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Psychiatry Consultation in Primary Care: Examining Treatment Access for Adolescent Depression

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ABSTRACT

Purpose: Youth in the United States are experiencing mental health concerns at an unprecedented level. Child Psychiatry Access Programs offer an innovative approach to close the gap between the need for care and insufficient mental health workforce. This study examined whether primary care provider consultation with a Child Psychiatry Access Program, Michigan Clinical Consultation & Care (MC3), was associated with greater access to treatment for adolescents with moderate to severe depression symptoms.

Methods: A retrospective chart review was conducted of primary care visits between 2017 and 2021 for adolescent patients with first-time positive scores on the Patient Health Questionnaire-9. Descriptive statistics and logistic regression were used to examine if patients whose primary care provider used MC3 psychiatric consultations had improved access to depression treatment compared to those who did not.

Results: Four hundred seventy nine patients reported Patient Health Questionnaire-9 scores indicating moderate to severe depression symptoms. Compared to non-MC3 consult patients ($n = 409$), MC3 consult patients ($n = 70$) had higher odds of being prescribed antidepressant medications (odds ratio [OR], 2.16; 95% confidence interval [CI] [1.11–4.22], $p = .05$), 4 times higher odds of having a primary care follow-up visit to monitor depression symptoms (OR, 4.56, 95% CI [2.56–8.14], $p < .001$), and higher odds of accessing mental health therapy (OR, 2.14; 95% CI [1.13–4.05], $p = .05$).

Discussion: Use of MC3 consultations was associated with increased utilization of evidence-based depression treatments including medication, therapy, and follow-up care. Greater adoption of models such as MC3 may increase the capacity for addressing mental health needs in children.

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IMPLICATIONS AND CONTRIBUTION

Child Psychiatry Access Programs (CPAPs) aim to increase access to care and mitigate psychiatric workforce shortages, but research about outcomes associated with CPAP use is limited. This study shows that adolescents whose primary care providers consulted with a CPAP were more likely to access psychopharmacologic and therapeutic treatment for depression.

Conflicts of Interest: Dr. Lee is on the Medical Advisory Board for GoodRx, serves as a consultant to Tandem Diabetes Care, and has participated on the Sanofi Digital Advisory Board. Other authors have no conflicts of interest to disclose.

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Adolescent depression is at an unprecedentedly rate in the United States, with 20% of adolescents reporting suicidal ideation [1,2]. In 2021, child and adolescent mental health was declared a national crisis [3]. Less than half of youth with mental health concerns receive treatment for this condition which can have lasting impacts ranging from suicide to substance use [4–7]. There are myriad factors associated with adolescent depression, such as sex, race, and comorbid mental health issues [8–14]. Female and Black adolescents are especially at risk, with more than half of teen girls reporting persistent feelings of sadness or hopelessness, and increases in suicide attempts among Black youth at the highest rate of any racial/ethnic group [8]. Black adolescents are less likely to be screened for depression than their White peers and are less likely to receive adequate treatment for depressive symptoms [2,9–13]. The presence of comorbid mental health diagnoses, such as anxiety and attention deficit hyperactivity disorder, also impacts depression in youth [14].

Simultaneously, the United States is experiencing a shortage of psychiatric clinicians, with only 14 child and adolescent psychiatrists to provide services per 100,000 children [15]. Primary care providers (PCPs) are attempting to care for their pediatric patients with mental health concerns without adequate education or resources [16–19]. Two-thirds of pediatricians report that they lack adequate training in the treatment of children with mental health needs [17]. As many as 80% of pediatric providers report difficulty finding psychiatrists for their patients in a timely manner and PCPs are often the sole mental health provider for children, even for children with severe psychiatric symptoms [18–20].

Clinical management guidelines for adolescent depression have been established to support PCPs with clinical decision-making. These guidelines include initiation of psychotropic medication and/or psychotherapy, follow-up with patients 6–8 weeks after initial visit, and consultation with mental health specialists, such as psychiatrists, for patients with more severe symptoms [21]. Consultation with psychiatrists is at the core of Child Psychiatry Access Programs (CPAPs), which were developed to increase access to care by providing guidance to PCPs in managing the mental health needs of a large volume of children without adequate mental health resources [22]. CPAPs use child and adolescent psychiatrists to provide free, same-day, individual case consultation and recommendations about assessment, diagnosis, and clinical management of psychiatric conditions [22]. CPAPs also offer education and training to PCPs on a variety of mental health topics and typically have behavioral health consultants that can support providers and families and link them to community resources [22].

Michigan Clinical Consultation & Care (MC3) is a CPAP established in 2012 as a collaboration between the academic medical center at the University of Michigan, the Michigan Department of Health and Human Services, and state-wide Community Mental Health Services Programs to increase access to specialty psychiatric care for pediatric and perinatal primary care patients across Michigan [23]. MC3 has 3 primary services: (1) consultation with perinatal and child and adolescent psychiatrists to provide specialty guidance on specific patient cases; (2) behavioral health consultant services which may include brief psychosocial interventions and link patients, families, and PCPs to local community resources; and (3) provider education conducted through in-person and virtual trainings on a wide variety of mental health topics that impact pediatric and

perinatal patient populations [23]. MC3 has served more than 10,000 children and perinatal women since its inception in 2012.

CPAPs like MC3 can be an important tool in addressing the pediatric mental health crisis, but what do we know about the outcomes associated with these programs? PCPs who use the MC3 program widely agree that the program is user-friendly and efficient, and report that MC3 improves patient care and increases their comfort and confidence in caring for children with mental health concerns [24]. Although CPAPs are beneficial in improving PCP comfort and confidence and have high satisfaction, data examining patient outcomes are limited [25,26]. The question of whether CPAPs effectively increase patient access to care and treatment remains largely unanswered. Therefore, we compared patients whose PCPs consulted with MC3 psychiatrists and those who did not regarding utilization of mental health treatments such as prescription of psychotropic medication, follow-up monitoring by PCPs, and mental health therapy—all treatments that have demonstrated efficacy in reducing symptoms [27–30]. We hypothesized MC3 consultations would result in improved access and treatment utilization for pediatric patients in these 3 areas.

Methods

Population and sampling

The study population consisted of 2,702 patients between the ages of 12 and 17 who screened positive for the first time on the Patient Health Questionnaire-9 (PHQ-9). Patients received care at 17 primary care clinics within a large Midwestern academic medical health system between September 2017 and March 2021. This study included patients with positive PHQ-9 screens which was defined as scores of 10 or more, indicating moderate to severe depression [31]. This dataset used in this study came from a different study that examined differences in depression screening practices by patient and provider characteristics using a stratified random sample that oversampled Black patients and provider specialty [32]. In addition, we oversampled patients whose PCPs had MC3 consults to create a larger comparison group. The final analysis included 479 patients (17.7% of adolescent patients with positive PHQ-9 screens), 70 of whom were MC3 consult patients.

Data collection

We conducted a retrospective chart review of electronic health records (EHRs) that included data on patient demographics (e.g., sex, race/ethnicity, age, insurance type), psychosocial history (e.g., history of suicidality, history of psychiatric hospitalization), symptomatology (e.g., PHQ-9 scores, diagnoses of comorbid psychiatric conditions), PCP actions (e.g., referral to psychotherapy, prescription of psychotropic medication), and patient outcomes (e.g., attended follow-up primary care visits, received prescriptions for psychotropic medication, attended mental health therapy visits). Trained research assistants collected EHR data. All cases were double-coded and reviewed for reliability. We resolved discrepancies in coding through team discussion and further examination of EHRs. This study was approved by the institutional review board at the University of Michigan (HUM00180175).

MC3 consultation process

The focus of this study is on treatment access among MC3 consult patients. The consultation process consists of PCPs contacting MC3 behavioral health consultants via telephone or submission of an online consultation request and providing brief information about the patient's demographics, presenting problem, symptoms, and past/current treatment. A board-certified child and adolescent psychiatrist then connects with PCPs to provide teleconsultation, discussion, and recommendations regarding topics such as diagnostic clarification, medication options and dosing, and therapeutic interventions. PCPs maintain direct clinical management of patients including prescription of medication, if recommended. In addition to providing patient-level recommendations, CPAP consultations provide important opportunities for psychoeducation between PCPs and psychiatrists. PCPs can extrapolate the information learned from individual consultations to treat other patients with similar symptoms.

Measures

Demographics. Demographic measures included patient age, insurance type, race, ethnicity, and sex. All demographic information reflected data entered in the EHR at the time of patient registration. Patients were divided into 2 age groups that included adolescents between the ages of 12–14 and ages 15–17. Race and ethnicity categories were based on data available through the EHR and included African American/non-Hispanic, Asian/Native Hawaiian/non-Hispanic, Caucasian/non-Hispanic, Hispanic, and Other/Unknown/Non-Hispanic. Race/ethnicity data were condensed into 3 categories to create adequately sized comparison groups: Black, White, and Other. Finally, the primary insurance listed in the EHR at the time of the screening encounter was used to determine insurance status, and were categorized into publicly funded (i.e., Medicaid), privately funded, and other (e.g., self-pay) insurance plans.

MC3 consultation. MC3 consultation was determined by searching EHRs for PCP documentation of a consultation with MC3 program psychiatrist in visit encounter notes. Records with documented MC3 consultations were characterized as “MC3 consult patients.” MC3 consults could have occurred on the date of the positive PHQ-9 screening encounter or up to 6 months after. Records that had no documentation of MC3 consult were characterized as “non-MC3 consult” patients.

Patient mental health history and symptoms. Depression severity was determined by a validated and widely used depression screening, the PHQ-9. The PHQ-9 correlates strongly with diagnostic measures of depression for both adult and adolescent populations [30]. Severity was determined by the following PHQ-9 score ranges: moderate depression (10–14), moderately severe depression (15–19), and severe depression (20+) [33]. The presence of *suicidal thoughts and attempts* was determined by searching patient EHRs for narrative documentation of suicidal thoughts/attempts in the 12 months preceding PHQ-9 screening and/or endorsement of question #9 of the PHQ-9 (“Thoughts that you would be better off dead or thoughts of hurting yourself”) [33]. *Comorbid mental health diagnoses*, such as anxiety, and attention deficit hyperactivity disorder were determined by reviewing patients' EHRs for the inclusion of International

Classification of Diseases, 10th Revision codes for mental, behavioral, and neurodevelopmental disorders that were listed before or on the date of the screening encounter.

Outcomes of PHQ-9 screening visits

Prescription of psychotropic medication. Data on medication prescriptions were extracted from patients' “medication list” in EHRs and by reviewing the primary care visit narrative notes for newly prescribed antidepressant medications that were ordered on the date of the PHQ-9 or up to 6 months after PHQ-9 screening. Patients who were prescribed psychotropic medication for depression symptoms before the date of the PHQ-9 screening were excluded from this analysis.

PCP follow-up visits. Follow-up care was determined by searching patient primary care encounters up to 6 months after the date of PHQ-9 screening per clinical guidelines and examining visit narrative notes to ensure that follow-up visits occurred, and depression symptoms were discussed during follow-up encounters [21].

Engagement with mental health therapy. Patient engagement in therapy post screening was determined by searching patient encounters in the 12 months post PHQ-9 screening for visits with mental health providers (e.g., psychologists, social workers) and searching PCP follow-up notes for documentation of patient participation in therapy or counseling. The modality and type of mental health therapy were not specified. Visits with school counselors or social workers for the purpose of obtaining community resources or referrals were not considered engagement in mental health therapy.

Data analysis

We used Pearson's chi-square tests of independence and binary logistic regression models to examine the relationship between the independent variable (MC3 consultation) and the dependent variables (PCP follow-up visits, psychotropic medication prescriptions, and utilization of mental health therapy). Chi-square tests and unadjusted binary logistic regression analyses were employed to examine differences between MC3 consult patients and non-MC3 consult patients in the age, sex, race, insurance type, depression severity, history of suicidal thoughts/attempts, and presence of mental health diagnoses other than depression. We used adjusted binary logistic regression to control for the variables that differed significantly between groups (sex, race, insurance status, and comorbid mental health diagnoses). Our first adjusted binary logistic regression model indicated no significant associations between insurance and the outcome variables, and therefore, insurance was removed in subsequent analyses to form a more parsimonious model. We ran a second and final adjusted binary logistic regression model with the covariates: sex, race/ethnicity, and comorbid mental health conditions. We chose Black as the racial/ethnic reference group due to stratified sampling and in recognition that using White as a reference category has the potential to reinforce structural racism by assuming that White is the norm with which other races/ethnicities are compared [34]. All statistical analyses were conducted using SPSS version 28.

Results

There were 479 pediatric primary care patients with positive first-time PHQ-9 scores of 10 or more, indicating moderate to severe depression symptoms. Of these 479, 70 patients were the subject of consultation between PCPs and the MC3 program.

Patient demographics and characteristics

The majority of MC3 consult patients were female and White/non-Hispanic. There were significant differences between MC3 consult patients and non-MC3 consult patients by sex, race, insurance, and comorbid mental health diagnoses. No differences were observed between MC3 consult patients and non-MC3 consult patients in age, depression severity, or history of suicidal thoughts/attempts (Table 1).

Outcomes of PHQ-9 screening visits

We examined the following outcomes of pediatric primary care visits: medication prescription, follow-up care, and therapy utilization, controlling for sex, race, and comorbid mental health conditions (Table 2).

Psychotropic medication prescription

Compared to non-MC3 consult patients, MC3 consult patients' odds of being prescribed psychotropic medication to treat depression symptoms within 6 months following the PHQ-9 screening were twice as high (adjusted odds ratio [aOR] = 2.16, $p = .02$). Patients who had mental health diagnoses, such as anxiety or attention deficit hyperactivity disorder, comorbid with depression symptoms also had higher odds of being prescribed a new psychotropic medication within 6 months of PHQ-9

screening (aOR = 2.91, $p < .001$) as did White patients (aOR = 2.57, $p < .001$).

Follow-up visits with primary care provider

MC3 consult patients were 4 times more likely to attend a follow-up visit with PCPs to monitor depression symptoms compared to adolescents who did not have a consultation as part of their care (aOR = 4.56, $p < .001$). Patients who had other mental health diagnoses also had higher odds of having follow-up visits (aOR = 1.65, $p = .01$).

Engagement with mental health therapy

In the 12 months after the PHQ-9 screening, MC3 consult patients' odds of attending a mental health therapy visit were more than twice as high compared to non-MC3 consult patients (aOR = 2.14, $p = .02$). More than three-quarters of MC3 patients (77.6%) attended mental health therapy visits following the PHQ-9 screening as compared to just more than half (53.8%) of non-MC3 consult patients. Female patients had higher odds of attending visits with mental health clinicians in 12 months post PHQ-9 screening (aOR = 2.26, $p < .001$), as did White patients (aOR = 2.57, $p < .001$).

Discussion

This is the first study to our knowledge that has evaluated primary care visit post screening outcomes, comparing encounters that included CPAPs and those that did not. The results of this study suggest that MC3 consult patients access 3 key areas of treatment at higher rates than non-MC3 consult patients.

Table 1
Characteristics of participants

Characteristic	Full sample % (N = 479)	MC3 consult % (N = 70)	Non-MC3 consult % (N = 409)	χ^2	P	Φ
Age				0.00	.99	0.001
12–14	41.3 (198)	41.4 (29)	41.3 (169)			
15–17	58.7 (281)	58.5 (41)	58.6 (240)			
Sex				7.24	.01	–0.123
Female	70.8 (339)	84.3 (59)	68.5 (280)			
Male	29.2 (140)	15.7 (11)	31.5 (129)			
Race				13.41	.001	0.167
White	50.9 (244)	68.6 (48)	47.9 (196)			
Black	41.3 (198)	21.4 (15)	44.7 (183)			
Other	7.7 (37)	10.0 (7)	7.3 (30)			
Insurance				7.94	.02	0.129
Public	31.3 (150)	21.4 (15)	33.0 (135)			
Private	64.9 (311)	70.0 (49)	64.1 (262)			
Uninsured/self-pay	3.8 (18)	8.6 (6)	2.9 (12)			
Comorbid mental health conditions				8.76	.003	0.135
None	53.4 (256)	37.1 (26)	56.2 (230)			
Present	46.6 (223)	32.9 (44)	43.8 (179)			
PHQ-9 severity category				3.16	.206	0.081
Moderate (10–14)	57.4 (275)	48.6 (34)	58.9 (241)			
Moderate–severe (15–19)	25.1 (120)	32.9 (23)	23.7 (97)			
Severe (20+)	17.5 (84)	18.6 (13)	17.4 (71)			
Suicidal thoughts and attempts				1.02	.313	0.046
None	55.5 (266)	50.0 (35)	56.5 (231)			
Present	44.5 (213)	50.0 (35)	43.5 (178)			

MC3 = Michigan Clinical Consultation & Care; PHQ-9 = Patient Health Questionnaire-9.

Chi-square tests analyzed differences between MC3 consult and non-MC3 consult groups. $P \leq .01$ are indicated in bold.

Table 2

Odds ratios (95% CI) for selected patient characteristics by outcomes: prescribed medication, follow-up visits, and engagement in therapy

Patient characteristic	Prescribed medication		Attended follow-up PCP visit		Attended mental health therapy	
	OR (95% CI)	aOR (95% CI)	OR (95% CI)	aOR (95% CI)	OR (95% CI)	aOR (95% CI)
MC3						
MC3 consult	3.06 (1.65–5.67)**	2.16 (1.11–4.22)*	5.49 (3.09–9.59)**	4.56 (2.56–8.14)**	2.97 (1.61–5.49)**	2.14 (1.13–4.05)*
Sex						
Female	1.26 (0.74–2.15)	1.12 (0.63–1.98)	1.65 (1.08–2.50)*	1.44 (0.93–2.24)	2.26 (1.54–3.50)**	2.26 (1.42–3.59)**
Race/ethnicity ^a						
Other	0.42 (0.12–1.43)	0.69 (0.19–2.55)	1.37 (0.70–2.70)	1.61 (0.76–3.42)	1.31 (0.62–2.73)	2.16 (0.97–4.81)
White	3.24 (1.95–5.37)**	2.57 (1.48–4.45)**	1.49 (1.03–2.15)*	1.32 (0.87–2.00)	2.37 (1.58–3.55)**	2.57 (1.65–4.01)**
Insurance ^b						
Public	0.53 (0.31–0.90)*	-	0.89 (0.57–1.27)	-	0.56 (0.37–0.87)*	-
Uninsured/self-pay	1.01 (0.27–3.84)	-	0.70 (0.46–3.14)	-	0.37 (0.10–1.31)	-
Comorbid mental health diagnoses						
Present	3.39 (2.06–5.58)**	2.91 (1.74–4.87)**	1.92 (1.33–2.79)**	1.65 (1.11–2.44)*	1.67 (1.12–2.48)*	1.37 (0.90–2.09)

CI = confidence interval; PCP = primary care provider; OR = odds ratio; aOR = adjusted odds ratio; MC3 = Michigan Clinical Consultation & Care.

* $p < .05$; ** $p < .001$.^a Reference category is Black.^b Reference category is Private; insurance was not significant in the first adjusted model and therefore was excluded from the final adjusted model.

Access to treatment

Psychotropic medication. MC3 consult patients were more likely to be prescribed antidepressant medications than patients who did not have consultations. Antidepressants are effective in reducing symptoms of depression in adolescents and are consistent with guidelines for addressing adolescent depression in primary care [21,27]. Increased receipt of psychotropic medication for depression treatment in MC3 consult patients is an important mechanism in tempering the impact of depression symptoms.

Follow-up visits with primary care providers. MC3 consult patients were 4 times more likely to attend follow-up visits, a key component of adolescent depression care. Follow-up is recommended in clinical guidelines for the treatment of pediatric depression and vital to monitoring patient symptoms and ability to access resources. In addition, follow-up care is an opportunity for providers to assess adherence to treatment plans and monitor medication use for effectiveness and side effects [21]. Adolescents who receive PCP follow-up care are more likely to achieve remission from their depression symptoms which is important to mitigate the potential long-term negative impact of depression [7,16].

Engagement with mental health therapy. Access to treatment by mental health clinicians was high in the MC3 patient consult group, with more than three-quarters of patients attending at least 1 therapy visit with a mental health provider in the 12 months following initial PHQ-9 screening, compared to just more than half of those who were not served by the program. This finding is important as evidenced-based psychotherapeutic interventions, such as cognitive behavioral therapy, have shown to be effective in reducing the severity and duration of depressive symptoms including suicidality [29,30]. Evidence-based psychotherapy is recommended in clinical guidelines and is often the first-line treatment in addressing depression in adolescents [21].

Limitations and future directions

Data used for this study included adolescent patients in a large, academic medical system, geographically located in southeast Michigan, an area that is largely metropolitan. Future research should include a more diverse population, including

patients in more rural areas. Further research is also needed to examine demographic differences, as the MC3 consult group was more likely to be female and White. Although our research shows higher depression acuity in these populations, the role of bias and systemic racism in access to healthcare should be further explored. Additionally, MC3 consult patients were more likely to have private insurance, possibly indicating higher household income levels, which could make therapy and medical care more accessible. CPAPs have the potential to lessen disparities by increasing access to treatment in under-resourced communities and more research is needed to ensure equitable care.

The study is also limited by the use of chart review to assess if patients attended appointments with mental health clinicians in the year post PHQ-9 screening. This method may miss mental health attendance among patients who did not have follow-up primary care visits and therefore would not have documentation of visits in their medical chart. EHRs also lacked specificity as to the type of mental health therapy, so it is unknown if patients engaged in evidence-based modalities, such as Cognitive Behavioral Therapy, or other types of therapies that may not have evidence of efficacy [29,30]. It is also beyond the scope of this study to examine if psychotropic medication prescriptions were consistent with best practices. Further research is needed to examine the practices and efficacy of depression interventions in this population. Additional research is also needed to explore the full educational value of CPAP consultations, as PCPs can use the knowledge gained from consulting about a patient to build their knowledge base and guide treatment of additional patients in their practice. Future research could focus on comparing outcomes of patients whose PCPs routinely use CPAPs to those who do not.

Finally, this study was descriptive, and interpretation is limited to discussion of associations found between variables at the time of the patient care encounters. Analyses controlled for some demographic and clinical characteristics, but a multitude of factors could contribute to adolescent engagement in depression treatment. Causation cannot be determined as the researchers could not control for other potentially influential events or factors.

Conclusions

This study is one of the few to examine outcomes related to CPAP utilization. CPAPs offer an innovative way to address the

shortage of child and adolescent psychiatrists available to meet the increasing mental health needs of children and adolescents. This study suggests that CPAP utilization is associated with greater access to care for adolescents with moderate to severe depression symptoms. Youth who receive CPAP consultation were more likely to attend mental health therapy visits in the 12 months post PHQ screening, be prescribed antidepressant medication, and receive primary care follow-up visits to monitor treatment and progress. Such access to care and treatment is crucial to effectively address depression and improve the health and well-being of adolescents. More research focused on outcomes of CPAP use is needed to fully examine the effectiveness of these programs.

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