

## Article

# Preparing Leaders in Primary Care Transformation: A Mental Health Curriculum

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## Abstract

The demand for mental health services is rising, and given the continued shortage of mental health specialists, primary care remains a critical setting for mental health treatment. Training emerging leaders in primary care to integrate interprofessional behavioral health services into care teams can help meet this demand. The Community Primary Care Champions fellowship developed a curriculum for primary care physicians and physician associates to lead primary care teams in addressing mental health within their clinical settings. This mental health curriculum for twenty-four fellows was led by a single faculty member during a part-time year-long fellowship. Seven modules (each 50–110 min long) covered critical topics through a mix of didactic learning, group learning, and a case-based summative independent activity. Evaluation included a pre- and post-assessment of knowledge and confidence, a one-year post-fellowship assessment, and focus groups. Self-assessed knowledge and confidence in key knowledge/skills/behavior improved after the fellowship with large effect sizes, and self-assessed knowledge about the Collaborative Care model for behavioral health integration and confidence in assessing suicide risk persisted one year after the fellowship compared to pre-fellowship. Our mental health curriculum demonstrates increases in self-assessed knowledge and confidence. It can be adapted for other graduate medical education settings to prepare learners to lead primary care transformation.

**Keywords:** interprofessional; mental health; graduate education; continuing education; fellowship



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## 1. Introduction

Mental health disorders are the fifth-leading cause of Disability-Adjusted Life Years in the 2023 Global Burden of Disease study, and had a 95.5% increase in prevalent cases between 1990 and 2023 [1]. With the lifetime prevalence of mental health disorders as high as 50% in the U.S. [2], and the incidence being as high as 19.1% among adults [3], approximately half of patients who present to primary care will have a psychiatric comorbidity [4]. Mental health care is most often provided in primary care settings due to patient preference and lack of access to specialized services, with most antidepressant prescriptions written by primary care clinicians [5,6]. The demand for mental health services is on the rise; mental health visits in Federally Qualified Health Centers (FQHCs) rose 103% from 2012–2019 [7].

While increasing the availability of mental health services has been a priority in FQHCs, only about half of non-FQHC safety net practices incorporate these services [8].

Even when co-located mental health care is available within primary care, there are still barriers to completion of a specialty mental health visit. One study showed that only one-third of those referred to co-located mental health care scheduled an appointment despite its availability [9]. Unfortunately, referring to an external psychiatrist is also often ineffective since 60% of U.S. counties do not have a single psychiatrist [9]. Additionally, there was a 10% reduction in the number of psychiatrists per 100,000 people and in those accepting insurance between 2003–2013 [10]. In fact, data shows that as many as 40% of psychiatrists are in cash-only practices, which are inaccessible to much of the population [11].

To address a global shortage of mental health services, the World Health Organization specifically recommends integrating behavioral health services within the primary care setting by building the capacity of generalists to diagnose and treat mental health conditions, as well as developing systems that allow for mental health specialists to be embedded into primary care settings [12]. When primary care clinicians complete graduate training, they enter the workforce with the medical knowledge to care for individual patients, but many lack the complete skillset necessary to develop integrated care programs. Emerging models of integrating mental health care services into primary care can provide sufficient mental health consultant support while maximizing access to specialized care with limited availability [13]. Such approaches have yielded better outcomes in patient and provider satisfaction, cost, and quality and can support practices' recruitment and retention goals. Physicians who practice in integrated care settings have been shown to experience higher levels of personal accomplishment and lower depersonalization, which may be protective against burnout [14]. Training opportunities for students and residents in integrated care are currently rare [15], but demonstrate benefits for preparing learners to work within inter-professional teams [16]. Until these training opportunities are more prevalent, practicing within integrated care models will require training and support, as it represents a marked shift from siloed practice.

The Community Primary Care Champions fellowship (CPCC) was created to address critical gaps in training among post-graduate-level physicians and physician associates (PAs) who have the potential for primary care leadership positions. In the U.S., PAs are licensed clinicians who undergo Master's-level training to provide care on medical teams; in primary care, they often practice independently alongside (and in some states with mandatory legal collaboration agreements with) physicians and provide critical, expanded access to care [17]. The mental health curriculum was devised to train physician and PA future leaders in best practices for mental health clinical care and in the application of integrated care models. The curriculum has a modular design that lays the groundwork with foundational didactics and deepens the learning with group discussions and case-based application of tools and resources. This structure makes it ideal for longitudinal learning settings or established communities of practice. The content builds upon prior initiatives which focus exclusively on pediatrics populations [18], or are offered as concentrated, standalone workshops [19–22]. Here, we aim to share our content and a secondary analysis of the evaluation of this curricular pillar and share more details on its content so other programs may evolve the materials for their settings and audience.

## 2. Materials and Methods

### 2.1. Setting and Participants

The modular mental health curriculum was one of six curricular pillars in a part-time, year-long, interprofessional primary care transformation fellowship. The remaining five curricular pillars were clinician wellness, social determinants of health, medical education, quality improvement, and substance use disorders. Over five years, we trained 24 fellows—14 physicians, nine physician associates (PAs), and a behavioralist

who was faculty at a family medicine residency—in these six topics. All fellows had at least two years of post-graduate clinical experience and demonstrated potential as primary care leaders and transformation agents. All fellows practiced in Ohio in settings ranging from urban academic hospitals to FQHCs to rural outpatient private practices. The core fellowship faculty included physicians from the University of Cincinnati College of Medicine and faculty in the nursing and PA programs at Mount St. Joseph University. Each fellow's employer was provided a stipend to secure 0.1 FTE of dedicated fellowship time.

The fellowship was organized into monthly activities focused on one or more curriculum pillars. Typically, the first week of every month was reserved for independent self-study of curated resources. The second week brought fellows together for a blend of didactic learning and activities that engaged learners in conversation, collaboration, and problem-solving. The third week provided opportunities for mentorship from fellowship faculty. The fourth week brought the fellows and faculty together with regional community experts to discuss a topic relevant to a curricular pillar over dinner.

Throughout the five years of the CPCC fellowship, the curricular modules and content evolved based on ongoing feedback (as seen in Table 1). The content shared below is the mental health curriculum used during the final year of the fellowship, which had been progressively adapted based on that feedback.

## *2.2. Mental Health Curriculum Structure and Content*

The faculty lead for the mental health curricular pillar was a physician double-boarded in Family Medicine and Psychiatry. Based on feedback and schedule constraints, the mental health curriculum was concentrated during two months per year during which all weekly activities for that month were related to mental health content. Didactics for Modules 1–4 were offered in the fall and Modules 5–6 were offered in the spring.

### *2.2.1. Module 1—Integrated Care Models (50-Min Didactic)*

The faculty prioritized knowledge of models for integrating mental health care into primary care as a foundational element of the curriculum. Thus, the mental health curricular pillar began with a lecture on models of integrated care, covering the following objectives: review the need for primary care offices to prepare to assess and treat their patients' mental health needs, describe integrative care models, and discuss the evidence for collaborative care.

### *2.2.2. Module 2—Safety Assessment (50-Min Didactic and Discussion)*

To emphasize critical, clinically relevant mental health information, Module 2 covered suicide and safety assessment. Fellows reviewed pertinent local data and shared their experiences with the topic. Fellows received a pocket guide to assessing safety. Faculty offered suggestions on how integrated care could be utilized to assist with safety assessment.

### *2.2.3. Module 3—Trauma-Informed Care (50-Min Didactic)*

The trauma-informed care (TIC) module began with a description of trauma types and the impact of trauma on health, including the ways in which trauma can manifest in clinical spaces and the key principles of TIC. The faculty gave examples of TIC policies, practices, and workflows for patient visits. Fellows discussed their successes and challenges with TIC and reflected on ways to better incorporate TIC principles into their practice.

**Table 1.** Curricular and evaluation evolution.

| Cohort       | Pre-Fellowship Self-Assessment                                                                                                                                                        | Didactics                                                                                                                                                                                                 | Mentoring Opportunity                                                                                                                                          | Winter Evening Workshop                         | Independent Study                                        | Didactics                                                                                        | Spring Evening Workshop                                               | Post-Fellowship Self-Assessment                         | One-Year Post Fellowship Self-Assessment                                    |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------|
| 1<br>(n = 3) | Three questions to assess self-rated knowledge of Collaborative Care model, self-rated confidence in safety assessment, and frequency of referring to mental health digital resources | October 2018<br>1-Mental status exam *<br>2-Differential Diagnosis using DSM-5<br>November 2018<br>Pharmacogenomics<br>December 2018<br>1-Safety assessment<br>2-Enrolling with pharmacogenomic testing * | December 2018<br>Journal club article assignment                                                                                                               | January 2019<br>Mental health journal club *    | May 2019<br>Collaborative care chapter                   | March 2019<br>Integrated care models workshop                                                    | June 2019<br>Collaborative Care workshop: case example and discussion | Three questions to match pre-fellowship self-assessment | Three questions to match original three questions on fellow self-assessment |
| 2<br>(n = 6) |                                                                                                                                                                                       | December 2019<br>1-Safety Assessment<br>2-Trauma-informed Care<br>3-Differential Diagnosis using DSM-5<br>4-Pharmacogenomic testing                                                                       | January 2020<br>Worksheet on integrated care features inventory (current practice)                                                                             | January 2020<br>Panel on integrated care models | May 2020<br>Trial of mental health app (worksheet given) | May 2020<br>1-Mental health screening tools<br>2-Treatment planning<br>3-Integrated care models  | May 2020<br>Mental health digital resources (phone apps)              |                                                         |                                                                             |
| 3<br>(n = 5) | Three additional questions added to reflect revised content                                                                                                                           | December 2020<br>1-Integrated Care Models<br>2-Safety Assessment<br>3-Trauma-informed Care<br>4-Differential Diagnosis using DSM-f                                                                        | January 2021<br>Worksheet on integrated care features inventory (current practice)<br>June 2021<br>Review patient case incorporating all mental health content | March 2021<br>Panel on integrated care models   | May 2021<br>Trial of mental health app (worksheet given) | May 2021<br>1-Mental health screening tools<br>2-Treatment planning<br>3-Pharmacogenomic testing | May 2021<br>Mental health digital resources (phone apps)              | Six questions to match post-fellowship self-assessment  |                                                                             |

Table 1. Cont.

| Cohort       | Pre-Fellowship Self-Assessment                              | Didactics                                                                                                                          | Mentoring Opportunity                                                                                                                                          | Winter Evening Workshop                       | Independent Study                                                                                                                                                        | Didactics                                                                                          | Spring Evening Workshop                                                   | Post-Fellowship Self-Assessment                        | One-Year Post Fellowship Self-Assessment                                    |
|--------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------|
| 4<br>(n = 3) | Three additional questions added to reflect revised content | December 2021<br>1-Integrated Care Models<br>2-Safety Assessment<br>3-Trauma-informed Care<br>4-Differential Diagnosis using DSM-f | January 2022<br>Worksheet on integrated care features inventory (current practice)<br>June 2022<br>Review patient case incorporating all mental health content | March 2022<br>Panel on integrated care models | May 2022<br>Trial of mental health app (worksheet given)                                                                                                                 | May 2022<br>1-Mental health screening tools<br>2-Treatment planning<br>3-Pharmacogenomic testing * | May 2022<br>Mental health digital resources (phone apps)                  | Six questions to match post-fellowship self-assessment | Three questions to match original three questions on fellow self-assessment |
| 5<br>(n = 7) |                                                             | December 2022<br>1-Integrated Care Models<br>2-Safety Assessment<br>3-Trauma-informed Care<br>4-Differential Diagnosis using DSM-f | January–February 2023<br>Worksheet on integrated care features inventory (current practice)                                                                    | March 2023<br>Panel on integrated care models | April–May 2023<br>5–6-Watch recorded lectures on screening tools and treatment planning<br>Patient case worksheet<br>Trial of mental health app relevant to patient case | May 2023<br>Group review of patient cases, treatment plans and trial of mental health phone app    | May 2023<br>Vulnerable populations: LGBTQ+ health and mental health panel |                                                        |                                                                             |

\* Activity was re-envisioned or stopped after formative feedback shared during post-session surveys or focus groups suggested alternate delivery or requested topics relevant to their work which were not included during their cohort year. DSM-5 = Diagnostic and Statistical Manual (of Mental Disorders), Fifth Edition. LGBTQ+ = lesbian, gay, bisexual, transgender, queer, and other sexual/gender minorities.

#### 2.2.4. Module 4—DSM-5 (50-Min Interactive Activity in Small Groups)

To review differential diagnoses for behavioral health symptoms, fellows worked in small groups of 2–3 to brainstorm differential diagnoses within one of three diagnostic categories (anxiety, mood, and psychotic disorders). Each group completed a worksheet listing DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition) diagnoses for their assigned category and composed and justified three questions that would allow clinicians to narrow the differential diagnosis for that category. Each group shared their list with the larger group, where discussion allowed for further refinement of answers. An answer key was available when the group required assistance in developing a comprehensive list. Then, the large group planned diagnostic orders for physical conditions which present with mental health symptomatology and discussed how interprofessional team members in an integrated care model could assist with diagnostic clarification.

After the didactic session covering Modules 1–4, fellows applied these concepts to their own practice. Using a worksheet checklist of collaborative care features, they assessed their current practices and reflected on which additional features to adopt for more rigorous collaboration between primary care clinicians and mental health clinicians. Three months later, fellows met with faculty and a panel of experts for an evening dinner discussion focused on successes, challenges, and opportunities in integrated care. The panel included three experts: a psychiatrist in a large hospital system adopting a collaborative care model, a social worker from a community behavioral health organization who supervised mental health team members integrated into primary care offices, and a counselor working in an FQHC. Because they had already assessed their current practice sites for features of integrated care, fellows were primed to ask panelists for suggestions on how to implement the additional features.

#### 2.2.5. Module 5—Mental Health Screening Tools (50-Min Didactic)

Two months after the evening discussion on integrated care models, fellows revisited the mental health curriculum with a didactic session on evidence-based screening tools for mental health conditions relevant to primary care. The didactic session covered workflows to incorporate screening tools into practice and to incorporate interprofessional team-based care for patients with mental health disorders. For the final cohort, this was a recorded lecture that could be watched at each fellows' pace during their independent learning week.

#### 2.2.6. Module 6—Mental Health Treatment Planning (110-Min Didactic)

Fellows participated in a longer didactic on social, behavioral, and biological mental health treatment planning, which was also recorded for viewing during fellows' independent learning week for the final cohort. Fellows received an overview on psychopharmacology as the foundation of biological treatments for mental health conditions, point-of-care resources to aid in the selection of medications, and an overview of pharmacogenomics.

Initially, the fourth-week mental health related activities focused on mental health digital resources (phone applications). In the original curriculum, fellows completed pre-work by selecting an approved mental health app and using it themselves for one week. They shared their perspectives and experiences with each other during the dinner discussion and reviewed which symptoms or populations of patients might benefit from using the app, if any. However, based on early cohort feedback this session was reimagined and the one-week trial of an app by fellows was moved to Module 7 for the last cohort. Instead, in the last cohort the evening session invited community members and guest speakers to talk about care for vulnerable populations. Based on feedback, the final cohort's spring mental health evening workshop focused on the care of LGBTQ+ patients in primary care, given the relevance of TIC and safety assessment for

this population of patients. In addition to a brief didactic by the mental health curricular lead on the topic, three community guests were invited to share their personal experiences, two of whom also described the needs of the patients/clients that they worked with professionally.

#### 2.2.7. Module 7—Patient Case (Independent Activity)

For the final mental health activity, fellows completed a patient case assignment to apply the knowledge and skills they learned from prior sessions. Fellows utilized a worksheet as guidance and submitted a de-identified patient scenario, which involved sharing results of a screening tool used, a likely diagnosis, a safety assessment, a suggested treatment plan including a list of resources such as digital resources/phone apps to support the patient. Fellows received a packet of review materials and resources such as the Module 4 activity (differential diagnosis) answer key, a table summarizing interpretation of scores for screening tools reviewed in Module 5, and a page sharing the key websites and point-of-care resources shared in Module 6. In the first several cohorts, fellows were given a month to complete the worksheet and turn it into the mental health curricular faculty lead. The curricular lead was also available to meet with fellows during the third week (dedicated to mentoring) to review and discuss treatment planning for their patients. For the last cohort, fellows completed the patient case on their own after watching recorded lectures of Modules 5–6 and brought the worksheet to the live didactic session for a group discussion. For the final year, the patient case packet also incorporated the list of digital resources and a worksheet asking fellows to spend a week trialing an app and to share helpful and unhelpful features.

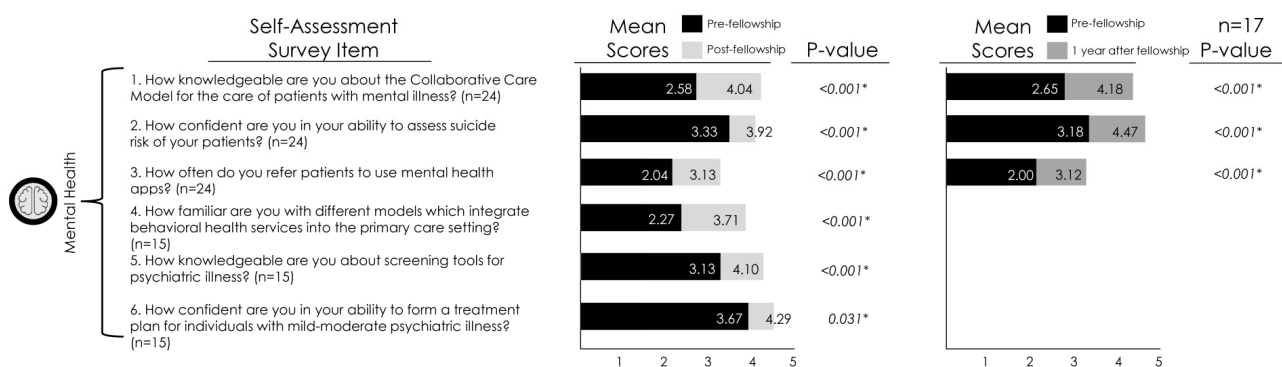
During the session, fellows were able to share their patient's presentation, screening tool results, differential diagnosis, safety plan, and treatment plan. They also reflected on usefulness of the app they trialed. Fellows discussed how integrated care could create opportunities for brief interventions or diagnostic clarification. The discussion was facilitated by the mental health curricular lead, but peer-to-peer learning was encouraged as fellows worked in different settings and had different experiences with integrated care and with treatment of psychiatric conditions in primary care.

#### 2.3. Evaluation

This paper shares a secondary analysis of data relevant to the mental health pillar of the CPCC fellowship curriculum, a comprehensive evaluation of which has been published [23]. Each cohort participated in a mid-year and program-exit focus group to share feedback on the curricular content and content delivery. Through semi-structured interview questions, fellows reflected on their areas of growth and learning, and suggested revisions to the curriculum. For this evaluation, a secondary evaluation of the transcripts was performed in which one author reviewed all ten transcripts from mid-year and program-exit focus groups for mention of mental health curricular items and consolidated the questions and relevant responses into mental health curriculum-specific transcripts. Another author reviewed these transcripts and developed a codebook. A second author used the codebook to code a portion of the transcripts and the two met to discuss codebook revisions. Finally, the transcripts were fully coded using the final codebook by each of the two authors. Then, these two authors met with the mental health curriculum lead to review all codes; discrepancies were resolved through discussion. Themes were then developed by the three authors involved in qualitative analysis through identifying emerging patterns and recurring features in the coded transcripts.

All participants completed a comprehensive pre- and post-fellowship self-assessment at program entry and exit. The self-assessment included questions on self-assessed knowl-

edge and confidence for each of the six curricular pillars and topic areas; the self-assessment was developed by fellowship faculty based on our specific objectives (content validity for the mental health portion was confirmed by two physicians double-boarded in Family Medicine and Psychiatry). For the first two cohorts, the mental health curriculum items had fellows assess their knowledge of the Collaborative Care Model, their confidence in their ability to do a safety assessment for a patient with a potential mental health emergency, and the frequency at which they recommend mental health phone apps for their patients. For cohort three through five, three additional questions were added based on the evolving curriculum which evaluated fellows' familiarity with different models of integrated care, their knowledge of screening tools to evaluate mental health conditions, and their confidence in their ability to formulate a treatment plan for mild-moderate psychiatric illness. Fellows assessed their knowledge, confidence, and behaviors in these topics using a 5-point Likert scale, with higher scores corresponding to higher levels of knowledge, confidence, frequency, or familiarity (see Figure 1).



**Figure 1.** Self-Assessment Scores Before and After Fellowship. \*  $p < 0.05$ .

Additionally, exploratory analyses looked at data for a modified follow-up self-assessment which was administered one-year post-fellowship to identify sustained change in knowledge and confidence. This one-year self-assessment included the three enduring mental health curriculum objectives that had been used from the first cohort; scores were compared to pre-fellowship self-assessment scores to assess retention of knowledge, skills, and behavior.

Changes to knowledge, confidence and behavior pre-fellowship to immediate post-fellowship, and immediate post-fellowship to one-year post-fellowship were analyzed using the Wilcoxon signed-rank test (non-parametric version of paired sample *t*-tests) and Friedman test (non-parametric version of one-way repeated measures ANOVA) in SPSS statistical software version 29, with significance set at  $p < 0.05$ .

### 3. Results

Twenty-four primary care fellows completed the fellowship over five cohorts (2018–2023; fourteen physicians, nine PAs, one behavioralist): three fellows in year one (two physicians, one PA), six fellows in year two (four physicians and two PAs), five fellows in year three (three physicians and two PAs), three fellows in year four (two physicians and one PA), and seven fellows in year five (three physicians, three PAs, and one behavioralist). Our team used an endowment to fund inclusion of a behavioralist working within a primary care residency program in our final cohort. Table 2 describes the fellowship participants.

**Table 2.** Fellow demographics.

|                    |                        | Physicians | Physician Assistants | Total        |
|--------------------|------------------------|------------|----------------------|--------------|
| Fellow Job Title * |                        | 14 (58.3%) | 9 (37.5%)            | 24 *         |
| Gender             | Male                   | 4 (16.7%)  |                      | 4 (16.7%)    |
|                    | Female                 | 10 (41.7%) | 9 (37.5%)            | 20 * (83.3%) |
| Race               | White/European Descent | 10 (41.7%) | 7 (29.2%)            | 18 * (75.0%) |
|                    | Black/African Descent  | 2 (8.3%)   |                      | 2 (8.3%)     |
|                    | Asian/Asian Descent    | 3 (12.5%)  | 2 (8.3%)             | 5 (20.8%)    |
| Background         | Rural                  | 1 (4.2%)   | 4 (16.7%)            | 5 (20.8%)    |
|                    | Disadvantaged          | 1 (4.2%)   | 1 (4.2%)             | 2 (8.3%)     |

\* One fellow who worked as a behavioralist is included in these counts.

### 3.1. Quantitative Evaluation: Self-Assessment

All 24 participants completed the pre- and post-fellowship self-assessment to measure change in self-reported knowledge and confidence related to the three enduring learning objectives, and 17 (a 70.8% response rate) responded to the one-year post-fellowship assessment that included these three items. Additional pre- and post-fellowship self-assessment items were included for cohorts 3–5 to evaluate the evolved curriculum; all 15 fellows in those years participated in pre- and post-fellowship self-assessment teams. Data analysis of pooled responses shows significant change ( $p < 0.05$ ) in mean scores for self-reported knowledge and confidence for all six mental health items pre-fellowship vs. immediate post-fellowship and on the three items included in the one-year follow-up self-assessment (Figure 1). In addition, there was an improvement in median scores with large effect sizes for all six questions from pre-fellowship to immediate post-fellowship (see Table 3). Median scores between pre-fellowship and one-year post-fellowship were also improved with large effect sizes for knowledge of the collaborative care model, confidence in doing a safety assessment, and frequency of using mental health apps in patient evaluation and treatment. There was no significant difference in self-assessment scores when comparing physician and PA fellow responses.

**Table 3.** Self-Assessment Scores Pre-Fellowship vs. Immediately Post-Fellowship.

|                                                                                                                                   | Pre *        | Post *       | Effect Size (CI)     |
|-----------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|----------------------|
|                                                                                                                                   | Median (IQR) | Median (IQR) |                      |
| How knowledgeable are you about the Collaborative Care Model for the care of patients with mental illness? ( $n = 24$ )           | 2.5 (2–3)    | 4 (4–4.75)   | −1.37 (−1.93, −0.80) |
| How confident are you in your ability to assess suicide risk of your patients? ( $n = 24$ )                                       | 3 (3–4)      | 4 (3.25–4)   | −0.81 (−1.27, −0.34) |
| How often do you refer patients to use mental health apps? ( $n = 24$ )                                                           | 2 (1–3)      | 3 (3–4)      | −0.99 (−1.47, −0.49) |
| How familiar are you with different models which integrate behavioral health services into the primary care setting? ( $n = 15$ ) | 2 (2–3)      | 4 (3–4)      | −1.33 (−2.02, −0.61) |

Table 3. Cont.

|                                                                                                                                         | Pre *        | Post *       |                      |
|-----------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|----------------------|
|                                                                                                                                         | Median (IQR) | Median (IQR) | Effect Size (CI)     |
| How knowledgeable are you about screening tools for psychiatric illness? ( <i>n</i> = 15)                                               | 3 (3–4)      | 4 (4–5)      | −1.33 (−2.02, −0.61) |
| How confident are you in your ability to form a treatment plan for individuals with mild-moderate psychiatric illness? ( <i>n</i> = 15) | 4 (3–4)      | 5 (3.5–5)    | −0.73 (−1.29, −0.15) |

\* Scores are on a 1–5 Likert scale, with higher scores corresponding to higher levels of knowledge, confidence, frequency, or familiarity. IQR = interquartile range. CI = confidence interval.

### 3.2. Qualitative Evaluation: Focus Groups

Results from focus groups regarding the mental health curriculum were selected from a broader coding and inductive thematic analysis of the data [23]. Overall, the focus groups revealed that fellows found that the content reinforced existing knowledge, covered relevant topics, and was delivered in a way that was useful. Table 4 shares representative quotes.

Table 4. Qualitative analysis of focus groups.

| Themes                        | Representative Quotes                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reinforced Existing Knowledge | <p><i>“We are doing collaborative care in my office, so it’s something I’m familiar with, [but] there’s different ways of doing collaborative care. And so I think that my awareness of that was increased.”</i></p> <p>–Participant 1, Physician, Urban Federally qualified health center</p>                                                                                                                  |
|                               | <p><i>“I’m in family practice, so much of what I do every day has mental health components behind it. I felt like I had a pretty good base, but that base has definitely strengthened. I’ve been utilizing more of the screening tools that we reviewed; [I’m] much stronger on medications and making the proper diagnosis.”</i></p> <p>–Participant 2, Physician Assistant, Rural community health center</p> |
| Topical Relevance             | <p><i>“Suicide and addressing those steps, you need to . . . know if a hold needs to be put or what that process is was very good. That was something I was not aware of.”</i></p> <p>–Participant 3, Physician Assistant, University student health clinic</p>                                                                                                                                                 |
|                               | <p><i>“We did a talk that focused a little bit on trauma and just thinking of some different ways that we can incorporate that into our practice where we’re really just not doing as much as what we should be.”</i></p> <p>–Participant 4, Physician Assistant, Rural community health center</p>                                                                                                             |
| Useful Methods                | <p><i>“[The mental health lectures] were just really applicable and easy to understand and engaging. I’ve referenced a lot of the materials she provided us with in practice.”</i></p> <p>–Participant 1, Physician, Urban Federally qualified health center</p>                                                                                                                                                |

## 4. Discussion

The curricular goal was to prepare early-career primary care clinicians to become leaders who transform their practices to better integrate mental health care. Many trainees and early-career clinicians do not feel confident in caring for patients with psychiatric illness, but the care of these patients often relies upon primary care clinicians [20]. Residents in family medicine training programs receive inconsistent training in common mental health screening tools and lack confidence in their ability to triage appropriately [19,20]. Early-career nurse practitioners also describe that managing mental health concerns is one of the top areas where they feel unprepared, and that they were practicing outside of their

competence level in their first year out of training [22]. There is a need for comprehensive training that prepares primary care clinicians to implement best-practices in screening, diagnosing, and treating patients with mental health concerns.

The mental health curriculum assessments showed participant self-reported increase in knowledge and confidence for the primary care clinicians who participated with significant improvement across every metric. Participants reported greater awareness and understanding of ways to integrate behavioral health into primary care. This suggests that clinicians who completed the mental health curriculum may be better positioned to lead efforts toward integrated care within their own practices. Even participants who had a strong baseline understanding of integrated care models found the curriculum's teachings to be helpful. Whether fellows were already serving patients in integrated practices or were taking first steps toward incorporating behavioral health into their care, graduates from the program reported greater confidence via self-assessments in the curriculum's content related to treating patients with psychiatric illness.

In a modified model of Kirkpatrick's Model of Educational Outcomes for interprofessional education, level one (Reaction) assesses learner's views on the learning opportunity, level two (Learning) looks at changes in attitudes or perceptions (2a) and the acquisition of knowledge/skills (2b), level three (Behavior change) sees to identify learners' transfer of learning to their practice, and level four (Results) explores wider changes in the delivery of care (4a) and improvements in health of patients (4b) [24]. In this evaluation, we were able to assess the self-reported impact of the fellowship on modified Kirkpatrick levels one through three in our qualitative analysis and in our quantitative analysis demonstrate fellows' self-reported acquisition of knowledge/skills and an increased use of digital resources in patient evaluation/treatment. While the curriculum successfully built clinician confidence in providing mental health care, the analysis has several important limitations in our ability to quantitatively evaluate higher Kirkpatrick levels. For instance, our evaluation of self-assessed knowledge, confidence, and behavior cannot determine downstream results such as practice changes to support more robust mental health services integration, improved patient experiences, increased use of evidence-based treatments, nor improved patient outcomes. A relationship between self-reported confidence and increase in clinical competencies cannot be inferred. This is still superior to many similar evaluations of educational interventions: a review of 14 educational interventions for psychiatrists or psychiatry trainees showed that half did not evaluate impact beyond level 2a, and only three evaluated to level 4b [25]. Future iterations of this curriculum could better explore changes in the delivery of care or of patient outcomes through medical director or chief medical officer interviews, patient surveys and/or chart reviews.

Additional limitations include a possible selection bias in that participant interest and enrollment in the fellowship programming may resonate in fellows' perceived increases in confidence and knowledge. In addition, other sources of knowledge gains or behavior changes, such as in other CPCC fellowship pillars or other professional trainings activities outside of the fellowship, were not acknowledged nor explored and may have impacted self-assessment scores. Curricular adaptations to reflect formative evaluation feedback (as reflected in Table 1) also mean that our pooled outcomes do not reflect the impact of a stable intervention, but rather one that evolved based on feedback. Lastly, our evaluation is limited by our use of a self-assessment tool with limited psychometric validation and which evolved with the curriculum.

Despite its limitations, this mental health curriculum integrates resources and tools that can be used immediately and practice-changing guidance that can be implemented over the longer term. It also creates an infrastructure for fellows' reflection on the policies, procedures, and team structure in their current clinical environment that impact the delivery

of mental health services and encourages them to evaluate the comparative effectiveness during facilitated group discussions. Returning to the mental health content over several months allows fellows to explore ways that both trauma-informed care and integrated mental health care can be advanced within their practice.

There were several key aspects of this interprofessional fellowship that were integral to its success. First, challenging participants to apply the teachings to their current practice deepened the learning and enhanced the relevance of the content. The curriculum's format kept fellows engaged throughout the fellowship. Receiving regular feedback from the participants allowed for changes to the curriculum that inspired greater connection with the topics. A physician double boarded in Family Medicine and Psychiatry led the mental health curriculum of our CPCC fellowship. Clinicians of other relevant backgrounds, including psychiatrists with experience working in primary care or advanced practice providers working in mental health (in the U.S., a psychiatric PA or psychiatric mental health nurse practitioner) would also be well-equipped to lead. Alternatively, a psychologist or other licensed mental health professional could lead the curriculum if a clinician with pharmacology training leads the medication-focused content. The fellowship utilized a longitudinal mental health curriculum interspersed among the five other education pillars, but the curriculum as presented here may also work well as a standalone program. Likewise, it could be adapted as longitudinal training in a primary care residency program. Its effectiveness may or may not be maintained if concentrated into a several-day workshop, but that may be more practical for practicing clinicians.

Given the rising wave of patients with mental health concerns, primary care clinicians must be prepared to not only care for patients with psychiatric diagnoses but to lead their practices toward models of integrated care that make an impact on mental health in the communities in which they work. The curriculum presented here has demonstrated self-assessed increases in perceived knowledge and confidence across five cohorts. It is the authors' wish that the curricular details shared here may serve as a resource that can be adapted to the needs of other programs and communities.

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**Institutional Review Board Statement:** This evaluation of this curriculum was conducted in accordance with the Declaration of Helsinki reviewed by the Institutional Review Board (IRB) of the University of Cincinnati and was determined to not meet the definition for human subject research. There was concurrence from the chair of the Mount St. Joseph University IRB.

**Informed Consent Statement:** Fellows provided verbal consent for self-assessment surveys and other curricular evaluation activities during their first fellowship session. Written informed consent was not required given the IRB determination.

**Data Availability Statement:** The dataset supporting the conclusions is available from the corresponding author upon reasonable request.

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## Abbreviations

The following abbreviations are used in this manuscript:

|      |                                              |
|------|----------------------------------------------|
| FQHC | Federally Qualified Health Center            |
| CPCC | Community Primary Care Champions             |
| PA   | Physician Associate                          |
| TIC  | Trauma-Informed Care                         |
| IRB  | Institutional Review Board                   |
| HRSA | Health Resources and Services Administration |

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