Published in final edited form as:

Gen Hosp Psychiatry. 2016 ; 38: 71–78. doi:10.1016/j.genhosppsy.2015.09.006.

Training community-based primary care physicians in the screening and management of mental health disorders among Latino primary care patients

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Abstract

Objective—To evaluate a quality improvement intervention to improve the screening and management (e.g., referral to psychiatric care) of common mental disorders in small independent Latino primary care practices serving patient populations of predominantly low-income Latino immigrants.

Methods—In 7 practices, academic detailing and consultation/liaison psychiatry were first implemented (Stage 1) and then supplemented with appointment scheduling and reminders to primary care physicians (PCP's) by clinic staff (Stage 2). Acceptability and feasibility were assessed with independent patient samples during each stage.

Results—Participating PCP found the interventions acceptable and noted that referrals to language-matched specialty care and case-by-case consultation on medication management were particularly beneficial. The academic detailing and consultation/liaison intervention (Stage 1) did not significantly affect PCP screening, management or patient satisfaction with care. When support for appointment scheduling and reminders (Stage 2) was added, however, PCP referral to psychiatric services increased ($p=.04$) and referred patients were significantly more likely to follow through and have more visits to mental health professionals ($p=.04$).

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Disclosure of Conflicts of Interest: The following authors currently receive financial support from Eli Lilly & Co. (Lewis-Fernández). The remaining authors have no interests to disclose.

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Conclusion—Improving the quality of mental health care in low-resourced primary care settings may require academic detailing and consultation/liaison psychiatric intervention supplemented with staff outreach to achieve meaningful improvement in the processes of care.

Keywords

Latinos; primary care; mental health

1.0 INTRODUCTION

Improving the quality of care in general medical settings for common mental conditions, particularly depressive and anxiety disorders, has become a priority. Interventions for improving mental healthcare in primary care settings include: training primary care staff, consultation/liaison, collaborative care models with ancillary personnel assisting in care management, and information technology [1]. Collaborative care models have been reported to increase the delivery of guideline-based pharmacotherapy, care management, and psychotherapy, thereby improving short- and long-term mental health outcomes [2–6]. Specific implementations of collaborative care models differ in emphasis, but nearly all deliver basic specialty care in general medical services and therefore require substantial infrastructure support [7].

Collaborative care is more effective and cost-effective than usual care across diverse practice settings and patient populations including in low income, predominantly minority communities [1–7, 10]. Among Latinos -- the largest ethnic minority group in the US [8], characterized by underutilization and premature discontinuation of mental health care [9–12] -- collaborative care has successfully reduced mental health disparities relative to non-Latino whites [13–17]. However, these encouraging results derive from large, highly resourced care systems with the infrastructure to support ancillary staff or information technology enhancements. Moreover, Latinos are less likely than whites to have a usual source of care [18] and, when they do, are likely to rely on small, low-resourced healthcare settings, such as community clinics [19–21]. Small low-resourced health care settings that follow traditional fee-for-service strategies generally do not have the opportunity to implement resource-intensive quality improvement (QI) interventions such as collaborative care.

We are aware of only one study conducted in low-resourced private healthcare settings serving a low-income minority community. In this study from Chile, a 3-month multicomponent stepped care intervention led by non-medical health workers (e.g. social workers, nurses, midwives) available in primary care demonstrated significant improvement in mental health delivery and outcomes compared to usual care [16]. Modest interventions including structured protocols and role enhancements of available staff were the focus of achieving integrated care.

Although integration of mental health services within general medical care is a priority of the 2010 Affordable Care Act (ACA) in the US, many small community-based primary care clinics still do not have available staff, resources for role enhancements or incentives to change routine clinical practice. Pressure is likely to increase on low-resourced settings to meet the needs of the newly insured minority groups especially in Medicaid expansion states

[22] (e.g. 4.2 million low-income Latino adults gained insurance coverage nationwide after the major provision took effect in 2010 [22]). However, very little guidance is available on feasible and acceptable primary care interventions for the clinics that most commonly serve these populations. QI interventions of this kind merit development and testing.

We engaged small clinics run by independent Latino primary care physicians (PCP's) serving a low-income area of New York City predominantly inhabited by Latino immigrants. We developed and tested a QI intervention to enhance PCP screening and management of common mental disorders that was tailored to their characteristics and resources. This intervention trained PCP's to identify and treat mental disorders by combining academic detailing and consultation/liaison psychiatry, as well as supported outreach by primary care clinic staff to engage patients with mental health needs. We assessed questions that are basic to the implementation of QI interventions in low-resourced settings serving populations with healthcare disparities: 1) Did PCP's find the intervention acceptable and feasible?; 2) Did the intervention impact PCP behavior, mental healthcare delivery processes, and patient satisfaction?; and 3) Did efforts to support administrative staff outreach have any additional effect?

2.0 MATERIAL AND METHODS

2.1 Engagement of community PCP's

Our goal was to engage an opportunity sample of independent practitioner-based primary care clinics serving the predominantly Latino community of a defined neighborhood in Upper Manhattan; the clinics had to lack supports for screening and managing mental health disorders. Multiple engagement approaches over two years were used to cultivate physician buy-in. The length of the process was due to local suspicion of the medical center to which the researchers were affiliated, which served the same patient community and was suspected of longstanding efforts to eradicate its —competition among local private PCP's. An iterative process of working through the local ethnically-organized medical society, partnering with two PCP's who first agreed to participate, and identifying as many local PCP's as possible through existing lists and walking tours of the neighborhood achieved only limited success, despite the fact that the lead researcher was a first-generation Latino physician (RLF). The turning point came when senior staff at the large medical center recommended enlisting the assistance of local Latino psychiatrists in private practice. The rationale was that if these practitioners endorsed the study as beneficial for the Latino community and not damaging to their own practice, the PCP's would be more willing to participate. The help of two senior private Latino psychiatrists in the area proved decisive, in addition to conversations with local medical leaders. With their endorsement, we were able to recruit our sample goal of 7 Latino PCP's. Prior to initiation of the program at each clinic, the senior researcher (RLF) and research personnel met with the clinic PCP and administrative/nursing staff to orient them to the project.

2.2 Primary care practices

This study was carried out in 7 independent practitioner-based primary care clinics located in a predominantly Latino community in New York City. The clinics typically included the

PCP, a nurse, and an administrative/billing assistant. There was no other ancillary staff. The 7 participating PCP clinics serve nearly 12,500 patients per year. Most patients were women (66%) of middle age (mean = 52 years) with low income and limited formal education.

All PCP's were first-generation immigrants from Latin America who moved to the US after medical school, on average 20.7 (SD=3.7) years prior to study entry. Physicians had a mean of 13.1 (SD=5.3) years of experience. Most PCP's had basic knowledge of psychotropic medications; however, patients with mental health problems they were uncomfortable treating were referred to Latino psychiatrists in private practice or to local emergency departments. The need for sensitive engagement of PCP's in the community precluded our ability to conduct a baseline assessment of PCP knowledge and capacity as we risked rupturing the initially fragile collaboration.

2.3 Intervention procedures

Intervention components were chosen based on their feasibility and sustainability and the literature on collaborative care interventions. During the process of engagement, we observed a strong sense of professional autonomy and guild-like solidarity among the physicians, which influenced our decision to choose an academic detailing and consultation/liaison-based training intervention. The goal of the intervention was to train the PCP's to identify and treat mental health disorders so that, once the study ended, this practice change could be sustained independently of clinically-trained ancillary staff, a key component of collaborative care unavailable in low-resourced settings. The intervention was implemented in two stages. Stage 1 included academic detailing and consultation/liaison psychiatry:

Academic detailing—This approach was used to train PCP's in detection and management of depression and anxiety disorders. Academic detailing aims to change physician behavior through brief but focused visits to practicing physicians by health educators [23]. Educational materials were provided to PCP's in the form of condensed American Psychiatric Association practice guidelines for treatment of the four disorders listed below [24] and clinical summaries about antidepressants and other relevant medications. PCP's were also trained to screen for psychiatric diagnoses and given a 6-item Mental Health Screening Form developed for this study. On average, training lasted ~1 hour for each PCP. Current major depressive disorder (MDD), panic disorder (PD), and generalized anxiety disorder (GAD) screening used one item each, two questions screened for current posttraumatic stress disorder (PTSD), and one question assessed for —nerves, a Latino idiom of distress associated with depressive and anxiety disorders [25].

Consultation/liaison psychiatry—Research psychiatrists were available in-clinic once a week for up to 2–3 hours per day, one day per week for each PCP to: 1) evaluate patients referred by the PCP; 2) see each patient at least once in a combined session with the PCP; 3) discuss each case with the PCP; and 4) develop a psychiatric treatment plan to be implemented by the PCP (e.g., prescription). Visits were scheduled based on patient flow and PCP availability. Three psychiatrists worked with one PCP each and one psychiatrist worked with four PCP's.

Stage 1

The goal of Stage 1 (8 months at each clinic) was to assess whether the training intervention led PCP's to increase their mental healthcare evaluation and treatment activities, such as by conducting a mental health assessment (e.g., with the Mental Health Screening Form), providing medication treatment, or referring patients to the onsite study psychiatrist. We also assessed intervention impact on patient satisfaction. During Stage 1, screening results conducted by research personnel in the waiting area were purposefully not shared with the PCP or onsite psychiatrist to test the impact of the training intervention by itself on study outcomes.

Stage 2

During Stage 2 (6 months at each clinic), the Stage 1 training intervention was enhanced by an outreach component implemented by clinic administrative staff and focused on appointment scheduling. The goal of this stage was to assess whether there would be any incremental effect on study outcomes from a systematic outreach intervention that could be conducted by existing ancillary staff.

Outreach efforts—After all patients had been seen by the PCP and the psychiatrist, research screening staff provided them with a list of patients who screened positive that day on the PHQ-based screener. The psychiatrist reminded the PCP regularly to follow up with positive screens. Research personnel also provided weekly verbal reminders to the clinic administrative staff to schedule patients who screened positive for a visit earlier than their next routine visit. The characteristics of the two stages are listed in Table 1.

2.4 Design

The design, study procedures, and evaluation are described in Table 1 and Figure 1. The Institutional Review Board of the New York State Psychiatric Institute approved this study; all patients and PCP's provided written informed consent. Study materials were available in English and Spanish. Initiation of the study was staggered across primary care clinics and began with screening.

2.4.1 Study procedures: Screening—Screening was conducted up to twice a week at each clinic, following a rotating schedule, to recruit 15 patients at each site. All patients in the waiting room scheduled to meet with the PCP were asked to participate in screening. The screening interview identified primary care patients with at least one of four common [26] depressive and anxiety disorders. Bilingual (English/Spanish) research personnel screened patients at the 7 primary care clinics via a Clinical Screening Form. This form included Patient Health Questionnaire (PHQ) modules on MDD, PD, alcohol abuse, and other anxiety disorder [27] (which approximates generalized anxiety disorder criteria [28]). A drug abuse module adapted from the PHQ alcohol abuse module was also used [29]. Standard cutoffs were applied (e.g., for PHQ-9, patients had to score 10 or higher, including either depressed mood or loss of interests/pleasure [30]). Translation for all measures followed standard translation methodology of forward-translation, back-translation, and bilingual committee consensus [31]. Validation of the Spanish version of the PHQ modules against an independent structured interview found them to be reliable and valid screening tools for

mood and anxiety disorders [32, 33]. Posttraumatic Stress Disorder (PTSD) was assessed with a 6-item instrument used for National Anxiety Disorders Screening Day, with acceptable psychometric properties [34]. Positive PTSD screens were confirmed using the PTSD Checklist-Civilian Version (PCL-C-17) [35]. The PCL-C-17 ascertained illness severity.

Individuals screening positive for MDD, PD, GAD, and PTSD were asked to participate in the study. Exclusion criteria included screening positive for alcohol or drug use disorders, general health status precluding completion of research procedures (e.g., dementia), and current use of prescribed psychotropic medications or specialty mental health services. Demographic data were collected during the screening interview.

2.4.2 Study procedures: Evaluation—Consenting patients screening positive for any of the four mental health disorders were contacted within one week of their index visit to complete a baseline interview. Two-and-a-half months after this interview, patients were mailed a packet containing the follow-up screener and were contacted to complete a follow-up phone interview.

To evaluate the effects of the intervention, we recruited two waves of patients (Figure 1). Recruitment for Wave 1 and 2 began during Stage 1 and 2 of the intervention, respectively, and was sustained until equivalent samples of patients (N=15–20) were recruited from each clinic. Wave 1 subjects were ineligible for Wave 2.

Baseline assessments were obtained during the research screening interview (Table 2). Evaluation of the program consisted of feasibility and acceptability testing (Table 1: Outcomes). Feasibility measures were assessed via baseline and follow-up patient telephone interviews. The baseline interview focused on the index visit. The follow-up interview focused on the 3 months between the index visit and follow-up interview. Feasibility was defined as the receipt of any of the following mental health interventions during the relevant visit(s): 1) mental health assessment; 2) advice or education regarding psychiatric symptoms; 3) relevant prescriptions; 4) referral to psychiatric care; and 5) referral to a family services or community program.

The impact of Stage 1 on PCP behavior was determined by comparing Wave 1 and 2 baseline interviews. The impact of Stage 2 on the five PCP mental health interventions, patient satisfaction, and the extent of patient follow-through with PCP recommendations was assessed by comparing Wave 1 and 2 follow-up interviews (Table 1). This study design allowed the PCP to conduct the index visit with two waves of patients, before and after the training intervention (Stage 1) and also to manage the patients over the subsequent three months after the index visit under two study conditions: without outreach support (Stage 1) and with outreach support (Stage 2). Because the PCP index visit was conducted without the benefit of the outreach information from the study staff screening procedure, it allowed comparison of the impact of the Stage 1 intervention across both waves prior to the implementation of the Stage 2 intervention.

Acceptability was measured with PCP surveys. At the conclusion of the study, each PCP completed a 12-item survey evaluating the intervention. Physicians were asked: (1) about the usefulness of the program and its components; (2) how the program influenced their practice; and 3) for recommendations on how to improve the program.

2.5 Data Analysis

2.5.1 Patient interviews—Pearson's Chi-square tests were used to compare categorical variables from the baseline and follow-up interviews across the two waves. For small sample sizes, Fisher's exact test was used. Two-tailed t-tests were used for group comparisons of continuous variables. All statistical analyses were performed with SAS version 9.1.3.

2.5.2 PCP surveys—Open-ended questions on the PCP survey were analyzed using thematic analysis [36]. The authors (SRP and MG) coded the open-ended interview questions for salient themes. Iterative discussions led to a consensus on the most common themes regarding the helpfulness of the intervention and suggestions to improve the intervention.

3.0 RESULTS

3.1 Sample

Of 3,804 patients screened in the 7 primary care clinics for both waves, 209 completed a baseline interview and 172 completed the follow-up interview (Figure 2). Patients completing a baseline interview ($n=209$) included a higher proportion of women and monolingual Spanish speakers than the group who did not complete a baseline interview ($n=252$) ($p<.05$). There were no significant group differences in the demographic characteristics of patients who completed ($n=172$) and did not complete ($n=37$) the follow-up interview.

Table 2 presents demographic and clinical data for patients who completed the Wave 1 ($n=120$) and Wave 2 ($n=89$) baseline interviews. There were no significant differences in demographic characteristics between the two waves. Patients were primarily middle-aged, formerly married, Spanish-monolingual Latino women from the Dominican Republic, with less than a high school education. Most patients were unemployed or receiving public assistance and had health insurance.

There were also no significant differences in clinical characteristics between patients across the two waves with the exception of social and family functioning. Wave 2 patients reported significantly greater social and family/home life impairment than patients from Wave 1 ($p<.05$). The most common primary psychiatric diagnoses were MDD and GAD, followed by PD and PTSD. Patients in both waves had an average of 2.2 ($SD=0.8$) psychiatric diagnoses and 4.7–4.8 ($SD=2.5$) general medical conditions, most commonly arthritis/rheumatism, hypertension, and hypercholesterolemia. Current physical and emotional health was generally rated as fair to poor. Patients' functional status was also impaired, as reflected by the number of work days missed in the past month.

3.2 Feasibility

To test whether Stage 1 of the intervention affected PCP management and patient satisfaction, we compared the baseline interviews from the two waves (Table 3). There were minor but non-significant increases in mental health assessment and referrals to psychiatric care, as well as marginal increases in patient satisfaction. Clinicians were significantly less likely to refer patients to family/community services in Wave 2 than in Wave 1 ($p=.04$).

To test the effect of Stage 2 of the intervention, which included enhanced outreach efforts; we compared follow-up interviews from the two waves on the extent of the five primary care mental health activities, patient follow-through, and patient satisfaction over the 3 months after the index visit (Table 4). In Wave 2, PCP's were significantly more likely to refer patients to mental healthcare (33%) than in Wave 1 (18%) ($p=.04$). Patients were also more likely to follow through on referrals (52% in Wave 2 vs. 23% in Wave 1) ($p=.04$) but this increased follow-through did not translate into more frequent psychiatrist visits. Mental health assessments by the PCP increased non-significantly from 46% to 56%. No differences were found in psychoeducation or psychotropic prescribing, or in patient satisfaction with the care received from the PCP, which was high (81%) in both waves.

3.3 Acceptability

According to the physician surveys ($N=7$), PCP's found the program very-to-extremely useful, especially collaborating with the psychiatrist on identifying patients with mental disorders and acquiring experience with a broader range of psychiatric medications. They found the information sheets on medications to be more useful than the list of community services for referral. Most ($N=5$) reported dedicating 45–90 minutes during every consultation/liaison visit to discussing cases with the psychiatrist. PCP's reported using the Mental Health Screening Form with 30–70% of new patients and 20–50% of returning patients, confirming patient reports in the follow-up interviews (Table 2). Impact on their evaluation and treatment of psychiatric problems varied from —moderately ($N=2$) to —a lot ($N=5$).

Thematic analysis of PCP's responses to open-ended questions revealed that the most helpful aspects of the intervention were having access to a psychiatrist who speaks the language of the patient, discussing the cases face-to-face including about medication side effects, and learning about the management of PTSD. The least helpful aspect of the program was the time it took for uptake on referrals. Suggestions for improvement included simplifying the Screening Form and the treatment information sheet. Physicians requested that the list of referral sources include the type of insurance accepted, and that psychiatrist consultation visits and waiting-room screening take place every day.

4.0 DISCUSSION

To our knowledge, this is the first study to evaluate the effect of a training intervention focused on PCP's and their administrative staff on the quality of healthcare for mental disorders in small independent primary care clinics in a predominantly Latino community. Participating PCP's found the intervention acceptable and noted as most

beneficial the ability to refer to language-matched specialists and case-by-case consultation on medication management and PTSD.

Feasibility testing indicates that academic detailing paired with consultation/liaison services did not affect PCP management or patient satisfaction with care during the first stage of the intervention. Even after 8 months of PCP training and reduction of logistical barriers to referral by co-locating the psychiatrists in the PCP clinics, we still did not observe an increase in psychiatric referrals by PCP's. By contrast, adding outreach efforts by clinic staff resulted in a significant increase in referrals and patient follow-through with referrals. Although modest, these improved outcomes are notable in a population of severely ill Latino primary care patients with an average of 4 chronic medical conditions and 2 psychiatric disorders.

Our findings underscore the challenges associated with identifying feasible and sustainable QI interventions for low-resourced primary care settings that serve low-income minority patients. We confirm previous research showing that PCP training and consultation/liaison-based models for improving the quality of mental healthcare in primary care settings may be insufficient to impact care delivery [37]. In low-resourced settings, these interventions may need to be delivered in the context of other effective mechanisms, such as role enhancements for existing staff [16] outreach interventions, care managers, or financial incentives [1–17]. Future research may explore the impact of coordinating PCP and administrative staff activities to incorporate patient screening and outreach. Clinic staff could be trained to score and interpret self-reported mental health screeners during waiting periods for primary care visits and to schedule identified patients for PCP appointments; PCP's would treat or refer the patients and coordinate ongoing follow-up with administrative staff.

In the context of the current healthcare reform, research on feasible and modest QI interventions in low-resourced healthcare settings will help identify next steps toward care integration, even if full integration cannot be achieved. The Affordable Care Act (ACA) of 2010 – which responds to the shortcomings of our fragmented healthcare system – aims to improve outcomes for individuals with comorbid conditions. In addition to increasing access to treatment, the ACA specifically includes mental health and substance use disorder services as one of ten required —essential health benefits. The ACA establishes new mechanisms and funding opportunities to promote coordinated and person-centered care, such as a new Medicaid option for health homes, a trust fund to expand health center capacity and services, and initiatives to develop Accountable Care Organizations.

Our study presents a multifaceted QI program that can be implemented in low-resourced settings and that is similar to the Medicaid health home provision, which focuses on high-need, high-cost Medicaid-financed patients requiring a broad range of services. Our Stage 2 intervention is similar to the health home model, which mobilizes inter-professional teams of providers to manage and coordinate the breadth of services needed by persons with chronic mental health disorders and multiple comorbidities. Although these approaches are thought to depend on electronic medical systems that facilitate communication among providers -- not in use by our PCP partners -- health homes and our intervention are based on

management of service coordination in real time and tracking of patients and their use of services and assessments.

4.1 Limitations

This study has several limitations. First, we are unable to determine which element of the intervention was most effective. We can only infer based on our data that tracking reminders were the most active element; however, the positive outcomes could be a cumulative effect of clinical training and experience working with research staff. Second, requirements by our funders to provide immediate clinical services to the PCP clinics as well as the sensitivities of the PCP's about being —tested early in our collaboration prevented us from conducting a baseline assessment of PCP's and their management of depression and anxiety prior to the training. Because Wave 1 assessments took place during the first months of training rather than preceding it, this timing might have decreased detection an effect from Stage 1. Third, there may be a ceiling effect on satisfaction measures. Future studies should incorporate additional measures of feasibility, acceptability, and implementation. Finally, the durability of intervention effects was not assessed via long-term follow-up.

5.0 CONCLUSIONS

Training PCP's and their administrative staff who work in low-resourced settings in screening, outreach, and engagement of primary care patients with mental health needs is feasible and acceptable. However, PCP training by itself does not appear to be enough; involvement of PCP reminders and outreach efforts by administrative staff seem crucial. Future research should test this model further as one of several possible strategies that low-resourced settings can use to join health integration efforts supported by the ACA. Financial and care-based incentives may be considered to facilitate these efforts.

Acknowledgments

The project was supported by funding from the New York Times Foundation, Robin Hood Foundation, New York Community Trust, Project Liberty, American Red Cross, R21 MH066388 (Lewis-Fernández), R34 MH073087 (Lewis-Fernández), AHRQ U19 HS021112 (Olfson), the New York State Office of Mental Health, and institutional funds from the New York State Psychiatric Institute. The preparation of this article was supported in part by the Implementation Research Institute (Patel) at the George Warren Brown School of Social Work, Washington University in St. Louis; through an award from the National Institute of Mental Health (R25 MH080916) and the Department of Veterans Affairs, Health Services Research & Development Service, Quality Enhancement Research Initiative (QUERI).

The authors wish to thank: the physicians, staff, and patients of the primary care clinics that participated in this study, as well as José Báez, Gerardo Tapia, José Medina, Melissa Rosario, Christine Figueroa, Helena Rosenfeld-Alvarez, Paula Yáñez, Ashley Henderson, Andrew Schmidt, Stephanie Sosa, Donna Vermes, Randall Marshall, Rafael Lantigua, Walid Michelén, Ivan Balán, Omayra Ortiz, Leopoldo Cabassa, Neil Aggarwal, Dolly John, and Samantha Diaz for their help conducting the research and providing comments and review of this manuscript.

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Figure 1.
Study design and evaluation

Figure 2.
CONSORT diagram

Table 1

Study design and evaluation

	Stage 1	Stage 2
Intervention components	Academic detailing Consultation/liaison psychiatry	Academic detailing Consultation/liaison psychiatry Support of outreach efforts
Samples	<u>Patients</u> : N = 15–20 per clinic	<u>Patients</u> : N = 15–20 per clinic <u>PCPs</u> : N=7
Visit	Index session with PCP	Visits with PCP in 3 months after index session
Interviews	<u>Patients</u> : Baseline(reference index visit)	<u>Patients</u> : Follow-up(visits after index session) <u>Providers</u> : Acceptability interview
Data Analysis	Baseline: Wave 1 vs. Wave 2	Follow-up: Wave 1 vs. Wave 2
Outcomes	<u>Patients (Feasibility)</u> : Extent of PCP MH interventions Assessment Psychoeducation/advice Referrals Prescription Satisfaction	<u>Patients (Feasibility)</u> : Extent of PCP MH interventions Assessment Psychoeducation/advice Referrals Prescription Follow-through with PCP recommendations Satisfaction <u>Providers</u> : Acceptability

Note: MH= mental health

Table 2

Patient demographic and clinical characteristics at baseline (n=209) by study wave.

Patient characteristics	Wave 1 (n=120)	Wave 2 (n=89)	p-value ^a
Demographics			
Sex			.533
Male	17 (14%)	10 (11%)	
Female	103 (86%)	79 (89%)	
Age, years (mean, sd)	52.3 (14.2)	54.1 (15.1)	.346
Country of origin (birth)			.853
Dominican Republic	91 (76%)	72 (81%)	
Puerto Rico	4 (3%)	6 (7%)	
Other Latin American country	23 (19%)	8 (9%)	
United States	2 (2%)	3 (3%)	
Primary language ^b			.611
Spanish monolingual	74 (62%)	50 (58%)	
Any English	46 (38%)	36 (42%)	
Marital status ^b			.636
Single	14 (12%)	12 (14%)	
Married/living w/ partner	52 (44%)	33 (37%)	
Divorced/separated/widowed	52 (44%)	43 (49%)	
Education ^c			.390
<12 years	70 (58%)	43 (52%)	
High school diploma	24 (20%)	19 (23%)	
Post high-school	26 (22%)	21 (25%)	
Employment status			.552
Employed	42 (35%)	36 (40%)	
Student/homemaker/retired	36 (30%)	21 (24%)	
Unemployed	42 (35%)	32 (36%)	
Receiving public assistance ^d	31 (26%)	20 (23%)	.584
Health insurance ^e	104 (88%)	84 (95%)	.066

^a Chi-square test used for categorical variables; t-test used for continuous variables^b n=3 missing values^c n=6 missing values^d n=2 missing values^e n=89 missing values

Table 3

Patient clinical characteristics at baseline (n=209) by study wave.

Patient characteristics	Wave 1 (n=120)	Wave 2 (n=89)	p-value ^a
Clinical Primary psychiatric diagnosis ^f			
MDD	42 (35%)	39 (44%)	.197
PTSD	7 (6%)	7 (8%)	.562
PD	16 (13%)	10 (11%)	.650
GAD	55 (46%)	33 (37%)	.206
Severity of primary diagnosis			
MDD severity (PHQ), mean (sd)	18.3 (4.3)	19.0 (4.7)	
PTSD severity (PCL-17), mean (sd)	46.3 (9.9)	47.7 (10.9)	
PD severity (PHQ), mean (sd)	13.0 (2.1)	12.9 (1.4)	
GAD severity (PHQ), mean (sd)	9.9 (2.6)	11.2 (2.5)	
Number of psychiatric disorders, mean (sd)	2.2 (0.8)	2.2 (0.8)	.850
Medical conditions, mean (sd) ^f	4.7 (2.5)	4.8 (2.5)	.734
Arthritis/rheumatism	77 (64%)	52 (58%)	
High blood pressure	71 (59%)	52 (58%)	
High cholesterol	64 (53%)	48 (54%)	
Self-perceived physical health ^f			.308
Good	23 (19%)	13 (15%)	
Fair	60 (50%)	43 (49%)	
Bad	37 (31%)	32 (37%)	
Self-perceived emotional health ^f			.435
Good	14 (12%)	10 (11%)	
Fair	69 (57%)	45 (51%)	
Poor	37 (30%)	33 (36%)	
Social disruption, mean (sd) ^g	5.7 (3.6)	6.8 (3.3)	.026
Family disruption, mean(sd) ^g	4.9 (3.7)	6.0 (3.4)	.020
Days missed work (past month), mean (sd) ^c	5.5 (7.6)	4.4 (7.4)	.276

^f n=1 missing value^g measured by the Sheehan Disability Scale [34]

Table 4

Clinician intervention and patient satisfaction during Stage 1 (n=209).

Characteristic	Wave 1 (n =120)	Wave 2 (n = 89)	p-value ^a
Clinician intervention			
Conducted mental health assessment(n ₁ =119; n ₂ =82)	43 (36%)	37 (45%)	.201
Gave advice or psychoeducation regarding emotional/nerves-related symptoms(n ₁ =119; n ₂ =88)	33 (28%)	22 (25%)	.660
Referred to psychiatric care(n ₁ =119; n ₂ =89)	15 (13%)	14 (16%)	.916
Referred to family service/community program/other recommendation(n ₁ =119; n ₂ =89)	6 (5%)	0 (0%)	.039
Prescribed medication for emotional/nerves-related symptoms(n ₁ =118; n ₂ =86)	31 (26%)	21 (24%)	.764
Patient satisfaction with mental health assessment and treatment received at primary care office			
Patient satisfied with mental health evaluation and treatment received from PCP(n ₁ =89; n ₂ =71)	70 (79%)	60 (85%)	.346

^a Chi-square test used for categorical variables; Fisher's exact test used for analyses of cells with 5 participants

Table 5

Clinician intervention, patient follow-through, and patient satisfaction during Stage 2 (n=172)

Characteristic	Wave 1 (n = 97)	Wave 2 (n = 75)	p- value ^a
Clinician intervention			
Conducted mental health assessment (n ₁ =83; n ₂ =63)	38 (46%)	35 (56%)	.242
Gave advice or psychoeducation regarding emotional/nerves-related symptoms (n ₁ =83; n ₂ =64)	22 (27%)	16 (25%)	.836
Referred to psychiatric care (n ₁ =83; n ₂ =64)	15 (18%)	21 (33%)	.039
Referred to family service/community program/other recommendation (n ₁ =83; n ₂ =65)	0 (0%)	0 (0%)	—
Prescribed medication for emotional/nerves-related symptoms (n ₁ =83; n ₂ =65)	25 (30%)	19 (29%)	.907
Patient follow-through on clinician intervention			
Follow-through on referral to psychiatric care (n ₁ =22; n ₂ =23)	5 (23%)	12 (52%)	.044
Number of visits to psychiatric care, mean (sd) (n ₁ =5; n ₂ =12)	2.2 (1.6)	4.1 (4.3)	.363
Took medication prescribed for emotional/nerves-related symptoms (n ₁ =34; n ₂ =25)	31 (91%)	22 (88%)	.691
Patient satisfaction with mental health assessment and treatment received at primary care office			
Patient satisfied with mental health evaluation and treatment received from PCP (n ₁ =93; n ₂ =69)	75 (81%)	56 (81%)	.935

^a Chi-square test used for categorical variables; Fisher's exact test used for analyses of cells with 5 participants