Peer-Navigator Support for Latinx Patients with Serious Mental Illness

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ABSTRACT

Background

The physical health care needs of Latinxs (*Latinx* is a term adopted by advocates to refer to men and women, Latinos and Latinas) with serious mental illness (SMI)—individuals unable to complete education, work, or independent living goals because of psychiatric illness—are hindered by a fragmented care system that fails to meet their cultural concerns. Research on African Americans with SMI showed peer navigator programs (PNPs) to be one possible solution to these kinds of problems. Peer navigators are full-time, provider agency employees in recovery from SMI and from the same ethnic group as service recipients (Latinx). They partner with service recipients in day-to-day tasks to help them better engage in and benefit from health care systems.

Objectives

The purpose of this project was to conduct community-based participatory research (CBPR) to understand the health care needs of Latinxs with SMI, barriers to these needs, and solutions to these barriers. We then used this information to adapt the PNP for African Americans with SMI for Latinxs with SMI. A subsequent comparative effectiveness research study tested the impact of PNP, vs integrated care (IC) alone, on service engagement and secondary outcomes including perceived health, recovery, empowerment, and quality of life.

Methods

A CBPR team that included 6 Latinxs with SMI, researchers, and service providers conducted all research. The CBPR team conducted 2 studies. Study 1 was a qualitative project with 35 Latinxs with SMI or their service providers. Focus groups were completed with data being coded for themes by independent raters. Study 2 was a controlled trial with 110 research participants randomized to PNP or IC alone. More than 80% of participants' primary *DSM* (*Diagnostic and Statistical Manual of Mental Disorders*) diagnosis was anxiety disorder or depression. Research participants completed measures of service engagement (scheduled and achieved appointments) plus secondary outcomes including perceived physical health, recovery, empowerment, and quality of life at baseline and 4, 8, and 12 months.

Results

Study 1. Focus group participants reported specific needs related to overall health with special focus on preventive services and healthy living. Barriers to these needs included services that failed to address cultural perspectives including absence of language skills, immigration

concerns that undermine engagement, and inclusion of family in decision making. Solutions included adaptation of services to represent cultural concerns of Latinxs, integrated care settings, and entitlements. Participants also identified strengths of navigator services, especially those provided by peers. This information was used to adapt the PNP for Latinxs with SMI. *Study 2.* Analyses showed a statistically higher overall rate of scheduled and achieved appointments during the year of the project in the PNP compared with IC group. Secondary outcomes related to recovery, empowerment, and quality of life improved significantly more with PNP than with IC alone.

Conclusions

PNPs seem to help Latinxs with SMI better engage in care, leading to improved secondary health outcomes. These findings have implications for service programs that address the physical health needs of Latinxs with SMI. In particular, the program manual provides in-the-field strategies for staff members to help them meet the needs of service recipients.

Limitations and Subpopulation Considerations

Future research will need to examine several subpopulations identified in the focus groups. These include comorbid substance use disorder, first language of participant (English vs Spanish), community of origin (examining, for example, differences in perspectives of Mexican vs South American residents), and immigration status.

BACKGROUND

Serious mental illness (SMI) is defined as a chronic, *DSM* (*Diagnostic and Statistical Manual of Mental Disorders*)-diagnosed disorder that leads to disabilities that undermine work and independent living goals. People with SMI show inordinate rates of co-occurring physical illnesses that worsen disabilities or lead to death.[1-4] As a result, adults with SMI are hospitalized for physical health problems at much higher rates than other adults.[6] They overutilize emergency departments in response to both exacerbated chronic conditions[7,8] and relatively benign primary care evaluations.[9] Ethnic health disparities worsen the impact of SMI on physical health. The relationship between SMI and morbidity/mortality is much worse when the person is Latinx from a lower socioeconomic status compared with the white majority. Latinx cultural and religious norms are sometimes at odds with American health care models.[10,11] Language differences[12,13] and lower levels of education[14,15] prevent many from engaging in treatment.[16] Concerns related to US Immigration and Customs Enforcement (ICE) for those with uncertain residency status make some Latinxs suspicious of institutions.[17,18]

Policy experts in major health care systems have called for integrated care programs to meet the primary health care needs of people with SMI.[19,20] Results of a recent AHRQ (Agency for Healthcare Research and Quality)-commissioned review defined integrated care as mental health specialty and general medical care providers working together to address the physical and behavioral health care needs of patients.[21] The AHRQ defined 2 organizing principles that define integrated care programs: decision making (consensual, coordinated, or primary care provider directed) and location (onsite vs separate mental health/primary care practices). Despite promise shown in some studies, important gaps to integrated care as currently practiced have been identified: fragmented care systems, poor management of entitlements, cultural irrelevance of many services, and failure to include patient's extended family/social network. Peer navigators are a widely evaluated approach that may address these barriers by (1) assisting in coordination of services that address fragmented systems, (2) facilitating

involvement in services of extended support networks to make interventions reflect cultural preferences about family involvement, (3) anticipating and overcoming patient barriers to care, and (4) coordinating with insurers to better manage entitlements.[22] Shared decision making to promote self-determined treatment is basic to all these tasks.

Patient navigators emerged from the cancer services literature as a way to help patients diagnosed with breast cancer work their way through complex service delivery systems—eg, oncologist visits, laboratory tests, chemotherapy, counseling, radiation, pharmacy, physical therapy, insurance claims—providing assistance with both the instrumental and emotional demands each task presents.[23-25] Patient navigators are a more narrowly defined version of the growing cadre of community health workers (CHWs) in the public health sector. CHWs promote health within the patient's community by liaising between health care providers and the patient, providing culturally appropriate health care, advocating for individual health needs, and enrolling patients in appropriate federal or state health care plans.[26]

Separately, peer support services emerged as an evidence-based program to specifically help people with SMI achieve physical health goals. Findings from 4 randomized controlled trials showed that peer services led to improvement in personal goals of service recipients.[27-31] None of these programs are based on the kind of in-the-community, face-to-face practices and principles that define patient navigators. Hence, in a previously funded project (MD-007925-01), our group sought to bridge this gap by developing a peer navigator program to meet the physical health goals of African Americans with SMI. Through community-based participatory research (CBPR), we adapted patient navigator guidelines[32] to meet the specific needs of adults with SMI who are African American.[33] Resulting comparative effectiveness research—a randomized controlled trial comparing our peer navigator program (PNP; N = 34) to integrated care alone (IC; N = 33) provided over 12 months—examined effects of the 2 interventions on service engagement, subsequent health, and quality of life.[34] Peer navigators were African Americans in recovery from SMI. Results supported the impact of PNP compared with IC alone on service engagement with significantly greater scheduled and achieved health appointments

per week for the PNP compared with the IC alone group.[34] This corresponded with significant improvements in secondary outcomes, including perceived health on the SF-36 (36-Item Short Form Survey) as well as significantly greater quality of life and personal recovery.

The PCORI-funded project summarized in this report was CBPR to adapt the PNP for Latinxs with SMI. The full project had 2 components. First, the CBPR team conducted a qualitative study (study 1) to understand challenges to physical health among Latinxs with SMI. We then used these findings to guide an adaptation of the PNP for Latinxs. Second, we examined impact of the adapted program in a yearlong randomized controlled trial—IC alone vs PNP—with outcomes similar to those used in the previous trial of PNP for African Americans with SMI (study 2). Namely, we sought to measure whether PNP for Latinxs, compared with IC, enhanced service engagement, which subsequently improved self-perceived health goals, recovery, empowerment, and quality of life. Given this background, we hypothesized the following in study 2:

- Latinxs with SMI randomized to PNP would show significantly greater service engagement than IC. We assessed service engagement by increase in scheduled health appointments and achieved appointments. We defined achievement as research participants actually attending appointments at the scheduled time and place.
- PNP participants, compared with the IC-alone control group, would show significant improvements in secondary outcomes including self-reported health, recovery, empowerment, and quality of life.

PARTICIPATION OF PATIENTS AND OTHER STAKEHOLDERS IN PROJECT DESIGN

We conducted this research project as CBPR, an approach to science that believes research on any group is best conducted when professional researchers form partnerships with that group (in our context, Latinxs with SMI).[35]

Types and Number of Stakeholders Involved

At the beginning of the project, we convened a CBPR team in charge of all tasks outlined in the proposed study. Members of the team were expected to be engaged in CBPR over the course of the 3-year project. The team included 6 Latinxs with SMI who were selected for further diversity: gender (60% female), age, place of birth (50% immigrant or born outside of the United States), history of various physical illnesses (especially HIV-AIDS), substance abuse, and/or involvement with the criminal justice system. The CBPR team was led by a health services researcher with lived experience of mental illness and a Latinx working in public health. The team also included a service provider from a local community health center.

How Stakeholder Perspectives Were Conceived/Achieved

CBPR ensures active participation from patients and stakeholders who are representative of the study population during all aspects of the project. As partners, coinvestigators with lived experience have shared leadership roles in all elements of research design and conduct of research findings including formulating research questions and subsequent hypotheses, developing interventions meant to reflect hypotheses, identifying and selecting measures and designs that will test interventions, monitoring study conduct and progress, and interpreting findings leading to recommendations with public health significance.

Methods Used to Identify and Recruit Stakeholder Partners

We recruited potential Latinxs with SMI for the CBPR team by posting flyers throughout Chicago's Latinx community as well as using the network of Latinx providers in the city.

Nineteen Latinx with SMI responded to the notice and were interviewed for the project by Latinx research and provider staff. Team members were selected for diversity: Latinx, but also for gender, age, and sexual orientation.

We defined inclusion criteria for this and all other efforts in the project similarly: Latinxs with SMI and recent significant health problem. Participants needed to self-report Latinx ethnicity. Our definition of SMI reflects a rehabilitation perspective in which severity of mental illness is based on disabilities. In this light, the person needed to report a past *DSM* diagnosis of mental illness made by a health care provider. This mental illness needed to prevent education, employment, or independent living goals in a fashion defined by the Social Security Administration. Participants could have had comorbid substance use disorder, but disabilities needed to be primarily due to mental illness. Participants also needed to report significant physical health concerns in the past year that required care by a health care provider.

Methods, Modes, and Intensity of Engagement

The team met at project onset for 2-hour meetings each week with members paid per hour plus travel expenses for a total of $60. During the project, methods, modes, and intensity of engagement varied and included email, phone, text, and in-person communication. CBPR team members also met outside of meetings to work on various tasks throughout the project, such as recruitment and end-of-study resources and summary for research participants.

During the first months, the CBPR team conducted a qualitative study to describe physical health challenges of Latinx with SMI and the role the PNP might play in addressing these challenges. This was conducted as a series of focus groups led by selected CBPR team members following an interview guide developed by the team. Transcripts from the focus groups were coded and results reviewed by the team. Specifically, the team used findings to adapt the PNP for Latinxs with SMI.

The CBPR team then conducted an experimental test of the PNP. The team was responsible for reviewing proposed measures and design. Team members worked with the PCORI-funded

researchers on study logistics, analyses, and interpretations. Finally, the CBPR team used results for a final revision of the PNP manual for Latinxs.

Perceived or Measured Impact of Engagement

Throughout the project, the CBPR team conducted evaluations to measure the CBPR process.[35] We sought to better understand the self-identified strengths and areas of improvement for the CBPR team. The interview guide for the process evaluations (see Appendix A) discussed key constructs including perceived individual participation of the group, ability to express opinions, level of empowerment, leadership of the group, and understanding of the project. Qualitative data were coded independently by research assistants (RAs) and assigned into themes according to strengths and weaknesses. These themes were presented to the CBPR team and included recommendations about leadership, communication, and power differentials.

METHODS

This report summarizes methods and results from 2 studies that composed the overall PCORI project: (study 1) qualitative research to describe physical health challenges of Latinxs with SMI to inform PNP adaptation; and (study 2) comparative effectiveness research examining the effects of PNP vs IC alone on physical health needs of Latinxs with SMI. All research was conducted as CBPR. For study 1, CBPR team members played active roles in developing interview guide questions and group logistics, partnering in focus groups, coding data, and interpreting themes. The CBPR team then used these findings to adapt the PNP originally developed for African Americans with SMI to represent the needs and expectations of Latinxs with SMI. For study 2, CBPR team members were involved in study logistics, recruitment, and peer navigator training. They also took an active role in the interpretation of findings and conclusions.

Study 1. Qualitative Description of Physical Health Concerns of Latinx With SMI

Study design. We conducted a qualitative study using 60- to 90-minute focus groups of 5 to 10 participants each.

Forming the study cohort. The CBPR team agreed that focus groups should be composed of key stakeholders. The team defined key stakeholders as people with lived experience. People were screened and included if they met the following inclusion criteria: being Latinx and having an SMI. The CBPR team also thought key stakeholders should include others whose perspectives would increase our appreciation of health problems and possible solutions: providers of health care and advocacy services as well as family members. Hence, people were also screened and included if they were in one of these groups. The CBPR team decided focus groups should be heterogeneous, including both people with lived experience and providers in the same group; in this way, each group could react to the insights of others.

Study setting. To recruit people with lived experience, each of the 8 CBPR team members distributed 25 flyers throughout many Chicago neighborhoods, such as Rogers Park, Edgewater-Uptown, and Humboldt Park, with specific focus on community health centers, homeless shelters, food pantries, on-the-street locations such as shopping areas and bus stops, and social media. Flyers included a 24-hour contact number, and participants were screened until focus groups were filled. The CBPR team generated a list of provider candidates to recruit to complete the focus groups. All who were invited and agreed to participate received a $25 incentive along with commuting pay. Groups were scheduled at various days, times, and locations to be convenient for everyone involved.

Interventions. Study 1 had no intervention.

Follow-up. We collected data only once with no follow-up.

Study outcomes. Focus group facilitators used an interview guide formed by the CBPR team addressing 4 issues: (1) What are the health care needs for Latinxs with mental illness in Chicago? (2) What are the barriers to meeting these needs? (3) What are possible solutions to these barriers? (4) How might peer navigators be a good solution? The interview guide is included in Appendix A.

Data collection and sources. Information provided by participants was transcribed after the session.

Analytic and statistical approaches. We analyzed qualitative data using Lofland and Lofland's systematic filing system[19] and Berg's themes-to-concepts paradigm,[20] which allowed us to combine similar themes into categorical frameworks. First, focus group responses that were obtained in Spanish were translated to English for a common data set. RAs reviewed all responses for each question identifying category labels that summarized key concepts. Two RAs not involved in the initial process were asked to sort the concepts into corresponding categories. We utilized GraphPad software to complete Cohen's kappa coefficient to measure inter-rater agreement between RAs ($\kappa = 0.95$). We then reviewed qualitative findings with the CBPR team to obtain consensus about the themes of key responses to focus group questions.

Conduct of the study. There were no changes in the protocol over the course of study 1, including no changes in eligibility criteria or revision of the interview guide. All procedures were reviewed and fully approved by the institutional review board (IRB) at the Illinois Institute of Technology. This included a form that fully explained the study. No amendments were made during the course of the study.

Study 2. Comparative Effectiveness Research of PNP vs IC

Study design. We chose an experimental design to test hypotheses driving study 2. Namely, research participants were randomly assigned to an IC alone or a 12-month trial of PNP plus IC after being informed of the study and completing baseline measures. An RA completed randomization using assignment as described by a random number table. Randomization was

concealed from the individual until he or she had consented to participate; assignments were in consecutively numbered envelopes. Outcome measures were repeated at 4, 8, and 12 months. In addition, research participants were contacted weekly by phone to obtain information about scheduled and achieved appointments.

Forming the study cohort. Research participants were recruited using flyers distributed by CBPR team members throughout the Latinx community of Chicago. Flyers specified 2 inclusion criteria: self-report of being a Latinx adult and of currently having SMI defined as being under psychiatric care due to a specific diagnosis. Flyers included a central call-in number where RAs collected self-referrals as they were entered.

Interested candidates were then contacted and asked to complete a screen that was meant to confirm Latinx heritage and SMI status. There were no exclusion criteria.

Study setting. PNP and IC alone were provided by Trilogy Behavioral Healthcare. With more than 45 years of experience, the agency serves people with SMI in the City of Chicago, aiding more than 1500 clients each year. In 2008, Trilogy opened a Latino Services Program to increase access to a wide range of linguistically and culturally competent, recovery-oriented services for Latinxs living with SMI. For the past 5 years, they have partnered with an FQHC for an in-house clinic. IC was provided in the FQHC with related Trilogy services. Peer navigators worked on Trilogy's PNP. However, actual health services were not limited to the FQHC because research participants lived across the metropolitan area and may have preferred accessing other services. Hence, peer navigators may have assisted research participants with services at the Cook County Hospital, City of Chicago clinics, major medical centers, or other services.

Interventions. Peer navigators conducted the PNP using the manual adapted by the CBPR team. The PNP was governed by 8 basic values, 7 qualities of being part of a team, and 6 fundamental approaches; these approaches are summarized in Table 1 (eg, proactive, broad focused, active listener, shared decision making, and problem focused). These led to 4 sets of helping skills: basic helper principles; skills to work with the person (such as reflective listening, goal setting,

motivational interviewing, strengths interview, and advocacy); skills to respond to a person's concerns (eg, interpersonal problem solving, relapse management, harm reduction, cultural competence, trauma informed care); and role management skills (relationship boundaries, managing burnout, self-disclosure, "street smarts"). Peer navigators were also informed about resources in the area as well as a dynamic service locator used by the provider agency. A service locator is a paper directory of clinics and agencies that provide needed health and related interventions to program participants. *Dynamic* means it was updated monthly as services changed in availability. Peer navigators completed 20 hours of preservice training, after which they were certified to work with the PNP team. Peer navigators regularly received in-the-field supervision from a certified mental health professional. The supervisor also conducted monthly in-service training on the PNP. Individual program participants were assigned to receive services from individual peer navigators. Note, however, that individual research participants might have received services from any of the peer navigators on the team during the course of the study.

Table 1. Basic Values, Qualities of Teamwork, and Fundamental Approaches That Define Peer Navigator Services

BASIC VALUES
Accepting: Peer navigators (PNs) work with people who are different from them, including regarding ethnicity, cultural, and religious values. PNs respect these differences in ethnicities and values and respect the participant as he or she is.
Empowering: PNs recognize self-determination and self-independence. Participants have the ultimate power to define their health and health goals. They make the final decision to participate in services that would impact their health goals.
Recovery Focused: PNs promote goal achievement and hope by recognizing the difficulties presented by the participant's mental illness but giving primary focus to their expected recovery.
Goals Focused: PNs are goals focused. While PNs are encouraged to discuss goals, the participant makes the final decision about the pursuit of health and wellness goals.
Peer Experienced: PNs are peers. They are Hispanics/Latinxs who have lived experience with mental health condition(s) and are in recovery.
Available: PNs need to be flexible and available according to their participant's schedule within reason.
Patient and Consistent: PNs need to provide services regularly and over the long term.
In the Community: PNs work in the participant's community and health care coverage system. They also have the ability to provide services outside of health care environments.
QUALITIES OF TEAMWORK
Networked: PNs seek to meet the participant's needs by linking with all health care providers.
Access: PNs need access to clinics and information about their participants. With permission, this may mean accompanying the participant into an examination room or accessing medical records.
Informed and Resourced: PNs need to have knowledge and resources for the participant's coverages outside of health care, such as immigration resources.
Supervised: PNs are supervised and receive regular, supportive feedback about their performance. Supervisors should be active members of the patient's health service team.
Teamwork: PNs work as part of a team with other PNs and providers. In this way, PNs benefit from a range of skills and knowledge, and teams broaden their diverse resources network.
Diplomatic: To be successful with networking and accessing information, PNs must be polite and friendly. However, PNs may sometimes need to be assertive with professional providers.
Credentialed: PNs need to complete a training program and evaluation, participate in regular reliability checks to maintain their skills, and earn continuing education credits to maintain knowledge of related information.

FUNDAMENTAL APPROACHES
Proactive: PNs are attentive to places and times where action is needed. Rather than awaiting direction, PNs may suggest goals and strategies when encouraged to do so.
Broad Focus: PNs attempt to help participants address all health and wellness concerns. This may mean working in related areas such as immigration.
Active Listener: PNs must be active listeners. This includes careful attention to detail, reflection on what the participant is communicating, and exploration of the meaning behind what the participants says.
Shared Decision Making: PNs help the participant identify pros and cons of individual health and wellness decisions. PNs use active listening to help the participant make decisions.
Problem-solving Focused: PNs partner with participants to define the goal, brainstorm solutions, plan out a specific solution, apply it, and evaluate it to determine its effect.
Boundaries: PNs know there are limits to what they can do to help the participant.
Confidentiality: PNs need to keep sensitive information about participants to themselves within limits of the mandated reporter training.

Integrated care was provided to all participants by existing Trilogy programs, including at the FQHC. In particular, Trilogy services combined primary and mental health care at its clinics. Health care providers from each specialty shared electronic medical record as well as face-to-face opportunities for consult as needed. Trilogy also had an in-house pharmacy to assist patients with prescriptions when needed.

RAs shadowed peer navigators one-on-one for 4 hours quarterly to collect fidelity data; because of this, they were not blind to research participant study arm assignment. Peer navigators showed on average 82% of skills composing the PNP as recorded by the research assistants. The PN Fidelity Assessment is included in Appendix C.

Follow-up. This community-based intervention was provided for 12 months with data collected at baseline as well as at 4, 8, and 12 months. There was no follow-up (ie, postintervention) data collection. Research assistants contacted participants 2 weeks prior to 4-, 8-, and 12-month assessments using contact information (eg, phone numbers of participants and close family or

friends, snail mail, email addresses) provided by participants and updated throughout the 1-year study.

Study outcomes. Measures corresponded with 2 sets of outcomes: service engagement and health impact. Measures were psychometrically sound and shown in previous psychosocial research to be sensitive to change.[36] Measures were provided to research participants in their preferred language: English or Spanish. Psychometrically sound Spanish versions of all measures already existed. Service engagement data were collected weekly; research participants were paid $5 each week for providing this information. Health outcome data were collected at 0, 4, 8, and 12 months; participants were paid $35 for a 1-hour survey plus travel.

Service engagement. Use of health care services is the primary outcome of the study. Toward the beginning of each week during the yearlong study, an RA telephoned research participants to obtain a list of their specific appointments for the previous week using the weekly contact report (WCR).[34] The WCR asked research participants to report dates of all health-related appointments (both physical and mental health) from the previous week, clinic and provider name, reason for appointment, and whether the appointment was missed or achieved. Specific clinics and providers relevant to participants had been identified in our previous project for African Americans with SMI. The research participant was familiar with the RA and generally had a cordial relationship. In addition, the research participant was paid $5 for completing each weekly interview, which required no more than 10 minutes.

Secondary health outcomes. Research participants completed secondary measures of physical illness, recovery, personal empowerment, and quality of life. We used the SF-36,[37] a well-validated instrument measuring the "experience" of physical and mental health that includes 8 subfactors representing physical functioning, role limitations/physical health, role functioning/emotional problems, energy/fatigue, emotional well-being, social functioning, pain, and general health. Although the SF-36 generates subfactors, researchers have generated an

overall score as an index of physical health; psychometrics on the SF-36 have been supported in more than 4000 studies.[38] Higher scores are interpreted as better perceived health.

The PNP promoted health in ways that support self-determination. Hence, we expected 2 indicators to show significant improvement for PNP participants: empowerment and recovery. Personal empowerment was measured using the 28-item empowerment scale (ES) where participants reported their agreement to individual items on a 4-point agreement scale (4 = strongly disagree). An overall empowerment score was determined by adding all items; the ES has good psychometric support.[39,40] Lower scores signify greater empowerment. Recovery was assessed using the 24-item recovery assessment scale (RAS).[41] Research participants completed items—eg, "I'm hopeful about the future"—which they rated on a 5-point agreement scale (5 = strongly agree). A recent meta-analysis of 77 articles has supported the overall RAS score as a measure of recovery.[42] Higher scores represent better recovery.

We expected that improved health, empowerment, and recovery would enhance self-reported quality of life, which was assessed in this study using Lehman's (1988) quality of life scale (QLS). Research participants answered 6 items—eg, "How do you feel about your life as a whole?"— on a 7-point scale (7 = delighted; 1 = terrible). Research has supported its internal consistency as well as its relationships with recovery and empowerment.[43] Higher scores indicate better quality of life. This is a subset of a broader group of measures. The measures reported here are specific to the hypotheses of this study. Future reports will consider the other measures obtained.

Data collection and sources. Data representing secondary health outcomes were gathered through self-report from research participants by research assistants in face-to-face interviews. Ras obtained data representing service engagement in monthly phone calls with participants. No data were obtained from other sources (eg, service provider or medical record).

Analytic and statistical approaches. For individual missing responses on multi-item scales, we computed scale scores by averaging available items[44] as long as at least 80% of the item

responses were available. We handled missing data at the variable level through multiple imputation.[44] A concern with longitudinal research is that data were not missing at random (MAR) due to systematic dropout. We conducted attrition analyses[45] to detect distinct patterns of dropout, differential dropout across treatment conditions, and whether attrition was related to demographic and study variables. Specifying a model that included relevant demographic variables and measures of the outcome variables helped account for the factors that led to attrition, allowing the application of imputation methods that assume data were MAR, even if attrition was related to the outcome variables.[44]

Differences in demographics for the PNP and IC alone groups were determined and informed subsequent ANCOVAs (analyses of covariance) where appropriate; covariates are summarized in the results section. Each set of 4 weekly assessments of scheduled and achieved appointments were summed to a total of 12 sets of monthly appointments. Frequency counts and proportions tend to be non-normally distributed, which violates assumptions of ANCOVA. Hence, we transformed scheduled and achieved appointment counts with a $\log_{10}$ transformation. We applied a variance stabilizing, arcsine transformation to proportions.[46] The 2X12 ANCOVAs (intervention by time by covariates) that were separately completed for scheduled and achieved appointments represent whether changes in appointments (the primary outcome) were significantly greater in the PNP group than in the control group during the overall course of the study.

We determined internal consistencies for SF-36, RAS, ES, and QLS total scores for each of the 4 assessments. We determined 2X4 ANCOVAs (intervention by time by covariates) for the 4 total scores. We did not correct for multiple comparisons given the small number of ANCOVAs.

Conduct of the study. There were no changes in the protocol over the course of study 2, including no additions of study sites, changes in eligibility criteria, or revision of outcome measures. All procedures were reviewed and fully approved by the IRB at the Illinois Institute of Technology. This included a form that fully explained the study, PNP and IC alone conditions,

and data gathering. Participants were informed that they could decide not to enroll in the study or drop out during its course without affecting services they received from Trilogy. No amendments were made during the course of the study.

RESULTS

Study 1. Qualitative Description of Physical Health Concerns of Latinxs with SMI

Preliminary study results established the health care needs of Latinxs with SMI[47] and are fully described here. As noted in the Methods section, SMI was defined in terms of disability, as, for example, preventing education, employment, or independent living goals. More than 80% of research participants' primary *DSM* diagnosis was anxiety disorder or depression. In addition, the appendix includes a peer-reviewed journal article summarizing these results.

Thirty-six people were recruited and completed focus groups; 5 groups were conducted, with the number of group participants varying from 5 to 10. Individual groups were conducted either in Spanish or English. The overall sample was 63.4% female. Stakeholders differed by group with 53.6% self-reporting as consumers of mental health services, 26.8% being service providers, 9.8% being at-large community members, and 9.8% being family members of consumers. Summaries of key themes and corresponding items are reviewed in Table 2. These results are summarized by aims of the interview: health care needs, barriers to meeting needs, solutions to barriers, and peer navigators as a solution. Information in Table 2 was reviewed with the CBPR team, which further elaborated specific ideas. Items consensually identified by the CBPR team as a priority are flagged in the table. Special emphasis was given to items that might specifically concern Latinxs living in the United States.

Health care needs. Health care priorities that emerged from the focus groups included mental health services, preventive medicine, and dentistry. The CBPR team especially endorsed the need for mental health and substance abuse services for Latinxs with SMI, with special focus on

alcohol services. The CBPR team agreed that preventive services are needed, especially as related to illnesses that result from obesity, such as diabetes. Interestingly, the CBPR team identified 2 other issues not specific to health care but still clearly relevant: domestic violence and housing. The focus groups rounded out the discussion with statements of concern about maternal and childcare, reproductive and sexual health, and allergy and asthma.

Barriers to these needs. The focus group and CBPR team recognized a single barrier specific to Latinxs as a major hurdle to health care: immigration concerns that undermine engagement. Focus group participants and the CBPR team worried that engaging in health care services might result in undocumented Latinxs being remanded to ICE and possibly deported. They also thought Latinx heritage added a special stigma to the pursuit of health care in general and mental health care in particular. For men, this manifests itself as *machismo*, the expectation that real men do not need these kinds of services. In addition, Latinxs involved in the Catholic Church might believe health care services are not needed due to the spiritual guidance provided by the Church. Other factors that further undermine the health needs of people who are undocumented include absence of insurance benefits, language difficulties, and mental health systems that are foreign to Latinx expectations.

Table 2. Themes That Emerged in Qualitative Interviews Related to Health Care Needs, Barriers, and Solutions for Latinxs with SMI[*]

HEALTH CARE NEED
Mental health (9) (CBPR team)
• Depression
• Anxiety
• Counseling services (1) (CBPR team)
• Therapy (different types, eg, art therapy) (1)
Substance abuse (8) (CBPR team)
• Alcohol abuse (4) (CBPR team)
• Substance drug abuse (1)
Preventive screenings/services (7) (CBPR team)
Dental (4)
HIV (2)
Reproductive and sexual health (1)
Obesity-related illnesses (eg, hypotension, diabetes) (2) (CBPR team)
Domestic violence (1) (CBPR team)
Maternal and childcare (1)
Allergy needs (1)
Asthma needs (1)
Vision (2)
Housing services (2) (CBPR team)
Physical therapy (1)
BARRIERS TO HEALTH CARE NEEDS
Immigration—undocumented status
• Fear (13) (CBPR team)
• No insurance (7)
• Financial constraints (4)
• Difference in generation (acculturation) of immigrants (3)
• Language barrier (3)
• Need of familiarity (2)
• Unstable lifestyle/engagement (due to nonresidency here, job changes day to day) (2)
Stigma (18) (CBPR team)
• Individual (7)

• Social stigma (8)
• Men stigma (machismo) (5)
• Old stigma (religion) (3)
Avoidance of care (11)
• Not a priority—only if necessary (emergency) (4)
• Time restrictions within jobs (4)
• Financial constraints (3)
• Fear of finding additional health problems/results (2)
Lack of awareness/identifying of an illness (12)
• Denial (4) (CBPR team)
• Downplayed by others (2) (CBPR team)
• Not identifying an illness (7)
• Substitute with home remedies (2)
Lack of bilingual services (10) (CBPR team)
• Limited options due to lack of bilingual services (1)
• Resources not in Spanish (3)
• Translators do not explain, just translate (3)
• Lost in translation (assistance with family members/children) (2)
• Embarrassed of English (verbal) level (1)
• Not understanding (audio), embarrassed to clarify (3)
Lack of understanding Latino culture: machismo (2) (CBPR team)
Lack of understanding Latino culture: family/home—*familismo* (3)
Lack of understanding Latino culture: cultural religious beliefs (6)
Lack of understanding medical terminology—English/Spanish (5)
Lack of free or sliding scale costs for low income/no insurance (4)
Women barriers to health care services (specific) (4)
• Need of childcare services for smaller children
• Need of transportation
• Limited financial resources
Low literacy (4) (CBPR team)
• Difference in generation and/or acculturation
Mistrust of health care (4)
• Misdiagnosis (1)
• Miscommunication (2) (CBPR team)
• Bad experience (2)
• Lack of familiarity (1)

Limited knowledge or no access to resources (6)
Culturally accepted illness (3)
• *Nervios*
Lack of transportation (3)
Criminal history (1)
Unable to continue treatment (2)
Ethnic assumption (1)
SOLUTIONS TO HEALTH CARE BARRIERS
Provide insurance (information) (11)
• Know Medicaid and county care insurance coverage (2)
• Know insurance marketplace—options (6)
• Know insurance plan (individual) coverage (3)
Incorporate family to services (10) (CBPR team)
Recommend and connect to resources (17) (CBPR team)
Provide early awareness (9)
Increase community outreach/networking (14)
• Religious and educational institutions
Provide bilingual/bicultural services (8) (CBPR team)
• Explain services not just translate
• Ability to collaborate low understanding
• Awareness of different dialects
• Culturally responsive
Provide user-friendly medical terminology—simplify (English/Spanish) (3)
Gather preimmigration information (differences in acculturation) (5)
• Where the patient comes from (ethnic origin)
• Rural vs urban; small vs large community
• Occupation
• Generation of immigrant
• Level of family support (here vs back home)
Create awareness of stigma (individual, social, men (machismo), old stigma (religion) (7) (CBPR team)
• Acceptance of illness (2)
Provide peers (from the community)/mentors (3)
Increase information on mental health conditions and symptoms (3) (CBPR team)
Increase free or sliding scale services (3)
Ensure confidentiality (provide client/patient rights) (7)

Provide cognitive behavior techniques (1)
Change the approach to services (focus to general) (4)
Provide transportation (2) (CBPR team)
Provide central place for Latinxs (1)
PEER NAVIGATORS AS SOLUTIONS
Communication skills (12) (CBPR team)
• Be social (3)
• Learn to listen (4)
• Able to communicate with doctors (1)
• Be aware of body language (2)
Need of disclosure (share their story) (8)
Stability—level of recovery (6)
Knowledge of mental illness and symptoms (8)
Knowledge of medical conditions (5)
Empathy (7) (CBPR team)
Knowledge of substance abuse (4) (CBPR team)
Self-awareness quality (5)
Bilingual (3)
Provide boundaries between peer navigator (PN) and client (4) (CBPR team)
Need of common background (3)
• Matched based on recovery (2)
• Matched by personal experience (2)
• Age (2)
• Gender (2)
Care coordination training skills (7) (CBPR team)
Able to provide group environments (3)
Coaching services (5)
• Recovery process (2)
• Coaching to become independent (3)
• Appointment/referral process (5)
Provide support/educational workshops and trainings (5) (CBPR team)
• Provide model of cultural sensitivity to organizations (2) (CBPR team)
Be flexible (1)
Cons of PN (5)
• Not all relate Hispanic/Latinxs relate
• Assumptions on ethnicity (1)

• Literal vs integrating
• Need of compensation and benefits
• Not to impose own values
• Be aware of responsibility load

*Parenthetical numbers represent the number of discrete participants who mentioned the item. Items endorsed by the CBPR team at the postevaluation discussion are marked as CBPR team.

Participants viewed lack of illness awareness as a major concern, a problem that is not specific to Latinxs. People are often unable to identify an illness or deny symptoms that reflect it. As a result, they avoid treatment services. Time restrictions due to jobs can impede care seeking, as can financial constraints. These factors combine into a general mistrust of the health care system, especially mental health care services.

Solutions to barriers. Solutions emerged at the systemic level as well as via patient-to-service interactions. The CBPR team agreed with focus group members that addressing health care costs and insurance was essential. This may include development of sliding scales at clinics. In part, this may require action by governments, which suggests a need for advocacy. However, participants noted the complexity of costs and insurance, recommending that programs that educate and explain options to Latinxs are needed. Peer navigators, discussed below, can serve a vital role in helping people to actually access insurance programs.

Focus group participants believed that services need to be culturally adapted. Most health care systems are not set up to include families in decisions and practice. Participants believed parents, spouses, and adult children may play a more central role in health care than for the Anglo majority. Unfortunately, the status quo frequently separates family from patient in key decision making, especially in psychiatric services. Services need to be available in Spanish. Service providers need to be sensitive to immigration and issues of being undocumented, making sure they are fully informed of the degree to which they can keep information confidential. Providers need to be culturally sensitive and humble, recognizing exchanges that

might seem strained because of differing cultural expectations. This varies not only between Latinxs and other cultures but within the Latinx world (eg, differences in perspective of Mexicans vs Cubans). Finally, participants noted that help may be needed for pragmatic issues such as transportation or childcare.

Peer navigators. Peer navigators are one possible solution that spans many of the recommendations from the previous section. Hence, the focus group yielded information about perceived costs and benefits of peer navigators that led to recommendations for their training. Respondents believed navigators who were not only Latinx but in recovery from SMI would have a special empathy for participants in the program. They would have a consumer's knowledge of the service system, which could be helpful in navigating that system. Peers may also have a self-awareness from which participants might learn vicariously. Concerns about peer navigators included recognizing that Latinxs are not a homogeneous class and that significant differences may exist, for example, between Cubans and Mexicans. Peer navigators and their supervisors need to be mindful of the demands of the position and make sure these demands do not overwhelm their ability to cope. Finally, peer navigators need to make sure they do not allow their previous experiences to keep them from understanding participant needs or imposing their values on people.

Given these strengths and concerns, participants made recommendations for peer navigator training. Some of these would apply to navigators whether they were or were not peers: communication skills, knowledge of the health care system, and care coordination skills. Some recommendations were specific to peers, including learning how to use disclosure of peer experiences to advance the needs of participants and developing appropriate boundaries between navigator and participant.

Adaptation of peer navigator manual. The CBPR team used the qualitative findings to edit the original PNP manual for African Americans. This was a comprehensive and labor-intensive task during which the full CBPR team reviewed each learning point in the African American manual.

Researchers on the CBPR team were responsible for tagging qualitative findings relevant to decisions/changes in the PNP manual.

Study 2. Comparative Effectiveness Research of PNP vs IC

Recruitment and attrition are summarized in Table 3. Specifically, 161 Latinxs with SMI were assessed for eligibility; 51 of these were excluded because they did not meet inclusion criteria (n = 24), declined to participate (n = 14), or failed to show up for the baseline assessment. One hundred and ten were randomized to PNP or IC (n = 55). Table 4 summarizes demographics of research participants by group. Overall, research participants were 58.2% female (N = 64) and 45.6 ± 10.9 years old on average. The group was 83.6% (N = 92) heterosexual and somewhat varied in education with 60.9% (N = 67) having a high school diploma or less; 31.8% (N = 35) reported some kind of employment. As summarized in Table 4, the 2 groups were shown to differ significantly by age (PNP group mean age was 48.6; SD = 9.9); IC alone mean age was 42.7 (SD = 11.9) and place of birth (14.5% of PNP group born in the United States compared with 41.8% of the control). Age and place of birth were included as covariates in the analyses of service engagement and secondary health outcomes.

Small groups of research participants could not be located for 4-, 8-, and 12-month assessments as outlined in Table 3. Note, however, that many of those who missed at 4 or 8 months returned for subsequent assessments. We used an intent-to-treat strategy so all 110 were included in the final analysis. Although overall missing data were low, we imputed missing information by averaging available items[46] as long as at least 80% of the item responses were available. Skew, kurtosis, and distribution of secondary outcome variables were examined and seemed satisfactory such that we opted not to transform outcome data. As stated earlier, we did transform service appointment values.

Table 3. Consort Flow Chart

Assessed for eligibility 161

Excluded (n = 51)
Not meeting inclusion criteria (n = 24)
Declined to participate (n = 14)
Other reasons: didn't show during the initial interview (n = 12)
Inappropriate behavior (n = 1)

Randomized (N = 110)

Allocation

Intervention Allocated to intervention (N = 55)
Received allocated intervention (N = 55)

Control Allocated to intervention (N = 55)
Received allocated intervention (N = 55)

Follow-up

4 months
Missed 4-month assessment (N = 5)
Reasons: Loss of contact, no longer interested
May have returned for subsequent assessment

4 months
Missed 4-month assessment (N = 4)
Reasons: Participant in jail, moved, loss of contact
May have returned for subsequent assessment

8 months
Missed 8-month assessment (N = 8)
Reasons: Loss of contact, death
May have returned for subsequent assessment

8 months
Lost to follow-up (N = 3)
Reasons: Loss of contact, death
May have returned for subsequent assessment

12 months
Missed 12-month assessment: N = 8
Reasons: Loss of contact, death

12 months
Lost to follow-up (N = 5)
Reasons: Moved out of state, participant in jail, loss of contact, death

Analysis

Analyzed (N = 55)
Excluded from analysis (N = 0)
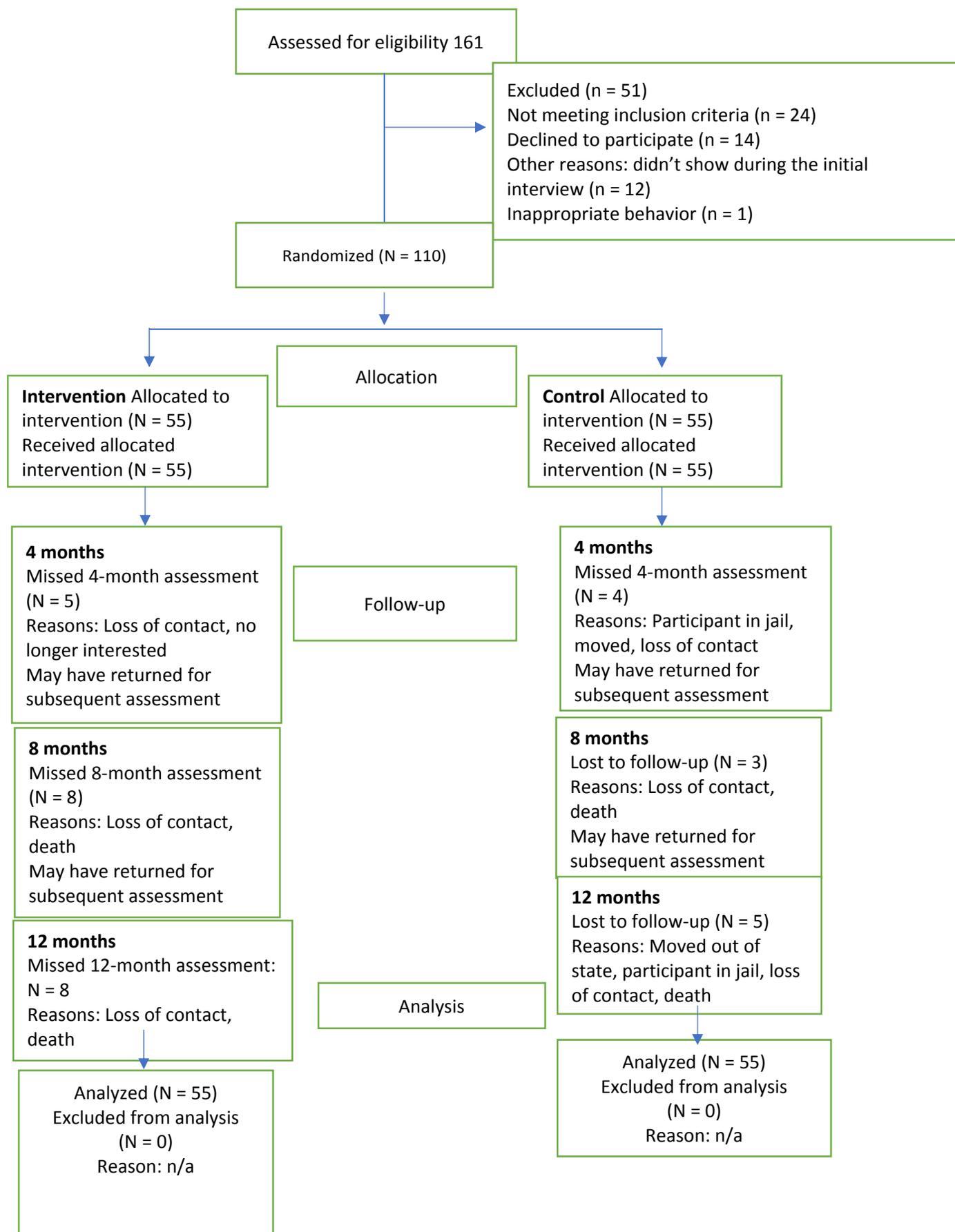Reason: n/a

Analyzed (N = 55)
Excluded from analysis (N = 0)
Reason: n/a

Table 4. Means or Frequencies of Demographics Across Intervention and Control Groups

Demographics	Intervention N = 55		Control N = 55		Test Value	df Value	P Value
	N	%	N	%			
Gender					$\chi^2$2.45	2	.29
Male	26	47.3%	18	33%, 32.7%			
Female	28	51% 50.9%	36	65%, 65.5%			
Transgender	1	1.8%	1	2%, 1.8%			
Sexual orientation					$\chi^2$2.34	5	.80
Heterosexual	46	83.6%	46	83.6%			
Homosexual	2	3.6%	2	3.6%			
Bisexual	4	7.3%	3	5.5%			
Queer	2	3.6%	3	5.5%			
Age (M ± SD)	48.6 ± 9.9		42. 7 ± 11.9		F = 7.93	1	.006
Place of birth					$\chi^2$10.11	1	.001
Born in the United States	8	14.5%	23	41.8%			
Born outside of continental United States (including Puerto Rico)	47	85.5%	32	58.2%			
Language					$\chi^2$3.15	1	.08
Preferred English	16	29.1%	25	45.5%			
Preferred Spanish	39	70.9%	30	54.5%			
Education					$\chi^2$3.60	5	.61
Less than high school or GED	23	41.8%	16	29.1%			
High school or GED	13	23.6%	15	27.3%			
Some college	9	16.4%	15	27.3%			
Associate degree	3	5.5%	3	5.5%			
bachelor's degree	5	9.1%	3	5.5%			
More than a bachelor's degree	2	3.6%	3	5.5%			
Employment					χ^2.377	1	.54
Yes	16	29.1%	19	34.5%			
No	39	70.9%	36	65.5%			

Demographics	Intervention N = 55		Control N = 55		Test Value	df Value	P Value
	N	%	N	%			
Diagnosis					χ²57.468	55	.38
Major depression	32	58.2%	40	72.7%			
Bipolar disorder	2	3.6%	6	10.9%			
Anxiety disorder	17	30.9%	6	10.9%			
Post-traumatic stress	1	1.8%	1	1.8%			
Schizophrenia	3	5.5%					
Schizoaffective			1	1.8%			
Adult attention-deficit disorder			1	1.8%			

Primary Outcome: Service Engagement

Significant differences in variance were noted for scheduled appointments (Box M = 141.04; $F_{91,36556}$ = 1.35; $p < .05$) and achieved appointments (Box M = 173.01; $F_{91,36556}$ = 1.66; $p < .01$). In both cases, larger variance was observed in the control group. This might have resulted because of the higher incidence of research participants with no scheduled appointments in any month in the control group (range was 15%-36%) compared with the PNP group (range was 0%-18%).

We hypothesized that the PNP would lead to greater use of services compared with the control. Means of scheduled and achieved appointments per person per month are summarized separately for PNP and control groups in Table 5. The intervention effect from a 2X12 ANCOVA (intervention by month controlled for age and place of birth) for scheduled appointments was significant ($F_{1,106}$ = 7.50; $p < .01$). This means the PNP group had significantly more scheduled appointments than the comparison group during the year of the intervention. There was also an increase in scheduled appointments among all participants over time during the study period ($F_{10.1,1072.9}$ = 1.98; $p = .03$), but this increase was not different between intervention and control groups (test of interaction $F_{10.1,1072.9}$ = 1.745; $p = .07$).

The intervention effect for the 2X12 ANCOVA was significant ($F_{1,106}$ = 4.85; $p < .05$), once again showing greater achieved appointments in the PNP group during the year of the study. There was no significant increase in scheduled appointments over time among all participants during the study period ($F_{11.2,1189.2}$ = 1.36; $p = .18$), but there was a significant intervention-by-time interaction ($F_{11.2,1189.2}$ = 1.77; $p < .05$). However, subsequent visual inspection and post hoc analyses failed to show that this interaction represented a relatively greater increase in scheduled appointments for either condition.

Table 5. Means and Standard Deviations of Total Scheduled Appointments and Achieved Appointments Each Month

| | Scheduled Appointments | | | | Achieved Appointments | | | |
| | Intervention | | Control | | Intervention | | Control | |
Month	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	6.33	4.25	3.42	4.31	4.55	3.07	2.15	3.02
2	8.64	5.59	4.65	5.62	4.33	3.42	2.29	2.74
3	8.09	6.26	4.67	5.32	4.05	4.21	2.00	2.39
4	7.65	5.69	5.60	6.12	3.93	2.69	2.31	2.73
5	6.31	6.36	4.33	5.56	4.13	4.32	2.38	3.17
6	8.04	7.35	5.11	6.88	5.16	5.38	2.95	4.66
7	7.80	7.40	5.85	7.31	4.67	5.39	3.00	4.82
8	8.58	7.07	5.80	7.79	5.07	5.36	3.09	5.47
9	7.73	7.04	4.69	7.41	4.80	5.09	2.91	5.64
10	8.27	7.36	5.15	7.14	4.53	4.79	2.84	5.54
11	7.05	7.49	5.22	7.01	3.82	4.56	2.84	4.68
12	6.95	7.36	5.60	7.44	3.55	4.22	3.13	5.55
Interaction	$F_{10.1,1072.9} = 1.745$; $p = .07$				$F_{11.2,1189.2} = 1.77$; $p < .05$			

Table 6. Intervention by Time Means and Standard Deviations of subscale scores for the SF-36, Recovery Assessment Scale, Empowerment Scale, and Quality of Life Scale[*]

Variable	Range of Alphas	Intervention								Treatment as Usual—Control								Interaction Effect		
		Baseline		4 Month		8 Month		12 Month		Baseline		4 Month		8 Month		12 Month				
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	df	f	P
SF-36	.94-.95	319.8	149.4	420.2	143.3	427.5	140.4	444.9	163.6	380.0	165.4	432.4	171.3	422.9	177.0	454.8	168.5	2.8,293	2.25	<.10
RAS	.87-.92	78.9	10.6	86.0	10.2	87.4	10.0	88.3	9.8	85.3	10.9	85.8	10.5	85.5	10.5	85.3	11.5	2.7,286	12.5	<.001
ES	.66-.78	9.3	1.2	8.8	1.4	8.4	1.2	8.5	1.1	8.8	1.1	8.5	1.2	8.7	1.2	8.7	1.3	3,318	2.93	<.05
QLS	.80-.86	23.5	6.9	25.9	5.2	26.4	5.6	27.4	5.8	26.0	6.2	27.1	6.5	26.4	7.5	26.4	7.1	2.9,311	3.30	<.05

[*]Differences tested by 2X4 (intervention by time) ANCOVA with age and place of birth as covariates.

Secondary Health Outcomes

Means and standard deviations of total secondary outcome scores for the SF-36, RAS, ES, and QLS by intervention and time (baseline, 4 months, 8 months, and 12 months) are summarized in Table 6. The Table includes ranges of internal consistencies for each measure, which were satisfactory for the total scores across the 4 measurement periods: SF-36 (.94-.95), RAS (.87-.92), ES (.66-.78), and QLS (.80-.86). Findings from 2X4 ANCOVAs (intervention by time with covariates) are also summarized in the table. The interaction for perceived health on the SF-36 was not significant ($F_{2.8,293.3}$ = 2.25; p = .09), suggesting the PNP group failed to show improvement in perceived health compared with control. The remaining 3 ANCOVAs showed significant interactions. A 2X4 ANOVA for recovery from mental illness found those in the PNP group, compared with control, showed greater improvement over the yearlong study ($F_{2.7,286.0}$ = 12.55; p < .001). Empowerment scores were also found to improve more for PNP compared with control over the 12 months ($F_{3,318}$ = 2.93; p < .05), as were quality of life scores ($F_{2.9,311.2}$ = 3.30; p < .05).

DISCUSSION

Study 1. Qualitative Description of Physical Health Concerns of Latinxs with SMI

Decisional context. Findings from the qualitative study were meant to generate hypotheses about physical health challenges to Latinxs with SMI. The CBPR team then used themes representing these hypotheses to inform adaptation of the PNP for Latinxs with SMI.

Study results in context. Latinx health care needs for people with SMI were identified by focus group participants and echoed by the CBPR team; they included mental health and substance abuse services. In addition, the CBPR team identified needs for human services—for domestic abuse and childcare—that, while not specific to health per se, were clearly related. Barriers to needs reflected concerns that especially reflect Latinx culture. Immigration and documentation were identified as barriers to health care. Participants expressed stigma and beliefs common to Latinx culture that might undermine health care needs such as machismo and the Catholic Church. More generally, participants were concerned about lack of awareness of illness that undermined seeking help for conditions. They also believed that practical considerations related to transportation and time away from jobs were critical barriers. These findings paralleled existing research about Latinx concerns and health care related to language,[12,13] cultural-religious norms,[10,11] and immigration.[17,18]

Solutions reflected Latinx-specific perspectives as well as more general ideas common to people with SMI. Services need to be culturally adapted. Providers need to be aware of the immigration challenges of working with people who are undocumented, making sure they know the limits of confidentiality so people are not unduly exposed to ICE intervention. Programs need to be able to more fully engage family members in treatment. More general concerns include helping people understand insurance and entitlements. They may need assistance in pragmatic issues such as transportation or childcare. Peer navigators may be one way to actualize many of these solutions. Benefits of peer navigators include a special sense of

empathy and insight that result from shared, lived experience. Survey participants provided several suggestions for subject areas for which peer navigators might learn to become more adept at their services: communication skills, knowledge of the health care system, and care coordination skills. Findings suggested peer navigators may have value to help Latinxs similar to their beneficial effects for African Americans with SMI.[34]

Implementation of study results. We used findings from the focus groups to inform adaptation of the PNP manual for Latinxs with SMI. In brief, the CBPR team cross-walked the original PNP manual (developed for African Americans with SMI) with the qualitative findings over 4 months of meetings.

Generalizability. Some of the findings in the Latinx qualitative study corresponded with results from the qualitative study with African Americans with SMI that was the foundation for developing the original PNP manual.[48] Both groups with SMI identified similar health care needs, including a need for a wider array of physical and health care settings, preferably in an integrated care system. Both agreed that fragmented and underfunded services were significant barriers to having these needs met. In addition, both recognized the absence of culturally sensitive health care providers, clinics, and interventions that undermined health care needs. Several solutions were noted by groups. In response to interviewer requests, groups specifically agreed that navigators would be important resources in helping people access resources, sometimes helping them understand or better access financial entitlements. Both groups agreed that peer navigators, people who were from the same ethnic group and in recovery from SMI, would help address cultural sensitivity issues.

Still, there were differences between African American and Latinx research participants, which reinforced the need for CBPR and qualitative research steeped in the ethnic group of the service recipient. Notable differences were the need for Spanish fluency by all service providers, concerns about immigration, and more intimate involvement of family in services. These findings illustrate limits to generalizability. We conducted this research in Latinx

neighborhoods of Chicago, one of the largest collection of Latinx residents in the United States outside Mexican border states. These neighborhoods are dominated by Mexican residents who likely have cultural perspectives that differ from other Latinx groups. They also include Puerto Ricans who lack the immigration concerns of many other Latinxs. These findings may also have limited generalizability across other ethnic groups, including Asian Americans, Native Americans, and Pacific Rim/Islanders.

Subpopulation considerations. There are multiple subpopulation concerns that we did not evaluate in this study because we chose not to partner the qualitative study described herein with a subsequent quantitative study to cross-validate findings and examine priorities. Future research, however, will need to examine several subpopulations identified in the focus groups. These include comorbid substance use disorder, first language of participant (English vs Spanish), community of origin (examining, for example, differences of perspectives of Mexican vs South American residents), and immigration status.

Study limitations. CBPR represents the interests and perceptions not only of ethnic groups, but of groups in specific locales. Hence, these findings reflect the perspective of Latinxs living in Chicago. This is a strength for developing programs that strongly represent local issues. However, findings need to be replicated in settings outside the Midwest. *Latinx* in this study was presented as somewhat of a homogeneous construct, contrary to the fact that Latinxs vary significantly and meaningfully by nation of origin and race. Future research needs to account for these kinds of heterogeneity. In addition, acculturation was limited to whether the person was born in the United States. While this is a reasonable proxy for acculturation, future research should include other indexes, such as primary language spoken at home, time living in the United States, and place of formal education. Finally, we were unable to use peer navigator logs and fidelity data to track actual number and types of contacts between peer navigators and patients.

Future research. Future research will need to test PNP effects on the health needs of Latinx with SMI. This was the goal of study 2. In addition to obtaining feedback from the CBPR team, perspectives from focus group participants themselves would have been beneficial.

Study 2. Comparative Effectiveness Research of PNP vs IC

Decisional context. The purpose of study 2 was to complete comparative effectiveness research to determine how the PNP for Latinx enhanced engagement and secondary health outcomes for participants compared with integrated care alone. These findings were meant to inform service providers regarding whether to include peer navigators in their service plan. They also provide preliminary information about how peer navigator services might be adjusted to meet the needs of specific service recipients.

Study results in context. This study examined the effects of a PNP developed by a CBPR team to better engage Latinxs with SMI in health care services. We assessed engagement by change in monthly scheduled and achieved appointments. Results from this study seemed to support improved engagement with a rapid increase in appointments almost right from the person's enrollment in PNP. These findings parallel PNP effects on African Americans with SMI.[34] Namely, we found significant differences in main effects for the PNP group over the 12 months of the study for both scheduled and achieved appointments. Thus, those receiving PNP, compared with the IC control group, showed significantly more scheduled and achieved appointments over the course of the study.

PNP and service engagement were also believed to improve secondary outcomes related to physical health, recovery, empowerment, and quality of life of Latinxs with SMI. Statistically nonsignificant results suggested improvement in the self-report of health on the SF-36 for those in the PNP program compared with IC control group over the 12 months of service. More clearly, research participants in the PNP showed significant improvement in recovery from mental illness, empowerment, and quality of life over the 12-month study. These findings are also similar to previous research on PNPs for African Americans with SMI.[34]

Implementation of study results. The PNP includes a training manual and worksheets. The CBPR team reviewed the program at the end of the study by qualitative research of a randomly selected sample of PNP participants plus the peer navigators. The CBPR team used this information to adapt the NIMHD (National Institute on Minority Health and Health Disparities) version of PNP for Latinxs.

The CBPR team then produced and submitted a dissemination and integration (D&I) grant proposal to PCORI to address implementation issues. In doing this, we advanced our partnerships with 2 groups. The Psychiatric Rehabilitation Association is the largest group of psychosocial providers addressing the physical health of people with SMI. Together, we identified 4 service agencies across the United States, with a distinguished history of serving Latinxs with SMI, that have committed to hosting D&I efforts. The proposal was also submitted with the National Association of State Mental Health Program Directors (NASMHPD). NASMHPD is the expert in policy decisions that need to be addressed in supporting implementation after dissemination training is completed. This includes state recognition of peer navigators as fundable providers so agencies can include them among their billable services. The proposal is in the process of being revised and resubmitted.

Generalizability. The same issues of generalizability reviewed under study 1 apply here; namely, similar findings emerged for both African American and Latinx service recipients. Still, PNPs need to consider further adaption for addressing subpopulations of Latinxs as well as other ethnic groups.

Subpopulation considerations. Similar subpopulation concerns as those outlined under study 1 apply here. Namely, future research needs to be suitably powered to address subpopulation considerations related to comorbid substance use disorder, first language of participant (English vs Spanish), community of origin (examining, for example, difference of perspectives of Mexican vs South American residents), and immigration status.

Study limitations. Results represent a small group of participants because we lost about 10% to follow-up, though this is fairly strong retention for research participants with SMI. Participants in the 2 study arms differed significantly in age and place of birth. However, the study population was too small to analyze results from subgroups. We were, for example, unable to determine whether differences varied by psychiatric diagnosis, specifically whether a history of substance use disorders modified the effect of PNPs on the study outcomes. Diagnoses were self-reported; future research might include a structured interview to assess the effects of diagnosis. Mediating effects of characteristics specific to being Latinx—eg, primary language and place of birth—on the effects of a PNP on study outcomes were not examined here and should be the focus of future work. Examining the effect of nation of origin should also be included in future research.

We did not assess receipt of health care services during a period prior to the beginning of the study, so results are unclear regarding whether the higher overall appointment rates in the PNP compared with control group during the study period also represents a greater rate of service engagement relative to the prestudy period. This information needs to be collected in subsequent research. Unfortunately, the study was underpowered to examine the impact of PNP separately on both types of appointments. Future research needs to examine this question.

Measures were self-reported. Future research should triangulate this information with independent sources of information about service utilization, such as billing data sets, and actual behaviors. RAs collecting data on appointments were not blind to study arm.

Future research. We hypothesized that navigator services provided by peers would enhance the quality of engagement in health care services. However, this study does not examine the importance of peer influences per se, which was also a limitation in our previous study of PNPs.[34] Future research will need to directly compare navigator interventions provided by peers with those offered by paraprofessionals without lived experience with the target health

condition. Several studies have used different methodologies to assess the degree to which the quality of community health work varies based on whether the CHW identifies as and has disclosed his or her mental health challenges.[36] One recent review of 18 studies found methods were lacking in terms of well-designed research. Even more, "peerness" has not yet been included as a mediator in studies seeking to document peer effects per se.[49] Hence, research needs to unpack the most important qualities of "peerness." For example, is it shared ethnicity and/or experiences with mental illness that lead to benefits? In a similar manner, future studies should assess how aspects of the PNP lead to specific benefits. Finally, time in the program was 1 year, which is still somewhat short in the health history of Latinxs with SMI. Future research should aim to investigate how health gains are maintained following PNP.

CONCLUSIONS

Results from study 1 identified the perspective of Latinxs with SMI about their physical health needs, barriers to these needs, and solutions to overcome these barriers, including implementing peer navigators. We used these findings to adapt our previously developed PNP for Latinxs with SMI. Study 2 then tested the impact of the revised PNP vs IC alone over a 1-year trial. Results showed significant differences in scheduled and achieved appointments for the PNP vs IC-alone groups. The PNP group also showed significant improvement in recovery, empowerment, and quality of life compared with IC alone, over the course of the study. Internal threats to validity include attrition over the course of the study, which was relatively small for a study of vulnerable populations with SMI, and an insufficiently powered sample to address heterogeneity and mediational effects. Threats to external validity include absence of considering the impact of PNP on subpopulations of the sample.

If confirmed in future research, these findings have several implications for advancing the physical health needs of Latinxs with SMI. The PNP manual is one product of this project that could be readily adopted by service providers. The program directly guides peer service providers in offering navigator interventions to service recipients. It offers direction to their supervisors in operating the program over time. It guides agency leadership in adopting the program as part of their treatment armamentarium.

Findings from these studies also have implications for ongoing research meant to address services that address the physical health care needs of Latinxs with SMI. This includes examining the effects of comorbidity and other illness course moderators. Future research also needs to examine important subpopulations and their potential moderating or mediating characteristics. Finally, the overall CBPR paradigm used here (and developed in our previous study on PNP for African Americans with SMI) provides a model for future efforts meant to adapt peer navigator services for other ethnic groups or health conditions.

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APPENDIX A
CRT Process Evaluation Interview Guide

Tell me about the individual participation of the group?

What are ways to improve the individual participation of the group?

Tell me about your ability to express your thoughts and opinions to the group?

What are ways to improve your ability to express your thoughts and opinions to the group?

Tell me about your level of empowerment to express your thoughts and opinions to the group?

What are ways to improve your level of empowerment to express your thoughts and opinions to the group?

Tell me about the leadership of the group?

What are ways to improve the leadership of the group?

Tell me about your understanding of the project?

What are ways to improve your understanding of the project?

Tell me about your benefit personally from being on the CBPR team?

What are ways to improve you benefiting personally from being on the CBPR team?

Tell me about how being on CBPR team was different from what you expected?

What are ways to improve your experience on the CBPR team from what you expected?

Tell me about what you liked about working on the project/team?

Tell me about what you didn't like about working on the project/team?

Tell me about the impact you think the project will have on your community?

What are ways to improve the project's impact on your community?

Tell me about how people with lived experience (Latinos with mental illness) made an impact to the project?

What are ways to improve the impact that people with lived experience can have on the project?

Tell me about the trainings/resources you think would have been helpful to have at the beginning of the project?

What are ways to improve trainings/resources for you throughout the project?

Tell me about the changes or improvements you have experienced from the last evaluation?

What are ways to improve any changes you experienced from the last evaluation?

Would you want to be on a CBPR project again? Why or why not?

APPENDIX B

Health Care Needs of Hispanic/Latinos with Mental Illness Northside of Chicago Area

Interview Guide for Focus Groups

1. What are the health care needs for people who are Hispanic/Latinos in the Northside of Chicago?

   Examples of Health care needs include: Physical Health, Mental Health, Substance Abuse Health, etc.

2. What prevents people who are Hispanic/Latinos with a mental illness from taking advantage of services?

3. What might be done to improve services for Hispanic/Latinos with a mental illness?

4. Peer Navigators are paraprofessionals who are Hispanic/Latinos with a mental illness and are now in recovery who help other Hispanic/Latino people work with health care clinics to address their health needs. What do you think of this idea? What skills would peer navigators need to learn to do this successfully?

5. What might Peer Navigators do in the Northside of Chicago to improve services for people who are Hispanic/Latino with a mental illness (Peer Navigators are people who are Hispanic/Latino that have a mental illness)

6. What information do Hispanic/Latinos with a mental illness need to know about health care?

7. How do Hispanic/Latino with a mental illness seek information for health care?

8. How does culture impact health care for people who are Hispanic/Latinos with a mental illness in the Northside of Chicago? What might be done to address this problem?

9. How does language impact health care for people who are Hispanic/Latinos with a mental illness in the Northside of Chicago? What might be done to address this problem?

10. How does immigration impact health care for people who are Hispanic/Latinos with a mental illness in the Northside of Chicago? What might be done to address this problem?

11. Is there any additional information or issues that we may have missed that can benefit us from knowing to improve health care for Hispanic/Latinos with a mental illness?

The questions above are expected to be sufficient to fill a 90 minute focus group. If not, the facilitator might want to continue into the questions below.

1. How does poverty impact health care for people who are Hispanic/Latinos with a mental illness in the Northside of Chicago? What might be done to address this problem?

2. How do gender issues impact health care for people who are Hispanic/Latinos with a mental illness in the Northside of Chicago? What might be done to address this problem?

3. How does stigma/taboo prevent people who are Hispanic/Latinos with a mental illness from taking advantages of health care services?

4. What might people do for themselves to improve services for people who are Hispanic/Latinos with a mental illness?

5. What might be done to improve clinic services? What might be done to improve nurses' and doctors' services?

APPENDIX C

Peer Navigator Fidelity Assessment

Assessor's Name: _____ Today's date: _____/ _____
/_____

Program Name: _____

Peer Navigator (PN) Name_____

Fidelity Assessment
_____ Shadowing PN
Fidelity Process
_____ Supervisor picks the day   _____ RA picks the day   _____ PN picks the day

Fidelity Observation Record
_____ AM _____

_____

_____ AM _____

_____

_____ AM _____

_____

_____ AM _____

_____

_____ AM _____

_____

_____ PM _____

_____

_____ PM _____

_____

_____ PM _____

_____

_____ PM _____

_____

_____ PM _____

_____

Fidelity Observation Index

_____Number of participants met in the field

_____Amount of time in the field (in minutes)

_____Number of participants met at appointment (e.g., healthcare, social service)

_____Amount of time at appointment (in minutes)

_____Number of participants met at Trilogy clinic

_____Amount of time at Trilogy clinic (in minutes)

_____Number of participants met somewhere else _____please specify

_____Amount of time at somewhere else (in minutes)

_____Amount of time liaising with other providers outside Trilogy (in minutes)

_____Amount of time liaising with other PN team members (in minutes)

_____Amount of time supervised by PN team manager (in minutes)

_____Number of participants contacted via phone

_____Amount of time spent on the phone with participants

APPENDIX D

Fidelity Work Performance

Working with Participants	Criteria	Yes/No Please note if in person or over the phone	Notes
1.	**Reflective Listening**		
	Attending Skills: PN provides participants with attending skills including: *Posture of involvement* from the PN to know that their message is being heard. *Appropriate body motion* with simple motions of nodding or learning forward to know they are paying attention *Eye contact* from the PN while the participant talks unless eye contact makes them uncomfortable *Non-distracting environment* that create less barriers between the PN and the participant.		
	Following Skills: PN provides participants with following skills including: *Door openers* from the PN that provide an invitation to talk for participants that excludes roadblocks *Minimal encouragers* that PN use like simple statements such as 'go on' or a node that let the participants know they are listening		

	Infrequent questions that PN use to direct the participant with open-ended questions that encourage them to continue talking *Attentive silence* where PN lets the participant do most of the talking		
	Reflective Skills: PN provides reflective or returning, the speaker's message including both the obvious and potentially hidden message including: *Paraphrasing* where the PN restates the participant's message in the PN's words *Reflective feelings* that PN focus on hidden messages of what the participant is saying by listening for feeling words and observing body language *Reflective meaning* that involves PN tying the obvious and hidden messages together *Summary reflections* where PN summarizes the flow of the conversation where the participant can reflect themes and common statements the PN is repeating.		
2	**Engaging health goal-setting**		
	Assessing health concerns: PN identifies with participant health goals based off health illnesses/concerns the participant have.		
	Engaging health goals: PN identify and obtain health goals for the participant that focus on strengths and resources		

	needed which the PN may use the 2.3, Goal-Setting IN-THE-FIELD PRACTICE SHEET with participants as a tool.		
3.	**Motivating behavior change**		
	Motivational Interviewing: PN provides reflective listening and motivational interviewing principles to strengthening a participant's motivation for change in a behaviors, attitudes or actions including: *Expressing empathy* by taking participant's perspective and adopting a non-judgmental attitude *Establishing inconsistencies* that participants may have between their values and behaviors. Reflecting these differences back to the participants while brainstorming suggestions *Roll with resistance with patience* that PN will encounter with participants as they negotiate with patience changes. PN responding with warmth and understanding to reduce resistance *Support will-power* with participants that focus on the belief that one has the capacity to change a behavior with positive statements.		
4.	**Applying the strengths model**		
	Strengths Model: PN collaborates with participants in working towards health goals and making decisions by applying the seven principles: *People can recover and transform their lives* *Focus on strengths, not deficits*		

	Community is a resource *Family and close friends are a resource and support* *Participant is the director of the helping process* *PN/Participant relationship is primary and essential*		
5	**Being an advocate**		
	Advocacy: PNs are advocates that works in favor of their participants providing assistance and promoting their interests with trusting relationships. PN take on different roles of advocacy such as: *Supporter* *Educator* *Spokesperson* *Mediator*		
Responding to Participant's concern	**Criteria**	**Rating/Anchors**	**Notes**
6	**Solving Interpersonal problems**		
	Interpersonal problem-solving Problems for participants are blocked goals. PN are to actively be involved in the problem solving process using the following seven steps: *Acknowledge and establish hope* *Define the problem* *Brainstorm solutions* *Select one solution and consider the costs and benefits* *Plan out solution's implementation*		

	Establish a time to implement and test the solution		
	Evaluate the solution's success/failure		
7	**Managing Aggression**		
	Aggression Management: PN may encounter aggression. It is important that PN respond to aggression behaviors in the following ways: *Decrease frustration by increasing focus with hope and priority* *Decrease demands by increasing step goals* *Decrease stimulation by increasing pro-social behavior* *Decrease rewards and identify incentives*		
	*Relapse Management **Harm Reduction*		
8	**Cultural Competency**		
	Cultural Competency: PN will have the ability to understand the beliefs and values of others using the following principles: *Awareness* *Sensitivity* *Knowledge* *Language*		
	*Mental Health Crisis Management **Physical Health Crisis Management* **Trauma-informed Crisis Management*		
9	**Connecting to resources**		
	Finding Resources: PNs main objective is to connect participants to services.		

	The following are useful strategies to finding resources: *Be familiar with participant's past resources* *Be familiar with your community area* *Consolidate resources within your team* *Connect and share with others* *Connect with insurance resources*		
	Making Appointments PNs job is to ensure participant connects and makes appointments The following are important aspects in appointment making: *Knowledge of contact information of participant and provider* *Preparation/Planning ahead of appointments of what to bring and what to do prior to an appointment* *Following up with providers with questions may have* *Aware of insurance/benefits of participant* *Provide reminder/in person assistance to participant*		
Managing my Role as PN	**Criteria**	**Rating/Anchors**	**Notes**
10	**Relationship Boundaries**		
	Relationship Boundaries: PN and participants strive to have a team member/team member relationship. This includes the following: *Shared Learning* *Mutual respect and trust*		

	No power imbalance		
11	**Self-disclosure**		
	Self-disclosure: PNs may have a story to tell that is helpful for participants to hear. The following are important characteristics in telling your story: *Make it personal* *Use concrete experience* *Be truthful, don't exaggerate* *Empower yourself: Empower others*		
	*Managing burnout **Street Smarts* **Office Etiquette*		
12	**Confidentiality**		
	Confidentially (HIPAA): PNs are required to follow HIPAA on participant's confidentiality. This includes the following: *Securing all participants information is private and secure* *Cannot use or share participants private health information without participant's signed permission* *Adhere to other agencies HIPAA policies*		
	*Mandated Reporter **Strategies working with health professionals*		