Impact of Collaborative Care for Underserved Patients with PTSD in Primary Care: a Randomized Controlled Trial

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BACKGROUND: The effectiveness of collaborative care of mental health problems is clear for depression and growing but mixed for anxiety disorders, including posttraumatic stress disorder (PTSD). We know little about whether collaborative care can be effective in settings that serve low-income patients such as Federally Qualified Health Centers (FQHCs).

OBJECTIVE: We compared the effectiveness of minimally enhanced usual care (MEU) versus collaborative care for PTSD with a care manager (PCM).

DESIGN: This was a multi-site patient randomized controlled trial of PTSD care improvement over 1 year.

PARTICIPANTS: We recruited and enrolled 404 patients in six FQHCs from June 2010 to October 2012. Patients were eligible if they had a primary care appointment, no obvious physical or cognitive obstacles to participation, were age 18–65 years, planned to continue care at the study location for 1 year, and met criteria for a past month diagnosis of PTSD.

MAIN MEASURES: The main outcomes were PTSD diagnosis and symptom severity (range, 0–136) based on the Clinician-Administered PTSD Scale (CAPS). Secondary outcomes were medication and counseling for mental health problems, and health-related quality of life assessed at baseline, 6 months, and 12 months.

KEY RESULTS: Patients in both conditions improved similarly over the 1-year evaluation period. At 12 months, PTSD diagnoses had an absolute decrease of 56.7 % for PCM patients and 60.6 % for MEU patients. PTSD symptoms decreased by 26.8 and 24.2 points, respectively. MEU and PCM patients also did not differ in process of care outcomes or health-related quality of life. Patients who actually engaged in care management had mental health care visits that were 14 % higher ($p<0.01$) and mental health medication prescription rates that were 15.2 % higher ($p<0.01$) than patients with no engagement.

CONCLUSIONS: A minimally enhanced usual care intervention was similarly effective as collaborative care for patients in FQHCs.

KEY WORDS: PTSD; primary care; community based interventions; mental health; medicaid.

ABBREVIATIONS
PCC Primary care clinician
FQHC Federally qualified health center
PTSD Posttraumatic stress disorder
PCM PTSD care management
MEU Minimally enhanced usual care

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INTRODUCTION

Posttraumatic stress disorder (PTSD) affects over 10 % of adults,[1,2] up to 23 % in primary care settings,[3–8] and is associated with poor functioning, quality of life,[9–12] and financial costs to society.[13,14] Evidence-based treatments for PTSD include the use of selected serotonin reuptake inhibitors, especially sertraline but also fluoxetine, as the first line of pharmacological treatment, and evidence-based psychotherapies—exposure therapy, cognitive-behavioral therapy, and eye movement desensitization and reprocessing, along with patient education and adjunctive support services.[15–17]

Collaborative models of chronic mental illness care that coordinate between primary care and care managers (CMs) are a proven approach to improving depression care in primary care settings.[8,18–20] There is growing evidence that such collaborative care interventions may be adapted and implemented to address PTSD as well. But PTSD treatment is less routine in primary care and its care is more challenging because of barriers at the patient, physician and practice levels.[4,21–23] The

Coordinated Anxiety Learning and Management (CALM) trial[24] found that, for patients with PTSD recruited from private and mostly academic medical settings, improvement in outcomes was no different relative to usual care.[25] The Re-Engineering Systems for the Primary Care of PTSD (RESPECT-PTSD) trial for veterans with PTSD did not find an intervention effect for symptoms or functioning.[26] A third trial of telemedicine-based collaborative care for PTSD was effective for engaging veterans in psychotherapy and reducing symptoms, but only for those receiving cognitive-behavioral therapy.[27] These mixed findings call for more research to test collaborative care for PTSD.

The purpose of the Violence and Stress Assessment (ViStA) study was to determine whether a care management intervention in primary care is effective in the context of Federally Qualified Health Centers (FQHCs). FQHCs, which provide "safety net" health care for low income, minority, and uninsured or underinsured persons,[22] are less able to provide integrated mental health care than in the settings of prior studies.[28,29] The treatment of PTSD in FQHCs may be particularly challenging because patients face high levels of clinical comorbidity and social service needs, but there are limited resources to meet these needs.[30]

ViStA compared the effectiveness of minimally enhanced usual care (MEU) to PTSD care management (PCM) in FQHCs. We hypothesized that patients in the PCM intervention would receive more mental health care and have better clinical outcomes than patients in the MEU intervention, because of the enhanced collaborative care and resources delivered through a care manager (CM).

METHODS

Design, Setting, and Patients

The ViStA study was a patient-level randomized controlled trial to compare the effectiveness of MEU with PCM.[6] We recruited and enrolled patients from six FQHCs in New York and New Jersey from June 2010 to October 2012. These FQHCs were members of Clinical Directors Network (CDN), a primary care Practice-Based Research Network. The RAND and CDN Institutional Review Boards approved the study protocol.

We used a two-staged recruitment procedure. Patients were approached by study recruitment coordinators in the FQHC waiting rooms and screened for eligibility: having an appointment with a primary care clinician (PCC), no obvious physical or cognitive obstacles to the assessment, age 18-65 years, and planning to continue care at that center for 1 year. Eligible patients completed a brief six-item PTSD screener before their appointment.[31] Those positive on the screener completed the Clinician-Administered PTSD Scale (CAPS),[32,33] a clinical, structured interview based on the DSM-IV (validated in Spanish) in the clinic or by telephone. We enrolled patients who met criteria for a PTSD diagnosis and provided informed consent. Eligible patients were randomized into the MEU and PCM conditions and were evaluated prior to the start of the interventions and at 6 and 12 months following intervention initiation. We conducted the study in Spanish and English.

ViStA Interventions

The ViStA intervention is detailed in Meredith et al. (2014).[6] Briefly, the MEU intervention consisted of PCC education about trauma, PTSD, and evidence-based psychopharmacology. Prior to implementing the intervention, we delivered a 2-hour training onsite at each FQHC at the start of the study and two booster training sessions via Webcast during the intervention period. We trained FQHC clinicians on evidence-based medication for PTSD based on the National Institute for Clinical Excellence guidelines[34] and provided PCCs with a laminated medication guide. We also informed PCCs about patients' PTSD diagnoses. Patients who were identified as having a PTSD diagnosis received a National Institute of Mental Health (NIMH) PTSD brochure.[35]

The PCM intervention included the MEU components plus components facilitated by CMs hired for the study. CMs were bachelors-level, half-time research staff, bilingual (in Spanish) with experience working in FQHC settings. These additional components were: active patient education and engagement using NIMH PTSD brochures and motivational interviewing techniques.[36] CMs also provided linkages to community resources with locally tailored information. CMs had structured cross-disciplinary communication with PCCs and mental health providers, plus weekly case management meetings supervised by the study psychiatrist to guide clinical care decisions. CMs facilitated continuity of care through an initial in-person visit in conjunction with a scheduled medical visit with the PCC, and up to 14 additional follow-up contacts, by phone or in-person, over 1 year.

Assessments

Patients were evaluated at baseline, 6 months, and 12 months via in-person or telephone by interviewers blinded to study assignment. Assessments were conducted in Spanish for 12.4 % of the sample. The primary outcomes were PTSD diagnosis and symptom severity based on past month CAPS criteria for PTSD. CAPS severity was scored by summing the ratings (from 0 to 4) for frequency and intensity across each of the 17 symptom items for a possible range of 0–136, with a higher score indicating greater severity and a score of 65 or above recommended for comprehensive psychological evaluation.

Secondary outcomes included self-reported measures of the process of care—the percent of patients who: 1) were prescribed a medication for a mental health problem, 2) had any mental health care visit, and 3) had any mental health care visit

for psychotherapy (among those with any mental health care visit). We assessed health-related quality of life using the physical and the mental health composite scores from the 12-item Short-Form Health Survey.[37]

Statistical Analysis

ViStA was powered to detect a moderately small effect size with a statistical power > 0.8 and two-sided p-value < 0.05, a planned sample size of 400 and a 20 % attrition rate. The detectable effect size is between 0.19 and 0.32 SD for a numeric outcome (e.g., PTSD severity score and physical health quality of life), and between 7 and 15 percentage points for a binary outcome (e.g., PTSD diagnosis and any use of mental health care utilization). The actual sample size was 404 and attrition from study enrollment to baseline interview completion was 12 %, yielding a sample of 355 completers. We used the sequential imputation method[38] to impute missing data in the 6- or 12-month assessment. This method imputes data with complex missing patterns under the standard missing at random assumption. To account for the uncertainty in the imputed data, we generated five imputed data sets and analyzed them combined using the standard multiple imputation procedure.[39]

Per protocol, we first ran an intent-to-treat (ITT) analysis by the linear mixed-effect model to estimate the difference between PCM and MEU for primary and secondary outcomes at 6 and 12 months. We jointly modeled the outcomes at the three waves by time, condition, and the time by condition interaction, where time was a categorical variable to allow for different effects at 6 and 12 months. We controlled for interview mode (telephone vs. in-person), which was not randomized, and used random effects to account for correlations within sites and patients. Since the proportion of PCM assigned patients who engaged in PCM was relatively low (73 %), we conducted a post-hoc as-implemented analysis to estimate the association between all outcomes and the actual engagement of PCM, i.e., between patients for whom we were unable to schedule the initial face-to-face visit to start the PCM intervention and all other patients (PCM patients who did not engage in the intervention and MEU patients). To correct for the bias due to patients' engagement in the PCM, we used the inverse propensity score (PS) weighting method.[40,41] The PS was a conditional probability of engaging in PCM, which is equal to the product of the probability of being randomized to the PCM condition and the conditional probability of engaging in the PCM condition given observed patient characteristics and baseline outcomes. We weighted patients who engaged in PCM by the inverse of their PS, and all other patients by the inverse of one minus their PS. We applied multiple comparison adjustments by types of outcomes and types of analyses. All analyses were performed in SAS 9.

Baseline covariates included age, gender, race and ethnicity, education, foreign born, comfort speaking English, marital status, having at least one child, and insurance type. We adjusted for medical comorbidity, number of traumatic events experienced, probable diagnosis of major depression (PHQ-9),[42] physical disability,[43] perceived stress[44]; emergency room, mental health, and substance abuse treatment utilization, and use of community services. We controlled for history of childhood sexual or physical abuse, severe anxiety (GAD-7),[45] severe somatic symptoms (PHQ-15),[42] hazardous alcohol use (AUDIT),[46] probable drug abuse/dependence (DAST),[47,48] interview mode (in-person or telephone) and study site. Details about these measures are provided in Meredith et al.[6]

RESULTS

Sample Selection, Attrition, and Description

Figure 1 shows the study screening and recruitment flow. We approached 8422 patients; 77 % met eligibility criteria; 75 % took the brief screener, and 20 % scored positive for probable PTSD. Most of the screener positive patients consented to participate in the study (61 %) and were assessed with the CAPS. Among those assessed, 69 % were diagnosed with PTSD and were randomized. Overall, 88 % of the randomized patients completed the baseline interview, 71 % completed the 6-month interview, and 80 % completed the 12-month interview.

Among the 184 PCM patients, only 134 completed the initial visit to both the CM and the PCC (73 %); 10 % of those patients never completed a telephone follow-up with the CM. Only 11 % completed at least half of the intended 14 follow-ups. The average number of follow-ups was 4.2, representing only a 28 % dose of the planned visits.

The average age of the baseline participants was 42 years old (Table 1). The sample included mostly women (80.6 %), and a high proportion of Hispanic (51.8 %) and black (35.4 %) patients. Nearly 40 % had less than a high school education and 19.6 % were born outside the U.S. Most had Medicaid (81.2 %) or were uninsured (7.4 %). A high proportion had comorbid medical conditions (67 %), multiple traumatic events (97.1 %), high levels of PTSD severity (70.6 points overall), major depression (51.6 %), anxiety (45.2 %), severe somatic symptoms (33.2 %), hazardous alcohol use (18.4 %), or probable drug abuse/dependence (8.8 %). We found no baseline differences between the intervention conditions for these characteristics. Although there are some differences between the groups by actual intervention engagement of PCM vs. no actual engagement, none of these differences remained after adjusting for propensity score weighting.

PTSD Diagnosis and Symptoms

Table 2 shows the estimates by both study arm and actual engagement vs. no engagement for CAPS PTSD

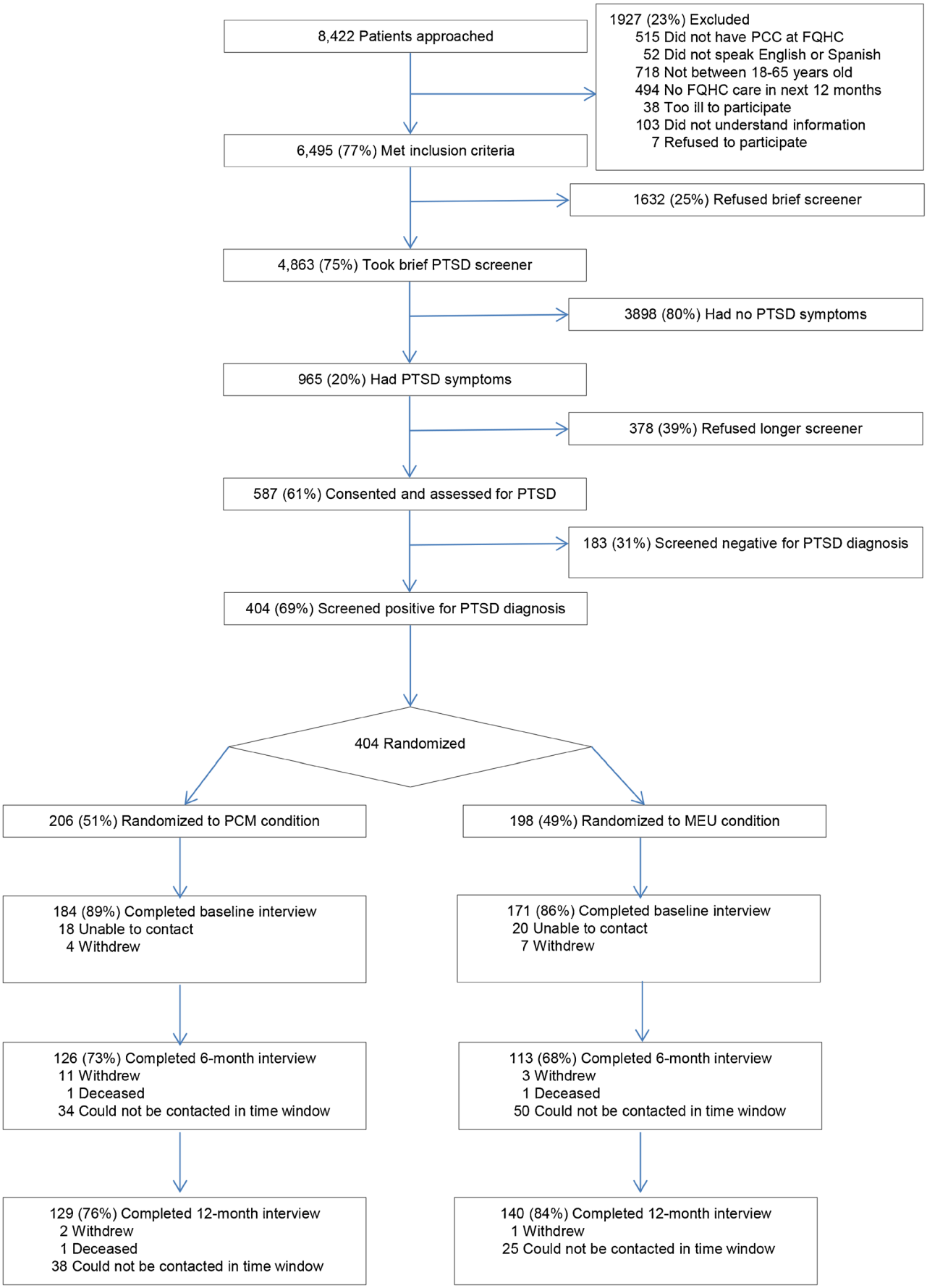

Figure 1. ViStA screening and enrollment flow.

Table 1. Baseline Patient Characteristics[a]

Characteristics	No. (%) of patients				
	All ($N=355$)	PCM intervention ITT ($N=184$)	MEU intervention ITT ($N=171$)	Actual engagement of PCM = Yes ($N=134$)	Actual engagement of PCM = No ($N=221$)
Age, mean (SD), y	42.4 (12.2)	42.5 (12.4)	42.2 (12.0)	41.7 (12.2)	43.6 (12.1)
Women	286 (80.6)	150 (81.5)	136 (79.5)	108 (80.6)	178 (80.5)
Race/ethnicity [b]					
Hispanic	183 (51.8)	95 (51.6)	88 (52.1)	69 (51.5)	114 (51.6)
Black	125 (35.4)	65 (35.3)	60 (35.5)	48 (35.8)	77 (34.8)
White	21 (6.0)	14 (7.6)	7 (4.1)	9 (6.7)	12 (5.4)
Other	24 (6.8)	10 (5.4)	14 (8.3)	8 (6.0)	16 (7.2)
Education*					
< High school	137 (38.9)	77 (42.1)	60 (35.5)	62 (46.3)	75 (33.9)
12 y	116 (33.0)	54 (29.5)	62 (36.7)	38 (28.4)	78 (35.3)
> 12 y	99 (28.1)	52 (28.4)	47 (27.8)	34 (25.4)	65 (29.4)
Born outside of the U.S.[c]	79 (19.6)	43 (19.4)	36 (17.7)	26 (19.4)	53 (24.0)
Type of health insurance*					
No insurance	26 (7.4)	14 (7.7)	12 (7.1)	8 (6.0)	18 (8.1)
Medicaid	286 (81.2)	150 (82.4)	136 (80.0)	105 (78.4)	181 (81.9)
Medicare	7 (2.0)	3 (1.6)	4 (2.4)	3 (2.2)	4 (1.8)
Other government insurance	20 (5.7)	10 (5.5)	10 (5.9)	10 (7.5)	10 (4.5)
Private insurance	13 (3.7)	5 (2.6)	8 (4.7)	2 (1.5)	11 (5.0)
No. of chronic medical conditions*					
0	113 (32.7)	62 (34.1)	51 (31.1)	35 (26.1)	78 (35.3)
1	73 (21.1)	36 (19.8)	37 (22.6)	30 (22.4)	43 (19.5)
2	62 (17.9)	27 (14.8)	35 (21.3)	20 (14.9)	42 (19.0)
≥ 3	98 (28.3)	57 (31.3)	41 (25.0)	47 (35.1)	51 (23.1)
No. of lifetime traumas					
1	10 (2.9)	7 (3.9)	3 (1.8)	5 (3.7)	5 (2.3)
2	29 (8.3)	17 (9.4)	12 (7.1)	12 (9.0)	17 (7.7)
≥ 3	311 (88.9)	157 (86.7)	154 (91.1)	114 (85.1)	197 (89.1)
CAPS severity score	70.6 (16.0)	70.5 (15.8)	70.6 (16.1)	71.5 (16.2)	70.0 (15.8)
Probable major depression[d]	181 (51.6)	92 (50.3)	89 (53.0)	70 (52.2)	111 (50.2)
Severe anxiety symptoms[e]	160 (45.2)	80 (43.7)	80 (46.8)	59 (44.0)	101 (45.7)
Severe somatic symptoms[f]	116 (33.2)	63 (35.2)	53 (31.2)	49 (36.6)	67 (30.3)
Hazardous alcohol use[g]	65 (18.4)	30 (16.4)	35 (20.5)	22 (16.4)	43 (19.5)
Probable drug abuse/dependence[h]	31 (8.8)	15 (8.2)	16 (9.4)	12 (9.0)	19 (8.6)

[a]*There were no significant differences between the PCM and MEU interventions*
[b]*Three MEU patients MEU did not disclose this information*
[c]*Sixteen patients (nine PCM and seven MEU) did not disclose this information*
[d]*Whether respondent meets criteria for a probable diagnosis of major depressive disorder on the PHQ-9, as indicated by presence of at least one of the two MDD symptoms of anhedonia or feeling down, depressed, or hopeless and at least five of the nine depressive symptoms for at least more than half the days over the past 2 weeks*
[e]*Severe anxiety as indicated by a cut-point of 15 on the GAD-7*
[f]*Severe somatization as indicated by a cut-point of 15 on the PHQ-15*
[g]*Hazardous alcohol use as indicated by a total AUDIT score of 8 or higher for men and 5 or higher for women*
[h]*Positive screen for or probable diagnosis of drug abuse/dependence as indicated by a total score of 3 or higher on the DAST-10*
**Significant difference between actual treatment statuses. No variables had significant differences after adjusting for compliance propensity score*

diagnosis and symptoms. The estimated intervention and engagement effects show no significant differences at 6 or 12 months. The proportion of patients with a PTSD diagnosis decreased significantly in both conditions over the 1-year evaluation period ($p<0.0001$), but did not differ significantly by treatment assignment ($p=0.34$). At 12 months, PTSD diagnoses had an absolute decrease of 56.7 % for PCM patients and by 60.6 % for MEU patients (i.e., to rates of 43.3 and 39.4 %, respectively). CAPS symptom severity scores had an absolute decrease of 24.2 and 26.8 points for MEU and PCM conditions, respectively ($p<0.0001$), but the difference between the two conditions was not significant ($p=0.33$). These effects are equivalent to a 1.1 SD change from baseline to 6 months within study arm and 0.08 SD between study arms. The as-implemented analysis showed similar results.

Process of Care and Health-Related Quality of Life

There was no significant effect by study randomization condition on any process of care outcome or health-related quality of life at any wave (Table 3). Patients engaged in the PCM intervention had significantly higher rates of receiving prescriptions for mental health medications (a 15.2 % difference, $p<0.01$) and mental health visits (a 14 % difference, $p<0.01$) compared to all other patients at 6 months. We found no differences for health-related quality of life scores

Table 2. PTSD Outcomes Based on the CAPS[a]

Measure and wave	PCM intervention ITT[b] (*N* = 184)	MEU intervention ITT[b] (*N* = 171)	*p* Value	Actual engagement of PCM = Yes (*N* = 134)[c]	Actual engagement of PCM = No (*N* = 221)[c]	*p* Value
PTSD diagnosis (%, 95 % CI)						
Baseline	100	100	n/a	100	100	n/a
6 months	50.4 (44.1, 56.7)	50.9 (39.0, 62.7)	0.94	49.0 (38.3, 59.8)	46.9 (40.0, 53.8)	0.73
12 months	43.3 (39.5, 47.2)	39.4 (28.8, 51.1)	0.34	41.6 (31.8, 51.5)	39.4 (32.7, 46.1)	0.71
PTSD symptom severity (mean, 95 % CI)						
Baseline	71.1 (67.9, 74.3)	71.0 (67.9, 74.2)	0.97	69.5 (65.7, 73.4)	70.4 (68.2, 72.6)	0.69
6 months	47.8 (44.2, 51.3)	49.5 (46.4, 52.6)	0.54	48.4 (43.1, 53.7)	47.6 (44.1, 51.2)	0.81
12 months	46.9 (42.8, 50.9)	44.2 (41.2, 47.1)	0.33	48.2 (43.2, 53.2)	43.6 (39.8, 47.4)	0.11

[a] *CAPS Clinician Administered PTSD Scale*
[b] *Estimates and raw p values for ITT analyses were based on longitudinal model predictions*
[c] *Estimates and raw p values for as-implemented analyses were based on inverse propensity score weighting*

by randomization conditions or by actual engagement of PCM.

DISCUSSION

ViStA is the first study to compare interventions for improving the management of PTSD in low resource, FQHCs. FQHCs lack the integrated mental health care that is more readily available in many private and VA primary care settings. Plus, patients seen in FQHCs are poorer, suffer from more medical illness and trauma, and are underinsured.[30] Yet, both PCM and MEU groups improved substantially over the 1-year evaluation period with remission rates as high as 56.7 and 60.6 %; and symptom reductions of 24.2 and 26.8 points for PCM and MEU patients, respectively. While we expected greater improvement in the PCM arm that added collaborative care, it is important to note that these improvements are clinically significant and larger than the magnitude observed in other trials.[25,27] Relative decreases in PTSD diagnoses were above 50 % and symptom reduction was above 30 % for both the MEU and PCM groups. A possible explanation for this striking level of improvement is that ViStA enrolled a sample of patients with less severe PTSD that may have a more favorable prognosis. Alternatively, these particular FQHCs could have been better positioned to implement care improvements for PTSD. However, we know that only three of the six FQHCs had onsite behavioral health.

The lack of a difference by intervention intensity suggests that identifying patients with PTSD diagnoses and giving that feedback to PCCs, combined with clinician education, may be effective for patients in FQHCs. At the end of the 12-month assessment period, over half of the study patients no longer met criteria for a PTSD diagnosis across condition. Given the similarity of effectiveness, it appears that the addition of collaborative care in these settings was not more effective in this current form.

Another reason why we observed similar effects in both interventions is that even the care that patients received in the MEU group was still more than is typically delivered in these under-resourced health centers. However, the rate of non-adherence was relatively high among patients in the PCM intervention; only 73 % of the PCM patients completed the initial face-to-face visit with the CM and PCC. By comparison, in RESPECT-PTSD,[26] 89 % of the veteran participants referred to the program established contact.[3] The treatment arm in the CALM study had an adherence rate of 96 %.[19] In ViStA, the intervention dose for the PCM intervention was also lower than intended among the as-implemented group with only four of 14 contacts with the CM on average.

Table 3. Process of Care and Health-Related Quality of Life by Study Intervention Condition

Measure and wave	PCM intervention ITT[b] (*N* = 184)	MEU intervention ITT[b] (*N* = 171)	*p* Value	Actual engagement of PCM = Yes (*N* = 134)[c]	Actual engagement of PCM = No (*N* = 221)[c]	*p* Value
Any mental health prescription (%, 95 % CI)						
Baseline	40.7 (35.7, 45.8)	42.2 (35.6, 48.8)	0.44	40.6 (47.7, 31.3)	40.5 (33.6, 47.7)	0.98
6 months	47.2 (39.1, 55.3)	41.2 (34.4, 48.0)	0.24	54.2 (43.9, 64.6)	39.0 (31.9, 46.0)	0.01[d]
12 months	42.9 (35.3, 50.6)	45.4 (38.0, 52.9)	0.69	48.8 (38.6, 59.1)	43.9 (36.4, 51.4)	0.42
Any mental health care utilization (%, 95 % CI)						
Baseline	64.6 (57.8, 71.4)	69.0 (64.4, 73.5)	0.12	61.4 (50.6, 72.4)	63.7 (57.2, 70.1)	0.73
6 months	74.1 (64.7, 83.4)	66.6 (56.4, 76.8)	0.29	78.0 (69.6, 86.4)	64.0 (54.4, 73.7)	0.01[d]
12 months	59.9 (52.2, 67.5)	60.7 (53.4, 68.0)	0.85	68.6 (58.8, 78.4)	58.4 (51.5, 65.3)	0.30
Any mental health counseling (%, 95 % CI)						
Baseline	40.3 (29.3, 51.2)	45.0 (35.2, 54.7)	0.24	40.5 (31.1, 49.8)	41.9 (35.2, 48.6)	0.81
6 months	44.1 (34.3, 54.0)	43.4 (36.9, 49.9)	0.89	47.2 (36.2, 58.1)	43.0 (34.6, 51.4)	0.51
12 months	46.1 (38.2, 53.9)	43.3 (32.7, 53.9)	0.69	52.1 (41.7, 62.5)	42.2 (35.1, 49.2)	0.11

[a] *All measurements were for the 6-month period before the measurement time*
[b] *Estimates and raw p values for ITT analyses were based on longitudinal model predictions*
[c] *Estimates and raw p values for as-implemented analyses were adjusted by propensity score weighting*
[d] *Significant after multiple comparison adjustment at the false discovery rate < 0.05*

However, even this low dose is comparable to studies with more intense interventions, and this amount of exposure yielded more overall clinical benefit than has been seen in some trials consisting of only a single brief intervention.[49] A potential explanation for the improvement in PTSD diagnosis and severity score at 6 months is regression to the mean. That is, patients were enrolled on the basis of initial high PTSD severity scores. This may have made the subsequent measurements moving toward the true means, which would be lower than the average of the initial measurement.

These findings, taken together with results from previous studies of collaborative care for PTSD (RESPECT-PTSD and collaborative telehealth for veterans)[27] suggest that this approach is not a promising strategy for treating PTSD by itself. Further trials of PTSD collaborative care are still needed to understand how to improve these interventions to implement the most effective strategies possible in these settings that serve mostly low-income and minority populations. It is unclear whether a more intensive intervention that pairs manualized therapy with trained mental health professionals would have engaged more patients, given our difficulty in engaging patients in a few sessions with CMs. A less intensive intervention may be more practical in this population, because it is less burdensome. It is worth noting that the PCM intervention enabled more patients to access mental health care, primarily psychoactive medication. This makes sense: ViStA emphasized training PCCs on appropriate prescribing rather than training mental health providers to deliver manualized therapy,[50] because of the limited availability of on-site mental healthcare for improving access to evidence-based psychotherapies. The quality of mental health care accessible to low-income, minority communities is a considerable concern; mental health professionals who can provide evidence-based and culturally competent care are in short supply in the neighborhoods served by our FQHCs.[51–53]

Our findings suggest that patients in FQHCs benefitted from PCC education and feedback, as well as from the addition of care management. In studies that have included a true usual care comparison group, outcomes improved for the interventions, but not for usual care.[54,55] However, given the higher intensity of adding collaborative care, the MEU intervention showed similar effectiveness. It remains to be seen whether adding collaborative care more intensively can increase impact for this patient population. This study highlighted some of the challenges faced with engaging this unique population in intensive interventions for PTSD and suggests a need to improve reach and impact with this population. The fact that patients only engaged on average 4.2 times with CMs suggests that the PCM intervention may have been too demanding for this population. The high levels of social disruption (e.g., unstable housing, food insecurity, and social isolation) experienced by this patient population beyond their trauma experiences and associated health consequences may have limited exposure to the intervention. Nevertheless, we have begun to fill a gap in knowledge about how to translate collaborative care interventions for FQHCs. Modifications to the intervention may be needed to enable patients to address these social determinants challenges. These modifications might involve exploring community outreach approaches (e.g., helping patients access mental health specialists) and additional tailoring (briefer and/or modularized treatments) for better fit within FQHCs.[56]

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