Implementation Barriers and Experiences of Eligible Patients Who Failed to Enroll in Collaborative Care for Depression and Anxiety

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BACKGROUND: Effective and efficient implementation of the Collaborative Care Model (CoCM) for depression and anxiety is imperative for program success. Studies examining barriers to implementation often omit patient perspectives.

OBJECTIVES: To explore experiences and attitudes of eligible patients referred to CoCM who declined participation or were unable to be reached, and identify implementation barriers to inform strategies.

DESIGN: Convergent mixed-methods study with a survey and interview.

PARTICIPANTS: Primary care patients at an academic medical center who were referred to a CoCM program for anxiety and depression by their primary care clinician (PCC) but declined participation or were unable to be reached by the behavioral health care manager to initiate care ($n = 80$). Interviews were conducted with 45 survey respondents.

MAIN MEASURES: Survey of patients' referral experiences and behavioral health preferences as they related to failing to enroll in the program. Interview questions were developed using the Consolidated Framework for Implementation Research version 2.0 (CFIR 2.0) to identify implementation barriers to enrollment.

KEY RESULTS: Survey results found that patients were uncertain about insurance coverage, did not understand the program, and felt services were not necessary. Referred patients who declined participation were concerned about how their mental health information would be used and preferred treatment without medication. Men agreed more that they did not need services. Qualitative results exhibited a variety of implementation determinants ($n = 23$) across the five CFIR 2.0 domains. Barriers included mental health stigma, perceiving behavioral health as outside of primary care practice guidelines, short or infrequent primary care appointments, prioritizing physical health over mental health, receiving inaccurate program information, low motivation to engage, and a less established relationship with their PCC.

CONCLUSIONS: Multiple barriers to enrollment led to failing to link patients to care, which can inform implementation strategies to address the patient-reported experiences and concerns.

KEY WORDS: primary care; implementation science; collaborative care; depression; anxiety.

BACKGROUND

The Collaborative Care Model (CoCM) is an evidence-based care model found to improve detection and treatment of depression and anxiety among primary care patients.[1,2] CoCM is delivered through co-management by primary care clinicians (PCCs; internists, family medicine physicians, nurse practitioners, etc.), behavioral health care managers, and psychiatric consultants.[3,4] Compared to usual primary care behavioral health services, CoCM has been found to significantly improve depression and anxiety symptoms, treatment adherence, and prevent relapse.[1,5–7] CoCM has also been associated with improved quality of life, functional status, physical health outcomes, and cardiovascular disease risk.[8–10] In a study by Garrison, Angstman[11], the median time to depression remission in CoCM was 86 days versus 614 days in usual primary care management. Real-world CoCM treatment effectiveness can be achieved by providing patients with an accessible behavioral health care team working jointly and seamlessly with physical health clinicians in primary medical settings.[1,6,12]

Importantly, CoCM has numerous strengths that can mitigate common population-level barriers to accessing behavioral health services. First, CoCM has specially designated Current Procedural Terminology codes.[13,14] Since these codes are reimbursed by Medicare, most commercial payers, and a growing number of Medicaid plans, CoCM has a clear pathway to long-term financial sustainability regardless of a health system's payer mix. Additionally, CoCM can be effective across diverse populations and settings, including managed care organizations, academic medical centers, community-based organizations, and through telehealth delivery.[12,15–17] Finally, CoCM's location in primary care has been found to attenuate longstanding access[18] and behavioral health outcome[19] disparities among racial/ethnic minorities.

In recent years, the focus of CoCM research has shifted toward the development of efficient and sustainable program implementation.[20–22] However, the majority of implementation studies do not involve patient perspectives.[12,23,24] When patient experiences are included, they are typically from those who participated in CoCM, which omits patients who were eligible and referred, but did not engage. There remains limited investigation as to why patients who could benefit from services and are offered CoCM decline enrollment or are unable to be reached. Understanding patients' perspectives of this process may help identify implementation deficiencies within the delivery system and aid in developing implementation strategies to promote reach of CoCM.

Present Study

This mixed-methods study explored the experiences and attitudes of patients who were referred to a primary care CoCM program and either declined enrollment or were unable to be reached when contacted to establish care. This sample, namely patients who declined enrollment after CoCM referral by their PCC or were unable to be reached after CoCM referral, will be referred to as "failed-to-link" to include possible systematic shortfalls. The study aims were to (1) explore the experiences and attitudes of referred patients who failed-to-link to CoCM; (2) examine differences in experiences and attitudes between subgroups (e.g., race, gender); and (3) identify implementation barriers encountered by patients who failed-to-link to CoCM. We hypothesized that systematic shortfalls and individual patient perceptions of behavioral health would be barriers in the connection of eligible patients to CoCM, and there would be group differences. Understanding linkage failures could inform modification of implementation strategies to improve reach of CoCM.

METHODS

Design

We performed a convergent mixed-methods[25] study using survey response data and semi-structured interviews with patients who were identified as having failed-to-link to CoCM. The study and all procedures were approved by the Northwestern University Institutional Review Board.

A CoCM program that adheres to the AIMS Center's[26] core principles and structure of collaborative care was implemented in 11 primary care clinics within an urban academic medical center in Illinois starting in September 2018. The current study is part of a larger randomized roll-out trial evaluating the implementation and effectiveness of the CoCM program (NCT04321876).[27] Briefly, CoCM was introduced to adult primary care practices during a team meeting with leadership and providers 6 months before it was launched. Staff (i.e., registered nurses and medical assistants) were trained in CoCM approximately 1 month prior to enrolling patients. When the program launched, clinic support staff screened patients for depression using the Patient Health Questionnaire-2 (PHQ-2).[28] If the PHQ-2 was positive, the PCC completed the Patient Health Questionnaire-9 (PHQ-9)[29] with the patient and made a referral to CoCM if the PHQ-9 score was ≥ 10. PCCs screened patients for anxiety using the General Anxiety Disorder-7 (GAD-7)[30] and made a referral if the GAD-7 was ≥ 10. Patients were not eligible for CoCM if they required a higher level of care, including those with current suicidality (i.e., a score of one or greater on question nine of the PHQ-9), bipolar disorder, symptoms of psychosis, or a primary diagnosis of substance use disorder. After the PCC conducted program consent and placed the referral, the behavioral care manager (BCM) contacted the patient to schedule an initial assessment. After the assessment, the BCM developed a treatment plan with the consulting psychiatrist, shared the psychiatrist's treatment recommendations with the PCC, and then followed-up with the patient at least every two weeks to monitor mood, side effects, and treatment adherence.

The COVID-19 pandemic and shift to telehealth primary care visits led to administering the PHQ-2 over the phone prior to virtual appointments, which had low response rates. Thus, the CoCM referral criteria were modified in April 2020 to allow PCCs to refer patients who expressed concern about symptoms of depression or anxiety and were interested in and provided consent for CoCM. PHQ-9 or GAD-7 scores were no longer required prior to referral. After referral, the BCM conducted the standard assessment to confirm eligibility or refer ineligible patients elsewhere. Consequently, not all patients who failed-to-link had a documented PHQ-9 or GAD-7 score at the time of referral after April 2020.

Participants

Eligible participants were primary care patients of Northwestern Medicine Primary Care who were consented and referred to CoCM by their primary care provider and either declined referral or were unable to be reached when the BCM contacted them to enroll in CoCM. Participants were excluded from this study if they had ever enrolled in CoCM or were unable to

understand English as surveys and interviews were conducted in English.

Recruitment

Eligible patients for this investigation were identified via an Enterprise Data Warehouse (EDW) inquiry that included all primary care patients with a CoCM status category of "Declined Participation" or "Called 2x" (i.e., unable to be reached after two phone calls from the BCM). Eligible patients were mailed a letter inviting them to complete an online survey about their experiences with the CoCM referral process and their attitudes and preferences for behavioral health services in the primary care setting. Informed consent was obtained prior to survey administration. On the consent form, participants were given the option to express interest in participating in an additional semi-structured telephone interview. Participants who indicated interest in the interview were contacted by research assistants. Participants were compensated with up to two $10 gift cards for their time—one for completing the online survey and another for participating in the phone interview. Survey data were collected and managed using Research Electronic Data Capture (REDCap).[31,32]

Fourteen days after letters were mailed, two research assistants called eligible participants who had not completed the survey to invite them to participate in the survey via telephone. The research assistants also asked participants if they were interested in participating in the phone interview.

A total of 329 patients were eligible for the study and were mailed a recruitment letter. Recruitment began in November 2020 and continued until May 2021 when the target of 80 surveys and 45 semi-structured qualitative interviews were completed. While fewer than 45 interviews were sufficient to achieve saturation,[33] this number ensured representativeness of gender, age, and the two referral types. The survey target was $n = 80$ to allow accurate and valid estimates for dispersion parameters and distributions, and sufficient data to minimize standard error. Participant demographics were reviewed after 40 surveys were completed and subsequent recruitment efforts involved stratification that focused on patients with characteristics that would lead to a representative sample.

Measures

Depression. The PHQ-9 is a validated measure for depression screening and severity assessment in primary care settings.[34,35] PHQ-9 scores were pulled from the EDW for all participants.

Anxiety. The 7-item Generalized Anxiety Disorder (GAD-7) measure has demonstrated reliability and validity for measuring clinically significant symptoms of anxiety in primary care.[36] Participant's GAD-7 scores were pulled from the EDW.

Demographics. Participant age and gender were self-reported on the survey. Participant race and ethnicity were obtained via the EDW inquiry.

Process Variables. Patient's primary care clinic, fail-to-link category, and date of CoCM referral were obtained via the EDW. Patients referred to CoCM prior to March 13, 2020, were categorized as "referred pre-pandemic" and those referred after were categorized as "referred during pandemic."

Patient Survey

The health care system's CoCM program was introduced to patients as the "Collaborative Behavioral Health Program (CBHP)" and was referred to as CBHP on all survey and interview items. Survey items were developed based on a review of the literature for common reasons cited for failure to complete referrals, and about behavioral health in general, as reported by patients. Participants completed a survey with 16 Likert-type scale questions and one short-answer open-ended question to capture possible reasons for the observed linkage failure, with a focus on referral experiences, and behavioral health attitudes and preferences. Patient referral experiences were assessed on eight items using a 4-point scale (0 = *Not at all*, 4 = *A lot*) to rate their reasons for not enrolling in CBHP (e.g., "*I was uncomfortable receiving care for depression from my primary care provider*," "*I was unsure if my insurance would cover CBHP*"). Patient behavioral health treatment attitudes and preferences were assessed on eight items using a 4-point scale (0 = *Not at all*, 4 = *A lot*) to rate statements about their reasons for not enrolling (e.g., "*I would have preferred a program that was not medication*," "*Participating would add another stressor to my life*").

Interview

Participant referral experiences and behavioral health treatment preferences were further examined in a 6-question open-ended interview administered via telephone (Supplemental file 1). The interview questions were developed using the determinants of the Consolidated Framework for Implementation Research version 2.0 (CFIR 2.0).[37,38] CFIR is a menu of constructs associated with effective implementation used to guide or evaluate the implementation of evidence-based practices (for the original CFIR figure, please see Additional File 1 in Damschroder, Aron[39]). CFIR 2.0 uses the same model and contains the majority of the constructs in the original CFIR[39] but with revisions to some terminology to better focus on recipients of an innovation (e.g., patients). CFIR 2.0 is useful for this study given our focus on patient perspectives (for a description of the CFIR 2.0 domains and constructs, please see Damschroder, Reardon[38]).

Quantitative Analysis

First, we performed descriptive statistics for demographic and survey items. Independent sample t-tests were used to compare differences by race, gender, fail-to-link category, and referral pre-vs during-pandemic. An intra-class correlation coefficient for survey score was calculated to examine clustering by primary

care clinic. Due to the time period of this study and the stepped-wedge roll-out design of the larger CoCM study, most eligible participants were from the first nine of the eleven clinics in the roll-out schedule.

Qualitative Analysis

All interviews were recorded and transcribed. We conducted a directed content analysis using CFIR 2.0 domains and constructs. Two members of the study team, EF and AJC, coded the interview transcripts. They first co-coded eight transcripts to become familiar with the coding constructs which were discussed with a third team member (JDS), who is experienced in using CFIR 2.0 for qualitative coding.[40] The two authors then independently coded 18 and 19 transcripts each and convened to check all codes, discuss questions that arose, and collaboratively determine the final code. Coding was confirmed by a third researcher (JDS), and any disagreements were discussed prior to finalizing the codes.

All 80 short-answer survey responses were coded to ensure that the 45 transcripts captured all relevant themes.

RESULTS

Participants

Sociodemographic characteristics of the 80 participants who completed the survey are shown in Table 1. The mean age of

Table 1 Descriptive Statistics

Participants (*n* = 80)	Declined participation (*n* = 51)	Unable to be reached (*n* = 29)	All participants (*n* = 80)
			n (%), *M* (SD)
Gender			
Female	34 (66.7)	18 (62.1)	52 (65.0)
Male	17 (33.3)	11 (37.9)	28 (34.0)
Transgender	0	0	0
Other	0	0	0
Age	51.6 (14.3)	45 (14.7)	49.2 (14.7)
	Range: 21–78	Range: 20–73	Range: 20–78
Race/ethnicity			
Latinx	7 (13.7)	6 (20.7)	13 (16.3)
Non-Hispanic White	27 (52.9)	17 (58.6)	44 (55.0)
Black or African American	16 (31.4)	3 (10.3)	19 (23.8)
Asian	2 (3.9)	0	2 (2.5)
Other	6 (11.8)	9 (31.0)	15 (18.8)
Screener completed			
PHQ9	26 (51.0)	11 (37.9)	37 (46.3)
GAD-7	3 (5.9)	3 (10.3)	6 (7.5)
None	22 (43.1)	15 (51.7)	37 (46.3)
Referral date			
Referred prior to pandemic	30 (58.8)	9 (31.0)	39 (48.8)
Referred during pandemic	21 (41.2)	20 (69.0)	41 (51.2)

participants was 49.2 years old (SD = 14.7), 65.0% identified as female; 55.0% of participants identified as non-Hispanic White, 24% as Black or African American, 2% as Asian, and 19% as Other; and 16% identified their ethnicity as Latinx. Approximately 63.7% of participants had declined CoCM participation, and 36.3% were unable to be reached to enroll in CoCM. Participants were from nine primary care clinics: 51.2% were referred to CoCM during the pandemic, and 53.8% had a PHQ-9 or GAD-7 screener completed by their PCCs prior to referral. Participants who did and did not participate in the qualitative interview differed slightly on age, $t(79)=2.1$, $p = 0.04$, but did not differ significantly on any other demographics, fail-to-link category, referral date (i.e., pre- vs during-pandemic), and completed screening measures (Table 2).

Quantitative Survey Results

First, we used the quantitative survey to examine participants' reasons for failure-to-link to CoCM based on their experiences, and behavioral health treatment attitudes and preferences (Table 3). The most common reasons were uncertainty about insurance coverage ($M = 2.10$, $SD = 1.58$), a poor understanding of the program ($M = 1.55$, $SD = 1.39$), and a lack of perceived need for treatment at the time ($M = 1.53$, $SD = 1.39$).

Compared to participants who were unable to be reached to enroll in CoCM, participants who declined participation more strongly agreed that they were concerned about behavioral health

Table 2 Characteristics of Survey Only and Survey Plus Interview Participants and Omnibus Test Results

Characteristic	Participated in Qualitative Interview		*p*[c]
	Yes (*n* = 45)[a]	No (*n* = 35)[b]	
Age (years)	52.2 ± 14.7	45.3 ± 14.1	*p* = .04
Gender			*p* = .72
Female	30 (57.7%)	22 (42.3%)	
Male	15 (53.6%)	13 (46.4%)	
Race			*p* = .43
Non-Hispanic White	26 (59.1%)	18 (40.9%)	
Black or African American	11 (57.9%)	8 (42.1%)	
Asian	0 (0.0%)	2 (100.0%)	
Other	8 (53.3%)	7 (46.7%)	
Ethnicity			*p* = .80
Non-Latinx	38 (57.6%)	28 (42.4%)	
Latinx	7 (53.8%)	6 (46.2%)	
Referral time			*p* = .63
Pre-pandemic	23 (59.0%)	16 (41.0%)	
During pandemic	22 (53.7%)	19 (46.3%)	
GAD-7 or PHQ9 screener(s)			*p* = .71
Completed	25 (58.1%)	18 (41.9%)	
Not completed	20 (54.1%)	17 (45.9%)	
Fail-to-link category			*p* = .08
Declined participation	25 (49.0%)	26 (51.0%)	
Unable to be reached	20 (69.0%)	9 (31.0%)	

[a]*Table values are mean ± SD for age and n (row %) for categorical variables*
[b]*Percentages may not sum to 100% due to rounding*
[c]*p-value is for t-test or χ^2 test as appropriate for continuous and categorical variables, respectively*

Table 3 Survey Results of Participant's Reasons for Not Enrolling in CoCM

Variable	M (SD)	Range
1. I would have preferred a program that was not medication.	1.71 (1.57)	0–4
2. I would have preferred a program that was not psychotherapy.	1.10 (1.27)	0–4
3. I expected my feelings would improve on their own.	1.75 (1.34)	0–4
4. Participating would add another stressor to my life.	1.50 (1.35)	0–4
5. I didn't have time to participate in CBHP.	1.55 (1.44)	0–4
6. Services through CBHP is not what I need.	1.45 (1.34)	0–4
7. Primary care appointments are for addressing physical health only.	0.63 (1.08)	0–4
8. I would prefer a program for depression that I can do on my own (e.g., an app on my phone).	1.00 (1.24)	0–4
9. I was uncomfortable receiving care for depression from my primary care provider.	0.90 (1.41)	0–4
10. Additional services for depression did not seem necessary at the time.	1.53 (1.39)	0–4
11. CBHP did not seem relevant.	1.24 (1.28)	0–4
12. The financial investment in CBHP was too much for me.	1.57 (1.52)	0–4
13. I was unsure if my insurance would cover CBHP.	2.10 (1.58)	0–4
14. I was concerned about the data that would be collected about me and my mental health and how it could be used.	0.91 (1.25)	0–4
15. I was uncomfortable being referred to a program for depression by my primary care provider.	0.55 (0.98)	0–4
16. I do not understand what CBHP is/I am not familiar with CBHP.	1.55 (1.35)	0–4

Each item was rated using a 4-point scale (0 = Not at all, 4 = A lot) to rate their reasons for not enrolling in CBHP

data privacy, $t(79) = 2.00$, $p = .03$, and they would have preferred a program that did not include medication treatment, $t(79) = 2.21$, $p = .02$ (Table 4). Compared to women, men agreed more with the statement "*Services through CBHP is not what I need*", $t(79) = 2.2$, $p = .02$ (Table 5). No differences between racial or ethnic groups (Table 6) or timing of referral were observed.

Qualitative Analysis Using CFIR 2.0

Qualitative analysis of participant's interviews using CFIR 2.0 exhibited 23 CFIR constructs across all five domains were identified as barriers or facilitators to enrolling in CoCM (Supplemental Table 1). Because the study's primary focus is barriers that led to non-enrollment, identified barriers are presented here while facilitators are available in Supplemental File 2. The results presented below are organized by CFIR 2.0 domain.

Innovation. Barriers included negative experiences at the institution where CoCM was delivered (CFIR 2.0 construct: Innovation Source), preferring self-managing symptoms or treatment without medication over CoCM (Relative Advantage), not being a good fit for the program (Adaptability), feeling that aspects of the program's structure were unappealing (Design Quality and Packaging), and cost and insurance uncertainty (Cost).

Outer Setting. Barriers included the COVID-19 pandemic disrupting connection to CoCM (Critical Incidents), preferring support from friends and family rather than medical providers,

Table 4 Independent Samples *t*-Test of Reasons for Not Enrolling Between Fail-to-Link Categories

	Declined participation (*n* = 51)	Called 2x (*n* = 29)	*t* (79)	*p*-value	Cohen's *d*
	M (SD)	M (SD)			
I was uncomfortable receiving care for depression from my primary care provider.	0.84 (1.33)	1.00 (1.56)	−.48	.63	−.02
Additional services for depression did not seem necessary at the time.	1.55 (1.36)	1.50 (1.45)	.15	.88	−.08
CBHP did not seem relevant.	1.33 (1.34)	1.07 (1.16)	.89	.38	−.11
The financial investment in CBHP was too much for me.	1.68 (1.57)	1.38 (1.43)	.85	.40	.45
I was unsure if my insurance would cover CBHP.	2.35 (1.58)	1.69 (1.54)	1.80	.08	.04
I was concerned about the data that would be collected about me and my mental health and how it could be used.	1.12 (1.37)	0.55 (0.91)	2.00	.03*	.15
I was uncomfortable being referred to a program for depression by my primary care provider.	0.63 (1.06)	0.41 (0.83)	.94	.35	−.02
I do not understand what CBHP is/I am not familiar with CBHP.	1.57 (1.36)	1.48 (1.35)	.27	.79	−.00
I would have preferred a program that was not medication.	2.10 (1.62)	1.31 (1.37)	2.21	.02*	.33
I would have preferred a program that was not psychotherapy.	1.16 (1.28)	1.00 (1.25)	.54	.59	−.12
I expected my feelings would improve on their own.	1.86 (1.39)	1.55 (1.24)	1.00	.32	.25
Participating would add another stressor to my life.	1.39 (1.40)	1.69 (1.26)	−.95	.35	.12
I didn't have time to participate in CBHP.	1.55 (1.45)	1.55 (1.45)	−.01	.99	−.05
Services through CBHP is not what I need.	1.59 (1.45)	1.21 (1.11)	1.23	.22	.52
Primary care appointments are for addressing physical health only.	0.73 (1.27)	0.45 (0.63)	1.10	.20	.23
I would prefer a program for depression that I can do on my own (e.g., an app on my phone).	1.06 (1.35)	0.90 (1.05)	.56	.55	.36
I do not understand what CBHP is/I am not familiar with CBHP.	1.57 (1.36)	1.48 (1.35)	.27	.79	−.00

*indicates p-value < .05
Each item was rated using a 4-point scale (0 = Not at all, 4 = A lot) to rate their reasons for not enrolling in CBHP

Table 5 Independent Samples *t*-Test of Reasons for Not Enrolling Between Gender Groups

	Male (*n* = 28)	Female (*n* = 52)	*t* (79)	*p*-value	Cohen's *d*
	M (SD)	*M* (SD)			
I was uncomfortable receiving care for depression from my primary care provider.	.82 (1.39)	.94 (1.43)	−.36	.72	−.89
Additional services for depression did not seem necessary at the time.	1.46 (1.35)	1.57 (1.42)	−.32	.75	−.08
CBHP did not seem relevant.	1.14 (1.18)	1.29 (1.33)	−.49	.62	−.11
The financial investment in CBHP was too much for me.	2.00 (1.54)	1.33 (1.47)	1.90	.06	.45
I was unsure if my insurance would cover CBHP.	2.14 (1.53)	2.08 (1.63)	.17	.87	.04
I was concerned about the data that would be collected about me and my mental health and how it could be used.	1.04 (1.45)	0.85 (1.13)	.65	.52	.15
I was uncomfortable being referred to a program for depression by my primary care provider.	0.54 (0.96)	0.56 (1.00)	−.10	.92	−.02
I do not understand what CBHP is/I am not familiar with CBHP.	1.54 (1.40)	1.54 (1.34)	−.01	.999	−.00
I would have preferred a program that was not medication.	2.14 (1.53)	1.63 (1.57)	1.39	.17	.33
I would have preferred a program that was not psychotherapy.	1.00 (1.19)	1.16 (1.32)	−.52	.60	−.12
I expected my feelings would improve on their own.	1.96 (1.32)	1.63 (1.34)	1.05	.30	.25
Participating would add another stressor to my life.	1.61 (1.29)	1.44 (1.39)	.52	.60	.12
I didn't have time to participate in CBHP.	1.50 (1.40)	1.58 (1.47)	−.23	.82	−.05
Services through CBHP is not what I need.	1.89 (1.17)	1.21 (1.38)	2.20	.02*	.52
Primary care appointments are for addressing physical health only.	0.79 (1.20)	0.54 (1.02)	.97	.33	.23
I would prefer a program for depression that I can do on my own (e.g., an app on my phone).	1.29 (1.33)	0.85 (1.18)	1.50	.13	.36

*indicates p-value < .05
Each item was rated using a 4-point scale (0 = Not at all, 4 = A lot) to rate their reasons for not enrolling in CBHP

stressors related to poverty, medical mistrust, mental health stigma (Local Attitudes), cold weather (Local Conditions), concern about mental health notes in their medical record, and feeling PCCs do not have credentials to treat mental health (compared to a licensed mental health provider) (Policies & Law).

Inner Setting. Barriers included feeling the provider was unable to accommodate a patient's needs (Recipient-Centeredness), prioritizing primary care visits for physical health rather than mental health (Relative Priority), feeling that primary care appointments are hard to get or too short to address mental health (Available Resources), and not

receiving adequate or accurate information about CoCM (e.g., patient thought program was long-term psychotherapy) (Access to Knowledge and Information).

Individuals. "Individuals" in CFIR 2.0 refer to those involved in the delivery of CoCM and includes patients as involved individuals to capture both their perspective of the implementers and their own characteristics. Barriers included feeling unfavorably toward those delivering CoCM (i.e., PCCs, BCMs) (Innovation Deliverers), personal characteristics such as being private (Innovation Recipient), feeling symptoms have improved so they do not need CoCM (Need), feeling PCCs were unable to adequately handle their

Table 6 Independent Samples *t*-Test of Reasons for Not Enrolling Between White and Non-White Participants

	White (*n* = 44)	Non-White (*n* = 36)	*t* (79)	*p*-value	Cohen's *d*
	M (SD)	*M* (SD)			
I was uncomfortable receiving care for depression from my primary care provider.	0.75 (1.31)	1.08 (1.52)	−1.05	.30	−.24
Additional services for depression did not seem necessary at the time.	1.70 (1.39)	1.31(1.37)	1.25	.22	.28
CBHP did not seem relevant.	1.34 (1.31)	1.11 (1.24)	.80	.43	.18
The financial investment in CBHP was too much for me.	1.50 (1.46)	1.66 (1.61)	−.46	.65	−.10
I was unsure if my insurance would cover CBHP.	2.16 (1.54)	2.03 (1.66)	.36	.72	.08
I was concerned about the data that would be collected about me and my mental health and how it could be used.	0.84 (1.26)	1.00 (1.24)	−.57	.57	−.13
I was uncomfortable being referred to a program for depression by my primary care provider.	0.48 (1.02)	0.64 (0.93)	−.73	.47	−.16
I do not understand what CBHP is/I am not familiar with CBHP.	1.48 (1.36)	1.61 (1.36)	−.44	.66	−.10
I would have preferred a program that was not medication.	1.86 (1.56)	1.75 (1.59)	.32	.75	.07
I would have preferred a program that was not psychotherapy.	1.14 (1.06)	1.07 (1.26)	.27	.78	.06
I expected my feelings would improve on their own.	1.59 (1.19)	1.94 (1.49)	−1.18	.24	−.27
Participating would add another stressor to my life.	1.50 (1.23)	1.50 (1.50)	.00	1.00	.00
I didn't have time to participate in CBHP.	1.39 (1.3)	1.75 (1.59)	−1.13	.26	−.25
Services through CBHP is not what I need.	1.55 (1.27)	1.33 (1.43)	.70	.49	.16
Primary care appointments are for addressing physical health only.	0.55 (0.72)	0.98 (1.21)	−.72	.47	−.16
I would prefer a program for depression that I can do on my own (e.g., an app on my phone).	1.00 (1.18)	1.00 (1.33)	.00	1.00	.00

Each item was rated using a 4-point scale (0 = Not at all, 4 = A lot) to rate their reasons for not enrolling in CBHP

needs (Capability), lack of time (Opportunity), and low motivation to return calls from the BCM or follow-up to enroll in CoCM (Motivation).

Process. Process barriers included a delay in being contacted by the CoCM provider, not receiving follow-up after learning about the program, and receiving an incorrect call-back number (Doing).

DISCUSSION

This study sought to understand the reasons that eligible, referred patients failed-to-link to CoCM. The intent was to use these findings to help identify system-level barriers and facilitators to enrolling in CoCM that could inform implementation strategies. Results exhibited that the patients who either refused or were unable to be reached were uncertain if their insurance would cover program costs, did not understand the program, and felt services did not seem necessary at the time of referral. The low mean scores across survey items could suggest an accumulation of individual, program and system-level factors across the CFIR 2.0 domains for why eligible primary care patients were "failed-to-link" to CoCM. Participants who declined participation were concerned about how their mental health data would be used and had more preference for a program that did not involve medication. Men agreed more than women that they did not need CoCM services.

Qualitative results from interviews with fail-to-link patients exhibited a variety of implementation constructs (n = 23) across the five CFIR 2.0 domains. Innovation and Outer Setting obstacles included program costs, unclear insurance coverage for behavioral health, behavioral health stigma, and perceiving behavioral health as outside of primary care practice guidelines. Inner Setting barriers included prioritizing physical health over mental health, insufficient time for addressing mental health in primary care and receiving limited information about CoCM. Barriers in the Individuals domain were low motivation to engage in mental health treatment, low perceived need, and feeling unfavorably toward their provider and their capabilities. Process-level barriers included a delay in being contacted by a program provider.

The domains coded by CFIR 2.0 have implications for informing implementation strategies to reduce barriers as described by this critical population. Our study and other CoCM studies noted a series of barriers stemming from PCC's limited time, competing priorities in primary care, uncertainty of insurance costs, and misunderstandings about CoCM's ability to provide all evidence-based care options, including both medications and psychotherapies. Indeed, behavioral health programs in primary care often require clinicians and patients to navigate behavioral health treatment on their own, leaving many avenues to fail-to-link patients [41,42]. Individual patient factors such as low motivation to follow through, seen in our sample and often in individuals with depressive symptoms,

further emphasize the need for systematic solutions. One strategy would be to utilize behavioral health staff to off-set the responsibilities from PCCs and patients. A study by Wolk et al.[43] at an academic medical center leveraged a resource center with a centralized intake, triage, and referral management center to coordinate appropriate referrals to CoCM or outside behavioral health resources. They found that the resource center reduced the burden on PCCs and patients, in addition to promoting CoCM program reach. Approximately 26.4% of patients were referred to CoCM, 70% were referred to community-based behavioral health care, and 0.5% were provided self-directed resources. As such, sites may benefit from exploring implementation of behavioral health resources in addition to CoCM or creating more streamlined pathways for external community referrals, especially if regular depression and anxiety screening identifies patients who need care but may not fit CoCM.

Patients that failed-to-link also endorsed receiving limited or inaccurate information about CoCM from their PCCs and insufficient time to discuss physical and behavioral health. Past studies found that after CoCM program implementation, PCCs desired more training and information about the program, and opportunities to discuss program concerns.[44] A strategy to address this could be improving the PCC training and having follow-up meetings to clarify new questions and reiterate information. Additionally, providing PCCs with an introductory script or brochure for patients about the CoCM structure, potential benefits, and cost could help convey accurate information during the short appointment time. Due to the time constraints of primary care, minimizing the role and time of the PCC could be further explored and one possible solution would be to supplement the initial PCC consent with a more robust consent and information session with the BCM. However, strategies to reduce fail-to-link outcomes are needed first to ensure patients are connected to the BCM.

Reported experiences of fail-to-link patients reveal broader needs to de-stigmatize behavioral health concerns and treatment. PCC education to promote mental health treatment for the benefit of physical health (to address the relative priority of physical vs mental health) may help. Importantly, behavioral health resources that are accessible, culturally relevant to diverse racial/ethnic groups, and honor patient preferences should be considered.[45,46] It may be necessary to take more care with racial/ethnic minorities who hold more stigma beliefs related to behavioral health care. For example, a mindfulness-based group intervention has been found to be both effective at treating depressive symptoms and acceptable among female African American participants in a community health center.[47]

Implementing an audit and feedback process of program data for physicians and CoCM staff can assist in monitoring program execution and process. Wolk et al.[43] found that having program leadership monitor dashboard data allowed improvement in CoCM clinicians' fidelity to the program. In a study examining organizational variability of process-of-care

and depression outcomes, Carlo et al.[48] found that a sustained attention to the process-of-care over time can assist with the long-term maintenance of initial program gains. In the case of our study, such attention to earlier process-of-care timepoints could reduce the process-level barriers for patients who fail-to-link. As a result of this study's findings, we are in the process of implementing an audit and feedback process in the larger study.

Strengths and Limitations

This study focused on one key point in the patient flow into CoCM. For example, it did not capture patients who are eligible but not referred. Further, we did not compare this sample to patients who were successfully linked to CoCM and their systematic and implementation facilitators. In our coding of patient-level barriers and facilitators, we sought to use CFIR 2.0 for parsimony. While adequate for the majority of constructs, other frameworks specifically for patient perspectives, motivation, etc. (e.g., Theoretical Domains Framework[49]) could have been used. Additionally, we did not conduct attrition weighting to minimize nonresponse bias as certain demographics were collected from participant surveys and unavailable in EDW data. Finally, this study excluded non-English-speaking patients since the survey and interviews were only in English. While the CoCM program has bilingual providers and only one patient was excluded from this study due to limited English proficiency, this criterion inhibited representation of non-English speakers in research, which can perpetuate mental health access disparities. Strengths of this study include sampling patients who were unable to be reached—a group often omitted from CoCM research.

CONCLUSIONS

CoCM offers a direct pathway to behavioral health services and allows the patient to remain in the same medical system of care for depression and anxiety management. Despite these advantages, we identified a variety of reasons that patients referred to CoCM in one academic medical health care system failed-to-link, either due to an inability to contact the patient or the patient declining to enroll in the program. This study provides insights into the type of implementation strategies that could help address patient-reported barriers behind failures-to-link to CoCM. While only one piece of the overall program flow, this step impacts overall program effectiveness and reach.

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Declarations:

REFERENCES

1. **Archer J, Bower P, Gilbody S, et al.** Collaborative care for depression and anxiety problems. Cochrane Database Syst Rev. 2012(10):CD006525.
2. **Woltmann E, Grogan-Kaylor A, Perron B, Georges H, Kilbourne AM, Bauer MS.** Comparative effectiveness of collaborative chronic care models for mental health conditions across primary, specialty, and behavioral health care settings: systematic review and meta-analysis. Am J Psychiatry. 2012;169(8):790-804. (In eng). https://doi.org/10.1176/appi.ajp.2012.11111616.
3. **Katon W, Von Korff M, Lin E, et al.** Collaborative Management to Achieve Treatment Guidelines: Impact on Depression in Primary Care. JAMA 1995;273(13):1026-1031. https://doi.org/10.1001/jama.1995.03520370068039.
4. **Gunn J, Diggens J, Hegarty K, Blashki G.** A systematic review of complex system interventions designed to increase recovery from depression in primary care. BMC Health Serv Res. 2006;6(1):88. https://doi.org/10.1186/1472-6963-6-88.
5. **Miller CJ, Grogan-Kaylor A, Perron BE, Kilbourne AM, Woltmann E, Bauer MS.** Collaborative chronic care models for mental health conditions: cumulative meta-analysis and metaregression to guide future research and implementation. Med Care 2013;51(10):922-30. (In eng). https://doi.org/10.1097/MLR.0b013e3182a3e4c4.
6. **Moriarty AS, Coventry PA, Hudson JL, et al.** The role of relapse prevention for depression in collaborative care: a systematic review. J Affect Disord 2020;265:618-644.
7. **Roy-Byrne P, Craske MG, Sullivan G, et al.** Delivery of evidence-based treatment for multiple anxiety disorders in primary care: a randomized controlled trial. JAMA. 2010;303(19):1921-1928.
8. **Huang Y, Wei X, Wu T, Chen R, Guo A.** Collaborative care for patients with depression and diabetes mellitus: a systematic review and meta-analysis. BMC Psychiatry. 2013;13:260. (In eng). https://doi.org/10.1186/1471-244x-13-260.
9. **Tully PJ, Baumeister H.** Collaborative care for comorbid depression and coronary heart disease: a systematic review and meta-analysis of randomised controlled trials. BMJ Open. 2015;5(12):e009128. https://doi.org/10.1136/bmjopen-2015-009128.
10. **Katon WJ, Lin EHB, Von Korff M, et al.** Collaborative Care for Patients with Depression and Chronic Illnesses. N Engl J Med. 2010;363(27):2611-2620. https://doi.org/10.1056/NEJMoa1003955.
11. **Garrison GM, Angstman KB, O'Connor SS, Williams MD, Lineberry TW.** Time to remission for depression with collaborative care management (CCM) in primary care. J Am Board Fam Med. 2016;29(1):10-17.
12. **Thota AB, Sipe TA, Byard GJ, et al.** Collaborative care to improve the management of depressive disorders: a community guide systematic review and meta-analysis. Am J Prev Med. 2012;42(5):525-538.

13. **Wolk CB, Alter CL, Kishton R, et al.** Improving Payment for Collaborative Mental Health Care in Primary Care. Med Care. 2021;59(4):324-326. (In eng). https://doi.org/10.1097/mlr.0000000000001485.

14. **Jacob V, Chattopadhyay SK, Sipe TA, et al.** Economics of collaborative care for management of depressive disorders: a community guide systematic review. Am J Prev Med. 2012;42(5):539-549.

15. **Huffman JC, Mastromauro CA, Beach SR, et al.** Collaborative care for depression and anxiety disorders in patients with recent cardiac events: the Management of Sadness and Anxiety in Cardiology (MOSAIC) randomized clinical trial. JAMA Intern Med. 2014;174(6):927-35. (In eng). https://doi.org/10.1001/jamainternmed.2014.739.

16. **Fortney JC, Pyne JM, Edlund MJ, et al.** A randomized trial of telemedicine-based collaborative care for depression. J Gen Intern Med. 2007;22(8):1086-1093.

17. **Bauer AM, Azzone V, Goldman HH, et al.** Implementation of collaborative depression management at community-based primary care clinics: an evaluation. Psychiatr Serv. 2011;62(9):1047-1053.

18. **Cook BL, Hou SS-Y, Lee-Tauler SY, Progovac AM, Samson F, Sanchez MJ.** A review of mental health and mental health care disparities research: 2011-2014. Med Care Res Rev. 2019;76(6):683-710.

19. **Hu J, Wu T, Damodaran S, Tabb KM, Bauer A, Huang H.** The Effectiveness of Collaborative Care on Depression Outcomes for Racial/Ethnic Minority Populations in Primary Care: A Systematic Review. Psychosomatics. 2020;61(6):632-644. https://doi.org/10.1016/j.psym.2020.03.007.

20. **Wolk CB, Last BS, Livesey C, et al.** Addressing common challenges in the implementation of collaborative care for mental health: the Penn Integrated Care program. Ann Fam Med. 2021;19(2):148-156.

21. **Bentham W, Vannoy SD, Badger K, Wennerstrom A, Springgate BF.** Opportunities and challenges of implementing collaborative mental health care in post-Katrina New Orleans. Ethn Dis. 2011;21(3 0 1):S1.

22. **Franx G, Dixon L, Wensing M, Pincus H.** Implementation strategies for collaborative primary care-mental health models. Curr Opin Psychiatry. 2013;26(5):502-10. (In eng). https://doi.org/10.1097/YCO.0b013e328363a69f.

23. **Wells KB, Tang L, Miranda J, Benjamin B, Duan N, Sherbourne CD.** The Effects of Quality Improvement for Depression in Primary Care at Nine Years: Results from a Randomized, Controlled Group-Level Trial. Health Serv Res. 2008;43(6):1952-1974.

24. **Wang PS, Simon GE, Avorn J, et al.** Telephone screening, outreach, and care management for depressed workers and impact on clinical and work productivity outcomes: a randomized controlled trial. JAMA. 2007;298(12):1401-1411.

25. **Creswell JW, Clark VLP.** Designing and Conducting Mixed Methods Research: Sage Publications, 2017.

26. University of Washington Advancing Integrated Mental Health Solutions (AIMS) Center. Collaborative Care. Available at: https://aims.uw.edu/collaborative-care. Accessed June 1, 2022

27. **Smith JD, Fu E, Rado J, et al.** Collaborative care for depression management in primary care: A randomized roll-out trial using a type 2 hybrid effectiveness-implementation design. Contemp Clin Trials Commun. 2021;23:100823. https://doi.org/10.1016/j.conctc.2021.100823.

28. **Kroenke K, Spitzer RL, Janet BWW.** The Patient Health Questionnaire-2: Validity of a Two-Item Depression Screener. Med Care. 2003;41(11):1284-1292. (http://www.jstor.org/stable/3768417).

29. **Kroenke K, Spitzer RL, Williams JBW.** The PHQ-9. J Gen Intern Med. 2001;16(9):606-613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x.

30. **Spitzer RL, Kroenke K, Williams JBW, Löwe B.** A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. Arch Intern Med. 2006;166(10):1092-1097. https://doi.org/10.1001/archinte.166.10.1092.

31. **Harris PA, Taylor R, Minor BL, et al.** The REDCap consortium: Building an international community of software platform partners. J Biomed Inform. 2019;95:103208. https://doi.org/10.1016/j.jbi.2019.103208.

32. **Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG.** Research electronic data capture (REDCap)—A metadata-driven methodology and workflow process for providing translational research informatics support. J Biomed Inform. 2009;42(2):377-381. https://doi.org/10.1016/j.jbi.2008.08.010.

33. **Guest G, Bunce A, Johnson L.** How many interviews are enough? An experiment with data saturation and variability. Field Methods. 2006;18(1):59-82.

34. **Kroenke K, Spitzer RL, Williams JB.** The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001;16(9):606-13. (In eng). https://doi.org/10.1046/j.1525-1497.2001.016009606.x.

35. **Arroll B, Goodyear-Smith F, Crengle S, et al.** Validation of PHQ-2 and PHQ-9 to screen for major depression in the primary care population. Ann Fam Med. 2010;8(4):348-53. (In eng). https://doi.org/10.1370/afm.1139.

36. **Spitzer RL, Kroenke K, Williams JB, Löwe B.** A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006;166(10):1092-7. (In eng). https://doi.org/10.1001/archinte.166.10.1092.

37. **Damschroder LJ, Reardon C, Wilderquist M, Lowery J.** Introduction and application of the consolidated framework for implementation research (CFIR): Version 2 (CFIR V2). AcademyHealth/NIH Conference on the Science of Dissemination and Implementation in Health. Crystal City, VA 2021.

38. **Damschroder L, Reardon CM, Widerquist MAO, Lowery JC.** The Updated Consolidated Framework for Implementation Research: CFIR 2.0. 2022.

39. **Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC.** Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implement Sci. 2009;4(1):1-15.

40. **Li DH, Benbow N, Keiser B, Mongrella M, Ortiz K, Villamar J, Gallo C, Deskins JS, Xavier Hall CD, Miller C, Mustanski B, Smith JD.** Determinants of implementation for HIV pre-exposure prophylaxis based on an updated Consolidated Framework for Implementation Research: a systematic review. JAIDS Journal of Acquired Immune Deficiency Syndromes. 2022;90(1): S235-S246. https://doi.org/10.1097/QAI.0000000000002984

41. **Kyanko KA, L A Curry, D E Keene, Sutherland R, Naik K, Busch SH.** Does Primary Care Fill the Gap in Access to Specialty Mental Health Care? A Mixed Methods Study. J Gen Intern Med. 2022:1-7. (In eng). https://doi.org/10.1007/s11606-021-07260-z.

42. **Cunningham PJ.** Beyond parity: primary care physicians' perspectives on access to mental health care. Health Aff (Project Hope). 2009;28(3):w490-501. (In eng). https://doi.org/10.1377/hlthaff.28.3.w490.

43. **Wolk CB, Last BS, Livesey C, et al.** Addressing Common Challenges in the Implementation of Collaborative Care for Mental Health: The Penn Integrated Care Program. Ann Fam Med 2021;19(2):148. https://doi.org/10.1370/afm.2651.

44. **Overbeck G, Davidsen AS, Kousgaard MB.** Enablers and barriers to implementing collaborative care for anxiety and depression: a systematic qualitative review. Implement Sci 2016;11(1):165-165. (In eng). https://doi.org/10.1186/s13012-016-0519-y.

45. (US) CfSAT. Improving Cultural Competence: Behavioral Health Treatment for Major Racial and Ethnic Groups: Substance Abuse and Mental Health Services Administration (US), 2014.

46. **Butler M, McCreedy E, Schwer N, et al.** Improving Cultural Competence to Reduce Health Disparities. Agency for Healthcare Research and Quality (US), Rockville (MD); 2016.

47. **Burnett-Zeigler I, Satyshur MD, Hong S, Wisner KL, Moskowitz J.** Acceptability of a mindfulness intervention for depressive symptoms among African-American women in a community health center: A qualitative study. Complement Ther Med 2019;45:19-24. (In eng). https://doi.org/10.1016/j.ctim.2019.05.012.

48. **Carlo AD, Jeng PJ, Bao Y, Unützer J.** The learning curve after implementation of collaborative care in a state mental health integration program. Psychiatr Serv. 2019;70(2):139-142.

49. **Atkins L, Francis J, Islam R, et al.** A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. Implement Sci. 2017;12(1):1-18.