = .35 and .38, respectively). In addition, the relative weight of the different attitude measures in predicting satisfaction changed between time 1 and time 2. At time 1, the measures of recognition of depression, feasibility of primary care treatment of depression, and depression treatment self-efficacy perceptions showed strong significant associations with satisfaction, but perceptions about the effectiveness of drug treatment did not. At time 2, recognition of depression and perceptions about the feasibility of primary care treatment continued to be associated with satisfaction, but clinicians' perceptions about the effectiveness of drug treatment for depression had replaced their perceptions about their own depression treatment self-efficacy as a correlate of satisfaction. All these findings are reflected in our central model shown in Table 3. Interested readers may visit http://www.kpchr.org/info/present/depguide-brown.pdf to view the separate hierarchical models describing satisfaction from depression care activities at time 1 and time 2.

DISCUSSION

The purpose of this analysis was to shed light on our earlier findings of an overall secular trend of statistically significant improvement in primary care clinicians' satisfaction from depression care activities and in other depression-related attitudes and practices that occurred during the time that SSRIs were being adopted in their HMO. These improvements took place at the same time that carefully designed and executed CQI and AD interventions failed to substantially affect the same attitudes and depression care behaviors.[33] None of the observed attitude changes was large (though most were statistically significant), but their clinical significance is indicated by the concomitant secular trends of statistically significant increases in the rate of antidepressant prescribing and a large-scale transition from the use of tricyclic agents to the use of SSRIs[33] by these same primary care clinicians. Taken together, these attitude changes provide information previously unavailable about how the adoption of SSRIs has affected primary care clinicians' experience of depression care as a clinical activity. We know of no other study that has been able to address this issue.

Two principal findings emerge from our analysis. First, change in these primary care clinicians' overall satisfaction from depression care activities during the time that SSRIs were adopted in their HMO was mainly a function of changes in their perception about the feasibility of primary care treatment of depression. Change in perceived feasibility of primary care treatment was in turn influenced by the even larger change in perceived effectiveness of antidepressant drug treatment. Given the overall stability of these physicians' attitudes on all our study measures (as indicated by the overwhelmingly dominant contribution of time 1 scores on all these measures to the variance in time 2 scores), the fact that changes in perceptions about the feasibility of primary care treatment and the effectiveness of drug treatment had any effect at all on time 2 satisfaction is in itself noteworthy. The *clinical* significance of the attitude changes we observed was reflected less in their absolute effect sizes, which were not large, than in the secular change in antidepressant prescribing (especially SSRIs) that accompanied them.

The second noteworthy finding that emerged from our study was the shift that occurred between time 1 and time 2 in the relationship between the various depression-related attitudes and perceptions and the clinicians' overall satisfaction from depression care activities. At time 1, clinicians' level of reported satisfaction was strongly correlated with recognition of depression as a problem among primary care patients, perceptions about the feasibility of treating depression in primary care, and perceptions of personal self-efficacy in a variety of depression treatment skills (of which drug treatment skills were but 1 component). By time 2, however, the picture had changed. Recognition of depression and perceptions about the feasibility of treating depression in the primary care setting continued to play a positive role. But clinicians' perceptions about the effectiveness of drug treatment for depression had replaced their perceptions about their own ability to

successfully use a broad range of depression treatment skills as a predictor of overall satisfaction from depression care activities. These findings all suggest that the availability of SSRIs is an important factor in primary care clinicians' improved perceptions about the effectiveness of drug treatment for depression and one that may encourage them to increase their therapeutic initiatives in depression care. Given patient satisfaction with these drugs and their relatively uncomplicated side effect profile, clinician satisfaction from their efforts to treat depression in their patients apparently also improves.

Even before the dissemination of the organization's new guideline, these primary care clinicians were already approaching or exceeding the AHCPR guideline's recommendations for detection and diagnosis of depression and for drug dosage and duration of antidepressant drug treatment.[33] Thus the change in the organization's antidepressant drug prescribing policy was the main "news" the new depression guideline contained for them. Our earlier finding[33] of a significant overall increase in antidepressant prescribing—especially of SSRIs—from time 1 to time 2 suggests that this was welcome news. This is further confirmed by our current finding that improvement in clinicians' perceptions about the effectiveness of drug treatment indirectly affected the principal predictor of time 2 satisfaction from depression care activities—perceptions about the feasibility of treating depression in primary care—and also had an independent effect on satisfaction. These clinicians were undoubtedly exposed during the same period to the intense marketing of SSRIs and frequent attention to the use of these drugs in the medical and popular media, and these influences probably also contributed to the attitude changes we observed. In fact, the organization's adoption of a new guideline that reflected the AHCPR guideline's antidepressant recommendations should be viewed as part of this overall process of secular change.

In view of the many efforts undertaken in recent years to improve the full range of primary care clinicians' depression care skills, it is perhaps disappointing to observe that, during a relatively short period of time and with the backdrop of intense medical and media attention to and commercial promotion of SSRIs, these clinicians' beliefs in the effectiveness of drug treatment came to replace their confidence in their ability to use a broad range of depression treatment skills and modalities as a predictor of overall satisfaction from depression care activities. Yet this change should probably not surprise us. Treating depression in primary care is a challenging and time-consuming task. In contrast to specialty mental health clinicians, primary care clinicians must distinguish whether their patients' diverse somatic or psychological symptoms stem from physical problems or psychological problems, or both. They must also meet strong expectations of providing help for patients who have little felt need for mental health-care and may resist overt psychological labeling and treatment.[22,26] Treatment modalities other than drugs, such as supportive counseling, are especially time consuming. Many primary care clinicians are currently confronted with continually expanding role responsibilities and constant pressure to increase patient care productivity. In many settings, they have limited control over structural factors that could facilitate their use of nondrug treatment modalities (eg, options for flexibility in patient appointment length, mechanisms for ready access to mental health specialists for consultation, in-service training in depression care). Drug prescribing is, however, 1 depression care behavior that primary care clinicians can control and carry out directly, without the need for cooperation and coordination at the organizational level. All the above factors may reduce the feasibility of nondrug depression treatment modalities in primary care clinicians' eyes while increasing the attractiveness of a class of antidepressant agents with a purportedly uncomplicated side effect profile, rapid patient response, low lethality in overdose, and good acceptance by patients. Further studies are necessary to determine whether the advent of SSRIs results in primary care clinicians narrowing the range of the treatment modalities they use in treating their depressed patients and relying predominantly on prescription of these drugs—a possibility suggested by our findings. If this change occurs, how might it affect relevant patient outcomes such as symptom remission, functional capacity, satisfaction with treatment, and subsequent use of healthcare services?

Our central hierarchical multivariate model indicated lower satisfaction from depression care activities among physician assistants than among other clinician groups and suggested this difference was related to their less positive depression-care-related attitudes and perceptions. We can offer no explanation for this finding and suggest the finding should be regarded with caution because the small number of physician assistants in the study (n = 13 among those who responded to both the pre- and postintervention surveys) probably renders findings for this group unreliable. Further research might explore the nature and consequences of differences in

depression care attitudes and perceptions among different types of clinicians.

A strength of this study was its ability to describe the underlying depression-care-related attitudinal components of the improvement in primary care clinicians' satisfaction from depression care activities that occurred during group level transition from heavy reliance on tricyclic antidepressant agents to significantly greater use of SSRIs. However, some caveats are in order when interpreting the study findings. First of all, as is not uncommon in with clinician attitude scales, the measures of internal consistency (Cronbach's alpha) were only moderate. Second, the study design did not link the attitude changes we measured at the individual level with corresponding individual level measures of changes in antidepressant prescribing. Furthermore, although attitude changes analogous to those we observed were probably typical of primary care clinicians in other staff- and group-model HMOs during the same time period (mid-1993 through early 1995), the picture may have changed since then. The time frame for our study was relatively early in the period of initial enthusiasm for the adoption of SSRIs for depression treatment. It is possible that longer experience with these drugs has afforded primary care clinicians a better perspective on their advantages and disadvantages and on how the use of these drugs complements their use of other treatment skills and modalities. Finally, our findings may not be generalizable to primary care clinicians working in practice settings different from the large, not-for-profit, group-practice model HMO that we studied.

In summary, we found a small but statistically significant improvement over a relatively short period of time in the satisfaction primary care clinicians derived from depression care activities. This improvement occurred within the context of the HMO's adoption of SSRIs for the treatment of depression in primary care and within the wider context of changes in professional and lay approaches to depression care. Satisfaction from depression care activities after these changes was largely a function of improved perceptions about the feasibility of treating depression in primary care, which in turn were a function of improved perceptions about the effectiveness of drug treatment. The relevance to satisfaction of the clinicians' perceptions of their own skills in a broad range of depression treatment activities declined concomitantly. These findings suggest that until organization changes are adopted that encourage and support primary care clinicians' use of a wide range of skills for depression care, anti-

depressant medications, especially SSRIs, are likely to remain a primary—and relatively effective[30]—tool for treating depression. Further research should address whether primary care clinicians' reliance on this tool comes at the expense of their use of other depression treatment modalities, and if so, how this affects patient outcomes and satisfaction and overall healthcare costs.

....

REFERENCES

1. Blazer DG, Kessler RC, McGonagle KA, Schwartz MS. The prevalence and distribution of major depression in a national community sample: The National Comorbidity Survey. *Am J Psychiatry.* 1994;151:979-986.

2. Robins LN, Regier DA. *Psychiatric Disorders in America: The Epidemiologic Catchment Area Study.* New York: Free Press; 1991.

3. Klerman GL, Weissman MM. The course, morbidity, and costs of depression. *Arch Gen Psychiatry.* 1992;49:831-834.

4. Mueller TI, Leon AC, Keller MB, et al. Recurrence after recovery from major depressive disorder during 15 years of observational follow-up. *Am J Psychiatry.* 1999;156:1000-1006.

5. Hays RD, Wells KP, Sherbourne CD, Rogers W, Spritze K. Functioning and well-being outcomes of patients with depression compared with chronic general medical illness. *Arch Gen Psychiatry.* 1995;52:11-19.

6. Broadhead WE, Blazer DG, George LK, Tse CK. Depression, disability days, and days lost from work in a prospective epidemiologic survey. *JAMA.* 1990;264:2524-2528.

7. Wells KB, Stewart A, Hays RD, et al. The functioning and well-being of depressed patients: Results from the Medical Outcomes Study. *JAMA.* 1989;262:914-919.

8. Greenberg PE, Stiglin LE, Finkelstein SN, Berndt ER. The economic burden of depression in 1990. *J Clin Psychiatry.* 1993;54:405-418.

9. Johnson J, Weissman MM, Klerman GL. Service utilization and social morbidity associated with depressive symptoms in the community. *JAMA.* 1992;267:1478-1483.

10. Simon G, Ormel J, Von Korff M, Barlow W. Health care of primary care patients with recognized depression. *Arch Gen Psychiatry.* 1995;52:850-856.

11. Unutzer J, Patrick DL, Simon G, et al. Depressive symptoms and the cost of health services in HMO patients aged 65 years and older. A 4-year prospective study. *JAMA.* 1997;277:1618-1623.

12. Regier DA, Goldberg ID, Taube CA. The de facto US mental health services system: A public health perspective. *Arch Gen Psychiatry.* 1978;35:685-693.

13. Shye D, Freeborn D, Mullooly J. Understanding depression care in the HMO outpatient setting: What predicts key events on the pathway to care? In: Morrissey JP, ed. *Research in Community and Mental Health. Volume 11: Social Factors in Mental Health and Illness.* Stamford, CT: JAI Press; 2000:29-63.

14. Goldberg D, Huxley P. *Common Mental Disorders. A Bio-Social Model.* London: Tavistock/Routledge; 1992.

15. **Eisenberg L.** Treating depression and anxiety in primary care: Closing the gap between knowledge and practice. *N Engl J Med.* 1992;326:1080-1084.

16. **Gerber PD, Barrett J, Barrett J, Manheimer E, Whiting R, Smith R.** Recognition of depression by internists in primary care: A comparison of internist and "gold standard" psychiatric assessments. *J Gen Intern Med.* 1989;4:7-13.

17. **Katon W, Von Korff M, Lin E, et al.** A randomized trial of psychiatric consultation with distressed high utilizers. *Gen Hosp Psychiatry.* 1992;14:86-98.

18. **Katon W, Von Korff M, Lin E, Bush T, Ormel J.** Adequacy and duration of antidepressant treatment in primary care. *Med Care.* 1992;30:67-76.

19. **Katon W, Von Korff M, Lin E, et al.** Collaborative management to achieve treatment guidelines. Impact on depression in primary care. *JAMA.* 1995;273:1026-1031.

20. **Lin E, Von Korff M, Katon W, et al.** The role of primary care physicians in patient adherence to antidepressant therapy. *Med Care.* 1995;33:67-74.

21. **Simon G, Von Korff M, Wagner EH, Barlow W.** Patterns of antidepressant use in community practice. *Gen Hosp Psychiatry.* 1993;15:399-408.

22. **Goldberg D.** Reasons for misdiagnosis. In: Sartorius N, Goldberg D, De Girolamo G, Costa e Silva JA, Lecrubier Y, Wittchen H-U, eds. *Psychological Disorders in General Medical Settings.* Toronto, Canada: Hogrefe and Huber; 1990:139-145.

23. **Gerber PD, Barrett JE, Barrett JA, et al.** The relationship of presenting physical complaints to depressive symptoms in primary care patients. *J Gen Intern Med.* 1992;7:170-173.

24. **Katon W.** Depression: Somatic symptoms and medical disorders in primary care. *Compr Psychiatry.* 1982;23:274-287.

25. **Bridges K, Goldberg D.** Somatic presentation of DSM-III psychiatric disorders in primary care. *J Psychosom Res.* 1985;29:563-569.

26. **Docherty JP.** Barriers to the diagnosis of depression in primary care. *J Clin Psychiatry.* 1997;58(suppl 1):5-10.

27. **Robbins JM, Kirmayer LJ, Cathebras P, Yaffe MJ, Dworkind M.** Physician characteristics and the recognition of depression. *Med Care.* 1994;32:795-812.

28. **Tylee A, Freeling P.** The recognition, diagnosis and acknowledgement of depressive disorder by general practitioners. In: Paykel E, Herbst K, eds. *Depression: An Integrative Approach.* London: Heinemann; 1989:216-231.

29. **Depression Guideline Panel (AHCPR).** *Depression in Primary Care. Volume 1. Detection and Diagnosis; Volume 2. Treatment of Major Depression.* Clinical Practice Guideline Number 5. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research; 1993. AHCPR Publication 93-0550.

30. **Schulberg HC, Katon W, Simon GE, Rush AJ.** Treating major depression in primary care practice. An update of the Agency for Health Care Policy and Research practice guidelines. *Arch Gen Psychiatry.* 1998;55:1121-1127.

31. **Brown JB, Shye D, McFarland B.** The paradox of guideline implementation: How AHCPR's depression guideline was adapted at Kaiser Permanente Northwest Region. *Jt Comm J Qual Improv.* 1995;21:5-21.

32. **Goldberg HI, Wagner EH, Fihn SD, et al.** A randomized controlled trial of CQI teams and academic detailing: Can they alter compliance with guidelines? *Jt Comm J Qual Improv.* 1998;24:130-142.

33. **Brown JB, Shye D, McFarland BH, et al.** Controlled trials of continuous quality improvement and academic detailing to imple-ment a clinical practice guideline for depression. *Jt Comm J Qual Improv.* 2000;26:39-54.

34. **Wells KB, Sherbourne C, Schoenbaum M, et al.** Impact of disseminating quality improvement programs for depression in managed primary care. *JAMA.* 2000;283:212-220.

35. **Magruder-Habib K, Zung WW, Feussner JR.** Improving physicians' recognition and treatment of depression in general medical care. Results from a randomized clinical trial. *Med Care.* 1990;28:239-250.

36. **Lin E, Katon WJ, Simon GE, et al.** Achieving guidelines for the treatment of depression in primary care. Is physician education enough? *Med Care.* 1997;35:831-842.

37. **Lin E, Simon GE, Katon WJ, et al.** Can enhanced acute-phase treatment of depression improve long-term outcomes? A report of randomized trials in primary care. *Am J Psychiatry.* 1999;156:643-645.

38. **Simon GE, VonKorff M, Rutter C, Wagner E.** Randomised trial of monitoring, feedback, and management of care by telephone to improve treatment of depression in primary care. *BMJ.* 2000;320:550-554.

39. **Lyon ML.** C. Wright Mills meets Prozac: The relevance of "social emotion" to the sociology of health and illness. In: James V, Gabe J, eds. *Health and the Sociology of Emotions.* Oxford, UK: Blackwell; 1996:55-78.

40. **Cowley G.** The culture of Prozac: How a treatment for depression became as familiar as Kleenex and as socially acceptable as spring water. *Newsweek.* February 7, 1994:41-42.

41. **Cowley G (with others).** The promise of Prozac. *Newsweek.* March 26, 1990:38-41.

42. **Gelman D.** Drugs vs the couch: The discovery of new medications for emotional disorders stirs a debate between traditional talk therapists and the advocates of "biopsychiatry." *Newsweek.* March 26, 1990:42-43.

43. **Kramer P.** *Listening to Prozac.* New York: Viking; 1993.

44. **Breggin PR, Breggin GR.** *Talking Back to Prozac: What Doctors Aren't Telling You About Today's Most Controversial Drug.* New York: St. Martin's Press; 1994.

45. **Freeborn DK, Pope CR.** *Promise and Performance in Managed Care: The Prepaid Group Practice Model.* Baltimore, MD: The Johns Hopkins University Press; 1994.

46. **Greenlick MR, Freeborn DK, Pope CR.** *Health Care Research in an HMO: Two Decades of Discovery.* Baltimore, MD: Johns Hopkins University Press; 1988.

47. **Soumerai SB, Avorn J.** Principles of educational outreach ("academic detailing") to improve clinical decision-making. *JAMA.* 1990;250:1752-1753.

48. **Berwick DM.** Continuous improvement as an ideal in health care. *N Engl J Med.* 1989;320:53-56.

49. **Depression Advisory Committee.** *Guideline for the Management of Depression in Primary Care, 1993.* Portland, OR: Kaiser Foundation Health Plan of the Northwest; 1993.

50. **Depression Advisory Committee.** *Guidelines for Drug Therapy of Major Depression in the Primary Care Setting.* Portland, OR: Kaiser Foundation Health Plan of the Northwest; 1990.

51. **Ashworth CD, Williamson P, Montano D.** A scale to measure physician beliefs about psychosocial aspects of patient care. *Soc Sci Med.* 1984;19:1235-1238.

52. **Main DS, Lutz LJ, Barrett JE, Matthew J, Miller RS.** The role of primary care clinician attitudes, beliefs and training in the diagnosis and treatment of depression. *Arch Fam Med.* 1993;2:1061-1066.

53. **Orleans CT, George L, Houpt JL, Brodie HKH.** How primary care physicians treat psychiatric disorders: A national survey of family practitioners. *Am J Psychiatry.* 1985;142:52-57.

Appendix. Measures of Clinicians' Depression-Related Attitudes and Self-Reported Practices

Scale/Item	α Pre	α Post
Recognition of depression	.59	.64
• Depression, as a patient problem in primary care, is overemphasized. (Reverse-scored.)		
• Depression is one of the most frequent problems I see in my practice.		
Feasibility of primary care treatment	.68	.70
• Treating depression is too time-consuming to be practical in my practice. (Reverse-scored.)		
• Most depressed patients are better off being treated by mental health specialists. (Reverse-scored.)		
"Drug treatment is very effective in treating depression."	NA	NA
Self-efficacy perceptions		
("How certain do you feel that you can do each of the following things?")		
• Treatment self-efficacy	.56	.53
1. Recognize depression in most or all of the patients you see in your office who actually have depression.		
2. Recognize when a patient who is suffering from depression is potentially suicidal.		
3. Effectively treat your depressed patients with medications.		
4. Effectively treat your depressed patients by counseling them yourself.		
• Consultation and referral self-efficacy	.71	.72
1. Get timely and helpful advice from the Mental Health Department in a psychiatric emergency.		
2. Accurately describe to a depressed patient how the Mental Health triage and treatment system works.		
3. Ensure that a depressed patient who needs it receives timely treatment from the Mental Health Department.		
Therapeutic activity levels		
("In caring for your depressed [not suicidal] patients, how likely are you to do the following things?")		
• Treatment activity level	.60	.49
1. Start patients on antidepressant medications.		
2. Give patient supportive counseling yourself (eg, advice, reassurance, supportive problem solving).		
3. Write the diagnosis of depression in the patient's chart.		
• Referral activity level	.53	.53
1. Tell patient to contact the Mental Health Department.		
2. Refer patient in writing to the Mental Health Department.		
3. Tell patient to contact the Health Education Department.*		
4. [Call the Mental Health Department "hot line" to get advice or arrange a referral.]†		
"I find great satisfaction in treating depressed patients."	NA	NA

*For example, for "Coping with Depression" class.
†This item was included only in the postintervention questionnaire.
NA indicates not applicable.