Original Research Article

Exploring the Telepsychiatry Experience: Primary Care Provider Perception of the Michigan Child Collaborative Care (MC3) Program

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Background: *Pediatric mental healthcare is a growing component of primary care practice. However, there is a lack of access to mental health services, particularly those provided by Child and Adolescent Psychiatrists. The Michigan Child Collaborative Care (MC3) Program is a telepsychiatry service that offers embedded behavioral health consultants within primary care practices, telephonic consultation, video consultation and embedded care. Primary care provider (PCP) utilization of telepsychiatry services is predicated on perceiving the consultation service as user-friendly, helpful, and feasible in their practice.* **Objective:** *A survey of PCPs was conducted over a 5-year period to assess PCP attitudes and perceptions regarding MC3 consultation, including measures of efficiency, user-friendliness, and confidence in providing mental healthcare. The survey contained 4 items, (2 quantitative and 2 qualitative), and took less than 2 minutes to complete.* **Results:** *649 responses were received out of 1475 possible responses (44% response rate). Common themes elicited from the qualitative items included perception of improved patient care for youth with mental illness (45.3%), improved comfort and confidence in caring for youth with mental illness (30.9%), greater comfort with the prescribing and monitoring of psychotropics (25.9%) and improved access to mental healthcare for youth (23.1%). PCPs strongly agreed that MC3 was user-friendly, efficient, and enhanced their confidence in managing pediatric mental health concerns.* **Conclusions:** *This study demonstrates that the MC3 Telepsychiatry Program is well accepted by PCPs with self-reported improvements in providing mental healthcare to patients. Future research should explore how PCP perception impacts PCP practice, knowledge, as well as outcomes for patients and families longitudinally.*

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INTRODUCTION

Mental health concerns are an increasing component of the pediatric primary care practice. Twenty percent of youth under the age of 18 have a mental health disorder requiring care at any given time.[1] Continued disparity exists between the increasing demands for pediatric mental health services and the limited supply of these services, particularly access to

Child and Adolescent Psychiatrists (CAPs).[2−4] There are currently 8700 practicing CAPs across the country with over 15 million youth in need of psychiatric care.[5] Furthering this disparity is consolidation of CAPs to urban centers, leaving vast areas with limited to no access to CAPs.[5−7] Despite ongoing efforts to stem these disparities, this gap continues to increase.[8] Innovation in mental health care delivery, enhanced integration, improved training and education, and newer models of care are desperately needed to meet the ballooning demands of pediatric mental healthcare.

Given limited access to psychiatric care for pediatric populations, primary care providers (PCPs) often are at the frontlines of identifying, evaluating and managing mental illness. PCPs evaluate and diagnose over half of youth with mental illness.[2] Furthermore, over two-thirds of PCPs report delays in clinical workflow due to addressing mental health in the office.[9,10] While PCPs prescribe nearly 90% of all psychotropic medications for youth, they receive little formal mental health training.[2] PCPs often feel uncomfortable and believe they lack the training to meet the needs of this population.[11,12] The result can be poor recognition of mental illness, delays in care, difficulties with diagnostic assessment and management, patient and family dissatisfaction, and increased PCP frustration.[13−15] National disparities are even more prominent within the state of Michigan with 25% of youth living in poverty, wait times to CAP care of often greater than 4 months, and larger areas of the state with no access to psychiatric care (Figure 1).[7,16,17]

Telepsychiatry is a growing, evidence-based modality to deliver psychiatric services shown to be feasible and cost-effective.[18] It has the capacity to enhance access to care over distances and is increasingly being used across the country to address mental health disparities in underserved areas.[18] Telepsychiatry modalities may include video conferencing, phone consultation, education, or service coordination.[19] It can be used with diverse populations, and within a variety of settings beyond the primary care office setting, including schools, detention facilities, and homes.[20−22] Behavioral management, psychotherapy, parent management training, psychoeducation, and pharmacotherapy are all services that can be successfully delivered through telepsychiatry.[23−25]

Telepsychiatry offers an evidence-based vehicle for increasing access to timely, specialized care to vulnerable and underserved populations.[19] Telepsychiatry supports PCP knowledge and skill over time, as learning occurs with repeated consultation.[26,27] Telepsychiatry has been demonstrated in several small, randomized, controlled studies to be as effective as face-to-face consultation for diagnosis and treatment of several psychiatric conditions.[28−31] Furthermore, for some populations of patients, such as patients with autism, telepsychiatry may be uniquely advantageous, when compared to traditional clinical visits, as it allows the patient and family to conduct psychiatric care in a familiar environment.[28,32]

Limited data exists on the PCP experience in utilizing pediatric telepsychiatric service. In adult telepsychiatry, some studies demonstrate that PCPs are satisfied with telepsychiatric consultation by phone with improved psychotropic management.[26] Pediatricians have reported overall satisfaction with other telepsychiatric programs, such as the Massachusetts Child Psychiatry Access Program, particularly in regards to timeliness.[33] However, other studies suggest that PCPs perceive telepsychiatry negatively, including concerns regarding the brevity of consultation, poor coordination of community resources, disruption to workflows, possible negative impact on patient-provider relationship, and financial sustainability of consultation.[34] Furthermore, some PCPs avoid consultation due to anxiety regarding the telepsychiatry process, particularly video conferencing.[35]

In this study, we obtained qualitative and quantitative information from PCPs relating to their experience in using telephonic consultation services with CAPs through the Michigan Collaborative Child Care (MC3) Program. It is hypothesized that PCPs would find the service easy to use, accessible, helpful, and educational while not detracting from their workflow or relationships with their patients and families.

METHODS

Overview of MC3 Program

In 2012, the University of Michigan Health System partnered with the Michigan Department of Health and Human Services (formerly known as the Department of Community Health), Community Mental Health offices and Medicaid to develop a collaborative telepsychiatric

FIGURE 1.   Access to CAP in the State of Michigan by County[7]

CAP = Child and Adolescent Psychiatrists
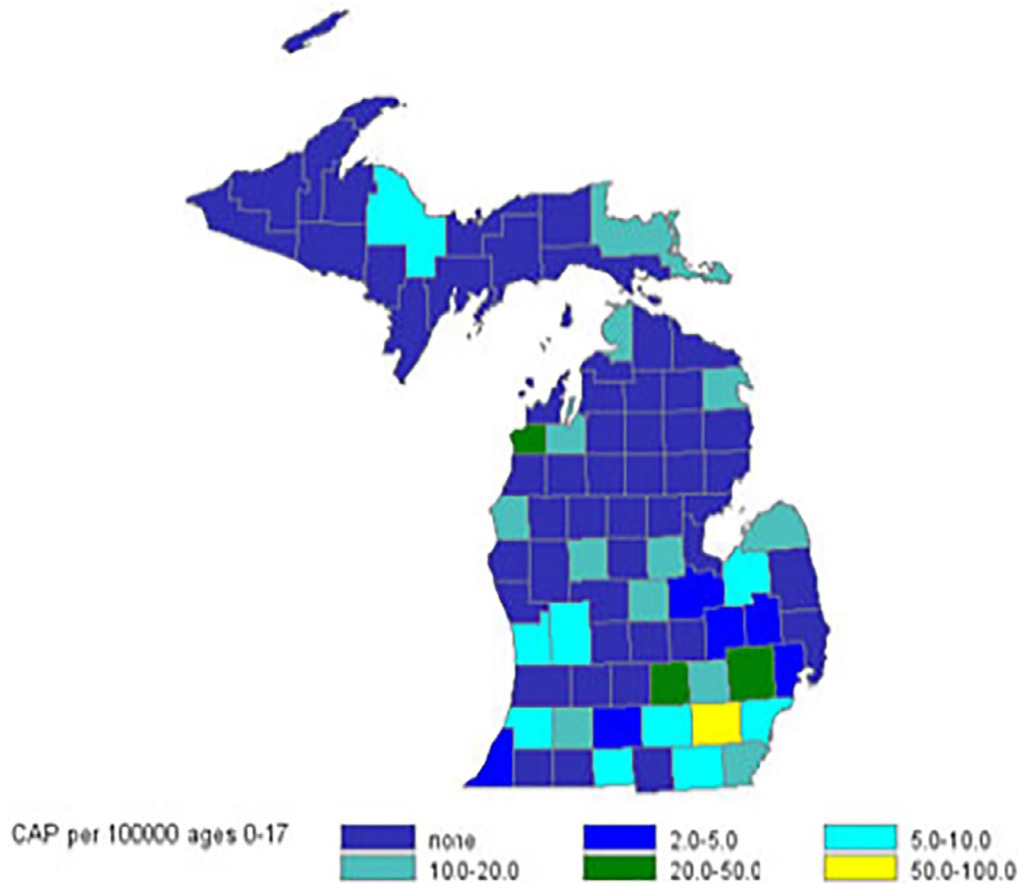
service known as the MC3 Program. This program offers several levels of consultation and collaboration: (1) Behavioral Health Consultants (BHCs) who can provide referrals to local resources, brief in-person consultation, evaluation and non-pharmacologic intervention; (2) Formal telephone consultation with CAPs within the same business day of consult placement; (3) Videoconferencing with patients and families for more comprehensive tele-psychiatric consultation; (4) Group case consultation for a group of PCPs in several areas of the state who wish to learn and discuss a series of cases together led and facilitated by a BHC and CAP; and (5) Opportunities for embedded psychiatric care or in-person consultation. In addition, MC3 has a strong collaborative partnership with many schools, academic institutions, and local professional organizations.

BHCs are required to have a master's degree in social work, psychology, professional counseling, or a related field with up-to-date licensure. They must have experience in working in primary care practices and knowledge of the collaborative care model of care. Knowledge is also required of Community Mental Health Service programs, knowledge of pediatric mental health resources in the community served, and knowledge of mental health codes and regulations. BHCs will have specialization in working with youth, knowledge of local and regional school resources, child protection services, foster care services, and other resources/supports available to youth. It is also desired that the BHC have knowledge of specialty providers in the community they are serving and familiarity with evidence-based mental health interventions.

BHC training involves a 2-hour orientation via video conferencing with MC3 leadership. This orientation includes an introduction to program services, a review of the role of the BHC within MC3, a discussion of outreach and education to providers, reviewing the workflow of the telephonic consultation, as well as a review of consultation documentation. BHCs also receive on-boarding to the health system to access shared web-based folders and web-based databases for data collection. Independent learning for the BHC includes review of a 48-page BHC manual and viewing of 9 online educational modules on behavioral health topics. The BHC is given documentation practice using case examples that is later reviewed via video conferencing for fidelity and feedback. BHCs are also required to shadow other BHCs in their region of the state to observe coordination of MC3 consultation and gain advice on provider outreach. During the first month of BHC involvement, weekly phone calls between the BHC and MC3 leadership occur to review the development of the BHC's local provider and resource directory, as well as a discussion of the outreach strategy. Once the BHC starts receiving consultations, their first few consults are reviewed for accuracy by MC3 leadership. Each BHC has a monthly group meeting and a monthly one-on-one meeting with MC3 leadership to review updates, progress, and policies. Furthermore, clinical activity and consultation data is reviewed with the BHC group and Community Mental Health leadership on a quarterly basis.

The primary interaction between the PCP and CAP through MC3 is through telephone consultation (85% of PCP-CAP interactions). MC3 is able to provide psychiatric consultation to 97% of patients who have no other access to psychiatric care. The majority of consultations involve questions about management, including pharmacologic management, followed by questions regarding evaluation, and questions about services and referrals. Further information about MC3 programming, operations, development, and cost can be obtained upon request.

Study Sample

PCPs enrolled in the state of Michigan from May 1, 2012 to January 31, 2017 were provided with a perception and attitude survey following each consultation. PCPs included pediatricians, obstetrician-gynecologists, family medicine physicians, nurse practitioners, physician assistants, and certified nurse midwives who were enrolled and participated in at least 1 MC3 CAP consultation during the study period. Participants were excluded if they did not complete the survey, or did not participate in an MC3 consultation with a CAP. The Institutional Review Board of the University of Michigan approved this study as not-regulated status.

Perception and Attitude Survey

The goal of the survey was to obtain an understanding of PCP attitudes, perceptions, and experiences relating to MC3 consultation during the study period. As there is no existing validated survey instrument for this topic, survey content was developed by faculty and staff of the MC3 program to assess PCP attitudes and experiences related to MC3 consultation for quality improvement and quality assurance purposes. Survey validation was then completed using local subject matter experts within MC3 to test for face and content validity. Surveys were piloted within the group for ease of administration.

The survey contained 4 items and took less than 2 minutes to complete (survey available upon request). The first 2 items were quantitative items, the first item regarding PCP perception of the user friendliness and efficiency of MC3 consultation and the second was a review of PCP confidence in managing pediatric mental health disease following MC3 consultation. Each of these items included a 4-point Likert scale from Strongly Agree to Strongly Disagree. Items 3 and 4 were qualitative, free-text response questions were provided to allow the PCP to describe how MC3 may have influenced patient care and PCP practice. Item 3 asked the PCP for general comments about MC3 consultation and item 4 asked how MC3 changed PCP practice, including diagnosis, psychotropic use, and overall management of pediatric mental illness.

Survey data was de-identified and pooled to ensure confidentiality, with the authors of the study being blinded to any identifying survey information. The survey did not include frequency of use of MC3 consultation services. The survey was provided by the BHC to the PCP within 24 hours of completion of telephone consultation via email with 1 subsequent reminder sent to the PCP to complete the survey.

Data Analysis

The survey response rate was calculated by taking the number of completed responses submitted in the numerator and dividing by the total number of possible responses in the denominator. Basic descriptive statistics were used to analyze the categorical data. In regards to the free-text data, 2 individuals blinded to the respondents coded the data along several agreed upon themes identified among the free-text responses.[36] There was 80% concordance during the first pass of the data. Data was reviewed again by the same individuals to address discordance in coding to eventually reach 100% coding consensus on all items. Data was analyzed in Microsoft Excel 2010 (version 14, part of Microsoft Office Professional Plus 2010).

RESULTS

As of January 31, 2017, 1241 providers were enrolled in MC3. At this time, there were 5 CAPs involved in providing MC3 consultation and 12 BHCs involved in providing support and consultation within their localities to PCPs. The survey response rate was 44% with 649 responses out of 1475 possible responses. The responses were obtained from 191 unique providers.

PCPs completing the surveys were from 39 counties, representing 85% of counties enrolled in MC3 (39/46) and 47% of the counties in the state of Michigan (39/83) (Figure 2). Five hundred and twenty-four responses (81%) were from MD or DO providers, 73 (11%) were from physician assistants, 39 (6%) from nurse practitioners. PCPs rated MC3 on average as "strongly agree" regarding the user-friendly nature and efficiency of utilizing the program (mean of 1.11, SD of 0.33). PCP rating of confidence in managing their patient's mental health concern following MC3 consultation was also on average a "strongly agree" (mean of 1.19, SD of 0.43).

When asked if the MC3 consultation changed respondent diagnostic or management practices, several themes were identified in the free-text responses. Of the

FIGURE 2.   MC3 Telepsychiatric Enrollment by County

MC3 = Michigan Child Collaborative Care

TABLE 1. Perception and practice changes related to MC3 consultation (N = 159 respondents with 424 responses, 786 themes elicited from the responses)

General	Responses	% Responses
Improved comfort and confidence in caring for youth with mental illness	131	30.9%
Ability to care for youth with complex mental health needs	32	7.5%
Improved access to mental healthcare for youth	98	23.1%
Enhanced efficiency of care for youth with mental illness	83	19.6%
Improved patient care and high utility for youth with mental health needs	192	45.3%
Evaluation		
Improved assessment and diagnostic approach	53	12.5%
Greater knowledge and education in pediatric mental health	64	15.1%
Management		
Greater comfort and understanding in the use and monitoring of psychotropics	110	25.9%
Increased understanding and access to psychotherapy services	10	2.4%
Improved understanding of non-pharmacologic approaches to management and referral services	13	3.1%

MC3 = Michigan Child Collaborative Care.

649 responses, 65% (424/649) of responses included free-text responses to this question. This represented 83% of unique survey respondents (159/191). The responses were summarized along 10 themes that encompassed the responses, some of the responses addressing more than 1 theme. There were 786 elicited themes from the 424 responses (Table 1). Nearly half of responses (45.3%) indicated that their patients received better care when utilizing MC3 consultation. Other common themes included improved comfort and confidence in caring for youth with mental illness (30.9%), greater comfort and understanding in using psychotropics in youth (25.9%), improved access to mental healthcare for youth (23.1%), and greater knowledge in the evaluation and management of mental illness in youth (15.1%).

Of the responses, 9.2% (39/424) provided critiques or constructive feedback regarding the use of MC3 consultation. The most common critiques included delays in completion of the consultation (21.4%) and a lack of PCP time for consultation (14.3%) (Table 2).

TABLE 2. Respondents changes to practice after utilization of MC3 categorized by theme (N = 39 responses, 42 themes elicited)

General	Responses	% Responses
Need for improved screening in the community	1	2.4%
Difficulty accessing psychotherapy and psychiatric care in the community	4	9.5%
Lack of comfort with psychotropics or certain classes of psychotropics	2	4.8%
Lack of comfort and familiarity with telephone consultation process	1	2.4%
Need more formal education (lectures, conference, webinar, etc…)	3	7.1%
Delays in communication or completing consultation	9	21.4%
More effective communication modalities to transmit communications (i.e. email, web-based, etc…)	4	9.5%
Desire for non-clinical care staff to be able to place consults (i.e. social work)	1	2.4%
Improved follow-up consultation process (clearer process, same CAP providing follow-up, etc…)	2	4.8%
Conflicting recommendations from different CAP consultations	1	2.4%
Lack of time to engage in consultation and conversations regarding care with CAP	6	14.3%
Needing more discretion regarding CAP consultation documentation given sensitive information	1	2.4%
Desire to have CAP consultants see the patients personally rather than as a consultant	1	2.4%
Improved communication directly from CAP to patients and families	1	2.4%
PCP feeling uncomfortable with increased management of mental health concerns	4	9.5%
Lack of funding/insurance coverage to support best care practices or consultation recommendations	1	2.4%

CAP = Child and Adolescent Psychiatrists; MC3 = Michigan Child Collaborative Care; PCP = Primary Care Provider.

DISCUSSION

In June 2017, the American Academy of Child and Adolescent Psychiatry (AACAP) published a policy statement supporting the use and dissemination of telepsychiatry as an evidence-based practice to enhance access to CAP care.[37] This statement recommended that each state support legislation allowing telepsychiatric care and mandate that third-party payers reimburse clinical service on par with psychiatric services delivered in person.[37] Furthermore, the Centers for Medicare and Medicaid Services expanded criteria for telemedicine coverage with many states increasing their reimbursement of clinical service through telemedicine.[38,39] In light of the growing evidence-base supporting the use of telepsychiatry, the increasing gap between need and available supply of services, and the expanding recommendation by professional organizations, insurers, and state governments for the use of telepsychiatry, it is imperative that we assess the quality of telepsychiatric care delivery. As MC3 continues to grow at a rapid pace and increasingly stands as a national model of telepsychiatric care delivery, we describe the first study exploring the attitudes and perceptions of providers utilizing the MC3 consultation experience.

Several successful models currently exist for telephone-based and telepsychiatric mental healthcare. Massachusetts Child Psychiatry Access Program provides CAP telephone-based consultation through several academic clinical sites. Massachusetts Child Psychiatry Access Program has been able to reach 95% of pediatric PCPs in the state with high PCP satisfaction.[27] Seattle Children's Hospital has a similar telepsychiatric service through 7 satellite clinical sites in northwest Washington called the AIMS program. This program was well accepted, feasible, and useful to the PCP, while also spurring further innovative integrated and collaborative care with PCPs.[40] In a study by Yellowlees et al. in 2008, the authors found that a comprehensive telepsychiatric service, provided by the University of California-Davis, with access to videoconferencing, telephonic consultation, and secure email was effective at accurately diagnosing and assessing youth in the PCP office.[41] Most youth evaluated in this cohort either had ADHD (36.2%) or a Mood Disorder (28.1%) and had statistically significant improvements in affect and oppositional domains of the Child Behavioral Checklist ($p = 0.018$) in 3-month follow-up.[41]

In 2018, Hilty et al.[42] published an updated review exploring applications and utilization of telepsychiatry. They found the key ingredients to successful telepscyhiatric care included ease of access to consultation, cost, just-in-time support to the end-user, and monitoring meaningful outcomes over time. High-intensity telepsychiatric care models involve extensive, ongoing direct care collaboration between the CAP and the PCP with concurrent longitudinal education and staff training.[42] These models exhibit improved clinical outcomes, but are more challenging to sustain.[42] Moderate intensity models involve synchronous consultation but less direct involvement in care on an ongoing basis, while low intensity models often do not involve seeing the patient but may involve regular contact with the PCP, staff or other intermediate supports.[42] Moderate and lower intensity telepsychiatric care models have unique benefits including building relationships with the PCP practice, complementing PCP service by filling in gaps by the mental health providers, and sustainability.[42] MC3 offers a hybrid model, where there is a strong collaborative partnership with the PCP with a foundational low intensity model to support sustainability and relationship building with an ability to titrate the service provision to the level of need for the patient and PCP. Hence, MC3 can serve as a high intensity model, when needed, to better address higher need and complexity to potentially support improved outcomes without exhausting resources and longitudinal supports. This flexibility is a key ingredient in MC3's sustainability, while providing high quality service that meets the needs of the PCP and patient.

Although there is growing recognition of the value of telepsychiatric care in the setting of integrative and collaborative care models, there is a lack of study as how to best design these models. German et al.[43] in 2017, compared 2 common models of service delivery, the Generalist Behavioral Health (GBH) model and the Behavioral Health Integrated (BHIP) model. The GBH model involves a PCP partnering with an embedded social worker who provides timely therapy and referral support, whereas the BHIP model includes integrated Pediatric Psychology and CAP support.[43] They found that the BHIP model was superior to the GBH model in PCP satisfaction, perception of access to quality mental healthcare, and self-reported competence.[43] The BHIP model was feasibly implemented in a large urban primary care network and improved referral rates to

pediatric mental health providers.[43] The MC3 program is a mix of the GBH and BHIP models, while utilizing embedded BHCs and complementing this with telepsychiatry as a vehicle to deliver just-in-time CAP consultation and support. Currently, MC3 is building more psychotherapy training and support, particularly for early childhood attachment and trauma, with growing recognition of the need for specialized psychotherapy consultation in the PCP office.

Several components of the MC3 program make it unique and address some of the traditional concerns by PCPs who may be reluctant to participate in telepsychiatric consultation. MC3 utilizes BHCs within community practices, and partners with local Community Mental Health offices to enhance feasibility and collaboration. This partnership is further strengthened by collaboration with the Michigan Department of Health and Human Services. This strong collaboration, and the related resource support, is one of the strengths of MC3, in that it obviates some of the long-term concerns often raised regarding the financial sustainability of telepsychiatric care.[44] A multimodal approach to consultation is offered to allow the PCP, BHC, and CAP to provide consultation in a modality that best suits the unique needs of the patient and PCP. Furthermore, MC3 involves not only pediatric consultation, but expands consultation to transitional age youth/young adults, as well as perinatal consultation. This allows for more comprehensive consultation along the lifespan from the perinatal period to transitioning to adulthood. Although it is not clear what factors directly contributed to the study findings, we believe that these qualities of the MC3 program were integral to the strong positive PCP perception of the MC3 consultation experience.

The majority of the constructive feedback about the MC3 program involved time-related issues. To address these issues, we can focus on further education efforts on-line or through webinars to better empower PCPs regarding mental health knowledge and skill, but also to help them provide more efficient communication to CAPs to enhance the consultation process. CAPs and PCPs can engage in group case consultations monthly through MC3, which may be a venue to help discuss issues relating to time efficiency. Furthermore, the BHC can better facilitate clustering of case consultations to times that are most convenient for the PCP, so that consultation is not disruptive to the daily workflow. Lastly, as suggested, a web-based consultation process, either through email, or through live web-based consultation, could mitigate the need for an extended consultation process for a brief question or an interaction that could be served without direction interaction between the PCP and CAP. All these considerations should be explored and are feasible, which may further enhance the MC3 consultation experience.

Limitations and Future Considerations

There are several limitations to our study. This study involved the provision of a simple survey on provider perception and attitudes of MC3 consultation immediately after consultation. The close temporal relationship between MC3 consultation and completion of the survey limits the potential for recall bias, however this is still possible if the provider did not complete the survey shortly after completion of the consult. Furthermore, the survey was intentionally short and did not necessarily capture changes in provider practice, knowledge, or clinical outcomes. The study design and survey data also did not demonstrate changes in PCP perceptions and utilization patterns over time and this would be an important future consideration further study.

The response rate was limited by the methodology used to obtain the data. However, the response rate is favorable (44%) when compared to the expected response rate of an email-based, nonincentivized survey study, which often is closer to 20−30%.[45] The response rate is also favorable given that only one reminder email was sent to the provider to prompt non-responders to complete the survey. The response rate was also likely limited by the time constraints placed on PCPs, as reflected by the majority of the constructive feedback provided in this study. Regardless, our relatively high response rate given the survey modality may be attributed to our user-friendly survey design that was quick and simple to complete.

The survey in this study was not tied to a tangible incentive and was not mandated. The study also did not limit responses to unique providers, which may result in over representation in the survey by responders who responded multiple times. The decision was made to include all responses given that respondents may fluctuate in their opinion over time. In addition, respondents to the survey may be more motivated and active in their fields, and their responses may reflect these qualities. We did not believe this bias would significantly impact

our data interpretation as this group of active PCPs would likely be the group to utilize telepsychiatric consultation most readily and advocate for its use in their practice. Therefore, their input is valuable to our understanding of current perception relating to MC3 consultation. It will be helpful to survey those non-responding providers to understand their MC3 consultation experience and determine if it is different in any way. Future study of those enrolled MC3 providers who have not used, or minimally used, MC3 consultation services will also be valuable in understanding what may limit their use of the MC3 program.

It is unclear from this study how the MC3 consultation impacted patient and family perception, patient and family interaction with the PCP, and clinical outcomes over time. Given these factors can enhance the provider experience and care of the patient, it will be important to explore these further. PCPs may have also been grateful to have access to CAPs, and this could have positively biased their responses to the survey given the worry of losing access to MC3 if they were overly critical. This bias was mitigated by the de-identified nature of the survey and the use of both numerical ratings of experience, as well as the ability to provide qualitative free-text responses.

CONCLUSION

This study demonstrates that PCPs, the end-users of CAP consultation through MC3, find the consultation experience to be user-friendly, efficient, and allows improved access to pediatric and perinatal psychiatric healthcare. PCPs felt more confident with mental healthcare of their patients, and endorsed greater knowledge of mental health evaluation and management, as well as greater comfort with use of psychotropics. There were a small number of providers who had constructive feedback to improve MC3 and the majority of the feedback related to time-sensitivity of the PCP practice and completion of consultation. The unique qualities of MC3, including a broad county and state partnership, embedded BHCs, and a variety of means to obtain consultation, may have factored into the positive perceptions and attitudes related to MC3. MC3 may serve as another model of telepsychiatric care that is feasible and well accepted by PCPs.

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