


# Enhancing Pediatricians' Behavioral Health Competencies Through Child Psychiatry Consultation and Education

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## Abstract

The objective of this study was to assess feasibility, utilization, perceived value, and targeted behavioral health (BH) treatment self-efficacy associated with a collaborative child and adolescent psychiatry (CAP) consultation and BH education program for pediatric primary care practitioners (PCPs). Eighty-one PCPs from 41 member practices of a statewide pediatric practice association affiliated with an academic medical center participated in a program comprising on-demand telephonic CAP consultation supported by an extensive BH learning community. Findings after 2 years of implementation suggest that the program was feasible for large-scale implementation, was highly utilized and valued by PCPs, and was attributed by PCPs with enhancing their BH treatment self-efficacy and the quality of their BH care. After participation in the program, nearly all PCPs believed that mild to moderate presentations of common BH problems can be effectively managed in the primary care setting, and PCP consultation utilization was congruent with that belief.

## Keywords

collaborative behavioral health care, child psychiatry consultation, behavioral health education, behavioral health competencies

## Introduction

Although effective psychopharmacologic and psychotherapeutic treatments for child and adolescent psychiatric disorders have been available for decades, over one half of the estimated 15 million US youth with psychiatric disorders do not receive any treatment,<sup>1,2</sup> while many of the remaining youth receive treatment in nonspecialized behavioral health (BH) settings such as primary care and schools,<sup>3</sup> where BH expertise may be limited. Consequently, it is estimated that 8 to 10 years elapse between symptom onset and initiation of treatment.<sup>4</sup> This striking gap in access to BH services reflects the long-standing and pervasive shortage of child and adolescent-trained BH specialists, a geographic maldistribution of available specialists favoring urban areas, relatively lower earnings potential limiting workforce recruitment, and insufficient governmental funding to sustain public BH programs.<sup>5,6</sup> Untreated or inadequately treated child and adolescent psychiatric disorders persist over decades, become increasingly intractable to treatment, and incur progressively greater social, educational, and economic consequences over time.<sup>7</sup>

Because of lack of timely access to specialty BH services and the high prevalence of psychiatric disorders (approximating 1 in 5 patients)<sup>8</sup> in pediatric practices, pediatric primary care practitioners (PCPs) have become the de facto BH providers for America's youth,<sup>9</sup> with one half of visits to pediatric PCPs involving a BH concern or problem.<sup>10</sup> To increase access to BH services by reserving specialty care for severe psychiatric disorders, both the American Academy of Pediatrics (AAP) and the American Academy of Child and Adolescent Psychiatry have suggested that youth with mild to moderate psychiatric disorders can be effectively identified, assessed, and treated in primary care.<sup>11–13</sup> To facilitate

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this expanded scope of practice, the AAP has developed BH competency recommendations,<sup>14</sup> a diagnostic nosology,<sup>15</sup> clinical practice guidelines,<sup>16-20</sup> algorithms,<sup>21</sup> white papers,<sup>22</sup> online guidance,<sup>23</sup> and a plethora of BH tools.<sup>24</sup> Despite this substantial support, pediatric PCPs continue to experience significant challenges managing patients with BH problems, consistently citing inadequate training and lack of confidence/self-efficacy in BH skills as major barriers to the provision of BH services, along with administrative (eg, workflow, billing) concerns.<sup>25-30</sup>

Over the past few years a number of clinical innovations have arisen to better support pediatric PCPs in their management of BH problems.<sup>31,32</sup> One innovation is a type of collaborative BH care<sup>32,33</sup> in which child and adolescent psychiatrists (CAPs) provide telephonic and in-person consultation to PCPs regarding their patients' BH problems, with the goal of facilitating PCP management of mild to moderate presentations in the pediatric setting. Some programs also have an educational component, delivered through various print, electronic, in-person, and interactive televideo modalities. Child psychiatry consultation programs have been launched in 28 states and the District of Columbia, and a programmatic website ([www.nncpap.org](http://www.nncpap.org)) has been developed to support collaboration between programs. However, despite their rapid growth, to date few of these programs have published their utilization characteristics and outcomes.

As such, this study was undertaken to contribute to the sparse but growing literature reporting findings from collaborative child psychiatry consultation programs designed to enhance PCPs' ability to deliver BH care in the pediatric setting. The specific aims were to assess the feasibility, utilization, perceived value, and BH treatment self-efficacy associated with a collaborative CAP consultation program for pediatric PCPs in practices affiliated with an academic medical center when supported by an extensive BH educational program.

## Methods

### Sample Population

The study population comprised 81 PCPs from 41 pediatric practices enrolled in a statewide, independent association of 90 pediatric practices affiliated with an academic medical center who participated in Phase 1 (June 2013 to June 2015), Phase 2 (September 2014 to June 2016), or Phase 3 (June 2015 to June 2017) of the consultation/education program. All 41 practices voluntarily participated in the program and were phased in by approximately 15 practices per year. All phases received

the same intervention delivered by the same interventionists, as described below.

### Program Description

The program comprised a 2-year, 24-session, 42-hour in-person and webinar BH educational program (the BH Learning Community [BHLC]), supplemented by bimonthly interactive televideo clinical case conferences and on-demand PCP access to CAP telephonic consultation, supplemented by in-person CAP consultation as indicated.

### BH Education

The BHLC was designed to create an interactive learning environment to advance PCPs' knowledge, skills, and confidence/self-efficacy in identifying, assessing, and treating mild to moderate presentations of the more common child and adolescent psychiatric disorders, with an emphasis on anxiety, depression, attention-deficit hyperactivity disorder (ADHD), and substance use. A standardized BHLC curriculum was developed by the multidisciplinary education team including specialists in child and adolescent psychiatry, developmental behavioral pediatrics, adolescent medicine, and neuropsychology with input from specialists in psychology, social work, and internal medicine; the curriculum was primarily delivered by the physician members of the team.

The BHLC curriculum systematically addressed, for each targeted psychiatric disorder, the description, etiology, identification, course, prevention, and evidence-based psychotherapeutic and psychopharmacologic treatment. The curriculum did not emphasize mastery of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)*<sup>34</sup> to generate precise diagnoses; rather emphasized a target symptom approach and the use of *DSM-5* "unspecified" diagnoses to support communication and treatment. The curriculum placed particular emphasis on developing PCPs' skills in using a standardized broadband instrument (the Pediatric Symptom Checklist)<sup>35</sup> to screen for BH problems and standardized narrowband symptom rating scales (the Vanderbilt ADHD Diagnostic Parent Rating Scale for ADHD,<sup>36</sup> the Mood and Feelings Questionnaire<sup>37</sup> or the Patient Health Questionnaire-9<sup>38</sup> for depression, and the Screen for Child Anxiety Related Disorders<sup>39</sup> for anxiety) to assess baseline symptom severity and response of symptoms to treatment; using preventive guided self-management with follow-up for sub-clinical concerns; adhering to evidence-supported, first-line psychopharmacologic care pathways with an emphasis on stimulant (for ADHD) and selective serotonin reuptake inhibitor

(SSRI; for anxiety and depression) medications; and knowing which patients were appropriate for referral to specialty BH care (level of care decisions). Although PCPs did not directly treat substance-related disorders, the curriculum also taught skills comprising the Screening, Brief Intervention, and Referral to Treatment (SBIRT)<sup>40</sup> intervention for substance use.

To reinforce learning, the BHLC offered bimonthly interactive televideo case conferences facilitated by faculty from the BHLC. To encourage engagement, the BHLC offered Category 1 continuing medical education and maintenance of certification credits from the affiliated medical school.

### CAP Consultation

The telephonic consultation program component delivered real-time, workday, 9 AM to 5 PM telephonic consultation by a CAP to PCPs in the participating practices. Consultation was designed to reinforce and extend the knowledge and skills acquired by PCPs in the BHLC to the management of individual patients. Telephonic consultations not only provided initial assessment and treatment suggestions but also provided ongoing consultative support as requested once treatment by the PCP was initiated. To provide continuity of the learning experience, telephonic consultation was primarily provided by one of the lead CAP educators in the BHLC.

For severe clinical presentations, the telephonic CAP consultation facilitated referral to the specialty BH setting for in-person consultation (and interim treatment until stable as indicated), either in the psychiatry outpatient program of the affiliated academic medical center or in community BH clinics according to patient/family preference.

### Outcome Measures

The observation period for this study spanned September 1, 2014, through June 30, 2016. During this period, Phases 1, 2, and 3 practices had been exposed to the consultation/education program for 3 years, 2 years, and 1 year, respectively. De-identified telephone consultation utilization data for the observation period were abstracted from the program's secure electronic database and descriptive statistics were calculated. De-identified in-person consultation utilization data for the observation period were abstracted from the affiliated medical center's intake and billing records and descriptive statistics were calculated.

In addition, an original 15-item anonymous postprogram electronic survey was developed using SurveyMonkey software to assess PCP characteristics, perceived program

value, and BH treatment self-efficacy ascribed to program participation. Survey items were adapted from other published instruments assessing similar domains.<sup>41,42</sup> The survey was administered in September 2016 to PCPs who participated in the consultation/education program. Because this survey was part of a quality improvement initiative, institutional review board approval was not required by the affiliated academic medical center. Participation was voluntary and all participants were informed that survey results might be published using aggregate, anonymous data. Descriptive statistics were calculated from survey data. To assess whether PCP characteristics modified the effect of the consultation/education program on PCP BH treatment self-efficacy, associations between survey respondent characteristics and treatment self-efficacy were analyzed using Fisher's exact tests,  $\chi^2$  tests, and Mantel-Haenszel  $\chi^2$  tests as appropriate.

### Results

During the observation period, 392 CAP telephone consultations (17.8/month) were initiated by at least one PCP in 35 of the 41 eligible pediatric practices, representing a practice participation rate in CAP telephone consultation of 85%. Consultation requests by practice ranged from 1 to 51 with a mean of 11.2.

Table 1 presents the CAP consultation characteristics. In two thirds of consults, the PCP had previously initiated psychotropic medication, mainly SSRIs and stimulants. The predominant preliminary diagnoses assigned by the CAP after the telephone consultation (based on patient symptoms assessed by the PCP using clinical interview and relevant symptom rating scales) were anxiety, depression, and ADHD. Based on the standardized Children's Global Impression Scale (CGAS) score, which measures overall symptom severity and functional impairment,<sup>43</sup> consultation cases as rated by the CAP consultant were predominantly moderate or mild in severity. Postconsultation, two thirds of cases were mutually agreed by the CAP and PCP to be suitable for treatment by the PCP and one third were agreed to be more appropriate for treatment in specialty care (some cases were deemed appropriate for either setting). In more than one half of the cases needing ongoing specialty care, the preferred site (by PCP and family) was the affiliated academic medical center. A hospital emergency room or psychiatry inpatient unit was the referral site for less than one tenth of the cases needing specialty care.

Of the 392 telephone consultations, 112 (28%) were referred to the psychiatry outpatient service of the affiliated medical center for additional in-person consultation, primarily for diagnostic clarification and level of care

**Table 1.** Characteristics of 392 Telephone Consultation Calls, September 1, 2014, to June 30, 2016.

Characteristic	n	%
Patient age, years		
0-4	8	2
5-12	133	34
13-17	176	45
18-24	75	19
Patient gender		
Male	216	55
Female	176	45
Consult responded to within requested timeframe	384	98
Reason for consult		
Psychotropic medication management	192	49
Diagnostic referral	78	20
Crisis management	43	11
Psychotropic medication evaluation referral	35	9
BH resource referral	20	5
Other	24	6
Psychotropic prescribing by PCP prior to consult	243	62
Types of psychotropic medication prescribed by PCP		
Selective serotonin reuptake inhibitor	132	54
Stimulant	58	24
Alpha-agonist	17	7
Mood stabilizer	10	4
Anxiolytic	7	3
Antipsychotic	7	3
Other	12	5
New psychotropic prescribing by PCP after consult	74	19
Provisional diagnosis by CAP after telephone consultation		
Anxiety	110	28
Depression	98	25
ADHD	63	16
Deferred	43	11
Behavior	19	5
Autism	12	3
Other	47	12
Overall clinical severity, CGAS score <sup>a</sup>		
≥71 (no to minimal impairment)	3	2
61-70 (mild symptoms/impairment)	45	34
41-60 (moderate symptoms/impairment)	77	58
1-40 (severe symptoms/impairment)	8	6
Level of care recommendations <sup>b</sup>		
Primary care	239	61
Specialty BH care	220	56
Specialty care referral sites		
Affiliated medical center	224	57
Community therapist	47	12
Community prescriber	43	11

(continued)

**Table 1. (continued)**

Characteristic	n	%
Emergency room/psychiatric inpatient	27	7
Children's Behavioral Health Initiative (Medicaid)	20	5
Other	31	8

Abbreviations: BH, behavioral health; PCP, primary care practitioner; CAP, child and adolescent psychiatrist; CGAS, Children's Global Assessment Scale.

<sup>a</sup>CGAS data collected during last year of observation period.

<sup>b</sup>Some cases had "either/or" level of care recommendation; therefore, total percentage exceeds 100.

determination. Table 2 presents the characteristics of the referred cases. Of the 112 cases, 92 (82%) completed their consultation (4.2/month); the mean number of days from referral request to completed consultation was 14.7. The predominant diagnoses assigned by the outpatient CAP after in-person consultation were ADHD, anxiety, depression, psychosis, and autism spectrum. The great majority of referred cases were moderate in severity, based on CGAS score as rated by the telephone consultant CAP prior to referral. After in-person CAP consultation, 38% of cases were referred for ongoing specialty treatment and 62% were returned to the referring PCP for ongoing primary care treatment as mutually agreed by the outpatient CAP and PCP.

The postintervention anonymous survey was completed by 66 of 81 eligible PCPs, for a survey response rate of 81%. Table 3 presents the characteristics of survey respondents.

All (100%) survey respondents had participated in at least one BHLC session. Figure 1 presents perceived value of the BHLC as reported by survey respondents. Nearly all respondents agreed that they had acquired new knowledge about broad- and narrow-band symptom rating scales (both 98%), guided self-management (96%), psychotropic medications (95%), and level of care decisions (95%); 86% agreed that they had acquired new knowledge about psychotherapy. Nearly all respondents (97%) agreed that their participation in the BHLC improved the quality of their BH care.

All (100%) survey respondents had participated in at least one CAP telephone consultation. Figure 2 presents perceived value of the telephone consultations as reported by survey respondents. Nearly all respondents agreed that telephone consultation was convenient (95%) and timely (95%), facilitated medication management (93%), and reinforced learning community knowledge (93%). More than 80% of respondents agreed that telephone consultation facilitated decisions about crisis management (85%) and level of care (84%). Sixty-five percent of participants agreed that telephone consultation expedited specialty



**Table 2.** Characteristics of 112 In-Person Consultation Referrals, September 1, 2014, to June 30, 2016.

Characteristic	n	%
Completed in-person consultations	92	82
Patient age, years		
0-4	1	1
5-12	39	42
13-17	45	49
18-24	7	8
Patient gender		
Male	51	55
Female	41	45
Diagnosis by CAP after in-person consultation <sup>a</sup>		
ADHD	21	23
Anxiety	19	21
Depression	17	18
Psychosis	14	15
Autism spectrum	8	9
Other	20	22
Overall clinical severity, CGAS score		
≥71 (no to minimal impairment)	0	0
61-70 (mild symptoms/impairment)	7	8
41-60 (moderate symptoms/impairment)	78	84
1-40 (severe symptoms/impairment)	7	8
Evidence of dangerousness to self or others	17	19
Level of care recommendation		
Primary care	57	62
Specialty care	35	38

Abbreviations: CAP, child and adolescent psychiatrist; ADHD, attention-deficit hyperactivity disorder; CGAS, Children's Global Assessment Scale.

<sup>a</sup>Some cases had more than one diagnosis; therefore, total percentage exceeds 100.

BH referral. Nearly all respondents (91%) agreed that their participation in telephone consultation improved the quality of their BH care.

Figure 3 presents targeted BH treatment self-efficacy attributed to participation in the consultation/education program as reported by survey respondents. The great majority of respondents reported becoming more confident in their ability to manage BH problems (92%) and becoming more skilled in using broad- and narrow-band symptom rating scales (both 89%), prescribing psychotropic medications (87%), and knowing which patients to refer to specialty BH services (79%). More than one half (52%) of respondents reported becoming more skilled in using guided self-management. Only one third (35%) reported becoming more skilled in delivering SBIRT. Nearly all respondents (95%) reported believing that mild to moderate presentations of BH problems can be effectively assessed and treated in the primary care setting.

Table 4 presents the bivariate associations between the characteristics of survey respondents and BH treatment self-efficacy attributed by respondents to their participation in the consultation/education program. Greater self-efficacy was significantly associated with extent of attendance at the BHLC core sessions (anxiety, depression, ADHD, substance use) and extent of experience treating BH problems. Greater self-efficacy was not associated with phase of program enrollment, profession, practice duration, type, or activity, or whether the practice had hired a BH therapist.

## Discussion

The findings from this study suggest that CAP consultation supported by BH education for pediatric PCPs was feasible, highly utilized and valued, and was attributed by PCPs with enhancing self-efficacy in program-targeted BH treatment skills and the quality of their BH care. These findings contribute to the literature suggesting the potential impact of programs such as this on PCPs' ability to effectively manage mild to moderate presentations of psychiatric disorders in the primary care setting.

Pediatric PCPs increasingly care for the BH problems of youth.<sup>44</sup> Nationally, in three quarters and one half of child and adolescent BH visits, respectively, non-psychiatrist physicians (predominantly pediatricians) are the providers.<sup>45</sup> Non-psychiatrist physicians (predominantly pediatricians) also provide three quarters and two thirds of child and adolescent BH visits, respectively, in which new psychotropic medications are initiated.<sup>45</sup>

While this service delivery pattern expands access to BH care to millions of youth who otherwise would remain untreated, it can pose safety risks arising from misdiagnosis and non-evidence-supported psychopharmacological treatment.<sup>46</sup> Across 43 US pediatric practices, significant variability in both diagnosis and prescribing rates was found that was only partially explained by the community availability of psychiatrists.<sup>47</sup> That study and others<sup>48,49</sup> suggest that pediatric patients with BH problems may have different care experiences due to variability in PCP expertise in BH assessment and treatment; this finding underscores the importance of collaboration between CAPs and PCPs to enhance PCPs' BH treatment skills. Because of non-overlapping areas of expertise, merely co-locating non-physician BH therapists in PCP practices is likely insufficient to enhance PCPs' BH treatment skills,<sup>50</sup> although co-located therapists could play a role in identifying cases appropriate for PCP-CAP consultation (in addition to providing on-site psychotherapy services).

**Table 3.** Characteristics of 66 PCP Survey Respondents.

Characteristic	n	%
Phase of participation in Learning Community		
Phase I	25	40
Phase 2	21	34
Phase 3	16	26
Profession		
Pediatrician	54	82
Nurse practitioner	9	14
Pediatrician + adolescent medicine	1	1
Pediatrician + developmental/behavioral pediatrics	1	1
Physician assistant	1	1
Practice duration		
<5 years	5	8
5-10 years	12	18
11-20 years	17	26
21-29 years	16	24
30-39 years	14	21
≥40 years	2	3
Practice type		
1 or 2 practitioners	10	15
3-5 practitioners	21	32
6-10 practitioners	24	36
≥11 practitioners	11	17
Practice activity		
<10 patients per day	2	3
11-19 patients per day	41	62
≥20 patients per day	23	35
Duration of co-located BH therapist		
<6 months	5	8
6-11 months	8	12
12-23 months	10	15
≥24 months	18	27
No BH therapist in practice	25	38
BH problems directly cared for by PCP in past year <sup>a</sup>		
ADHD	65	98
Anxiety	59	89
Depression	58	88
Autism spectrum	41	62
Psychological factors affecting physical illness	38	58
Disruptive behavior	36	55
Somatic symptoms	25	38
PTSD/adjustment	17	26
Learning Community sessions attended by PCP (core topics only)		
Anxiety I (2-hour didactic)	57	90
Anxiety II (2-hour case discussion)	58	92
Depression I (2-hour didactic)	61	97
Depression II (1-hour webinar)	55	87
ADHD (2-hour didactic)	49	78
ADHD (1-hour webinar)	43	68

(continued)

**Table 3. (continued)**

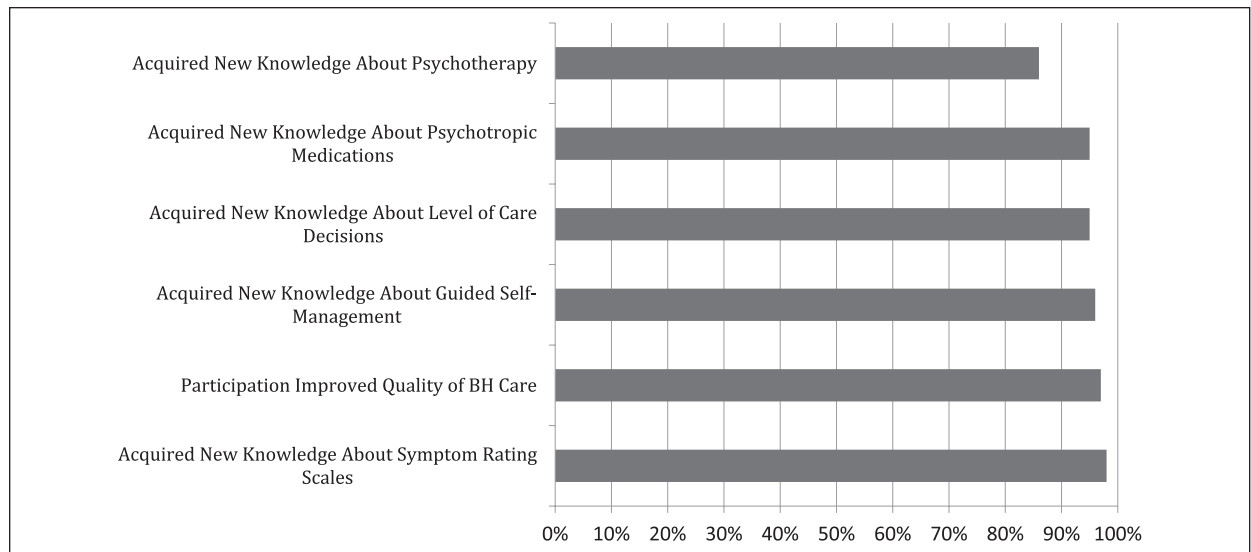
Characteristic	n	%
Substance use I (2-hour didactic)	46	74
Substance use II (2-hour case discussion)	40	65
Substance use III (1-hour webinar)	27	44

Abbreviations: PCP, primary care practitioner; BH, behavioral health; ADHD, attention-deficit hyperactivity disorder; PTSD, posttraumatic stress disorder; SBIRT, Screening, Brief Intervention, and Referral to Treatment.

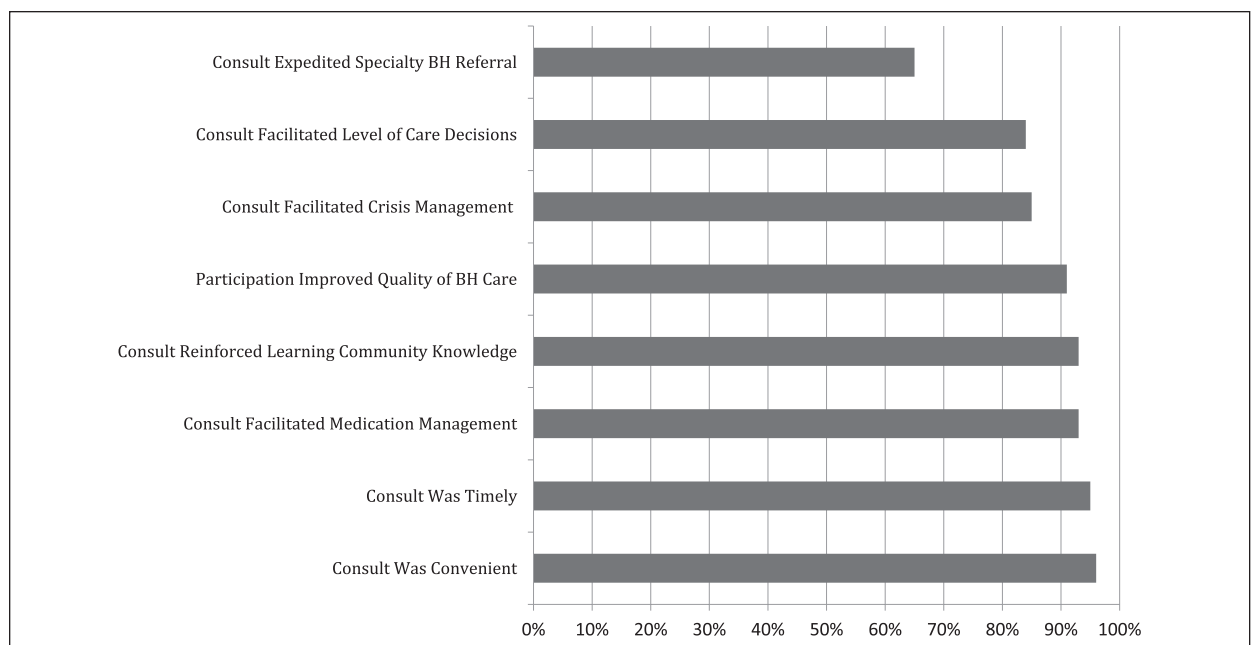
<sup>a</sup>Substance use not directly treated by PCP under SBIRT model.

Among the key domains hypothesized theoretically and demonstrated empirically<sup>51,52</sup> to positively influence physician practice change are knowledge, perceived value, and confidence in pertinent skills (self-efficacy). Summarized simply, knowledge lays the foundation on which clinical decisions are based, perceived value engenders motivation to change, and self-efficacy enables action. In this study, participation in the consultation/education program was associated with positive PCP self-assessments in all 3 key domains. Nearly all surveyed PCPs reported the acquisition of new BH knowledge in targeted domains, nearly all perceived value of the program in improving the quality of their BH care, and nearly all reported that they had become more efficacious in the targeted BH treatment skills. The inference that enhanced treatment self-efficacy was an outcome of the education/consultation program was supported by the significant linear associations of PCP self-efficacy with the extent of PCP attendance at the BHLC core sessions and extent of PCP experience treating BH problems.

After participating in the program, nearly all surveyed PCPs agreed that mild to moderate presentations of anxiety, depression, and ADHD could be effectively assessed and treated in the primary care setting. According to consultation utilization data, PCP BH practice patterns appeared to congruent with this belief. Thus, consistent with the teaching emphasis of the BHLC, most consultations addressed medication questions pertaining to mild to moderate cases of anxiety, depression, or ADHD. In accordance with BHLC recommendations, medications selected by PCPs to treat these disorders prior to the consultation were predominantly first-line medications with the most favorable risk-benefit profiles (stimulants for ADHD and SSRIs for anxiety and depression). After the telephone consultations, PCPs were sufficiently confident in their BH skills to agree to continue to treat the majority of cases in the primary care setting. Only a small proportion of cases were referred for in-person CAP consultation; after in-person consultation PCPs accepted the majority



**Figure 1.** Perceived Value of BH Learning Community, Percent of PCPs Endorsing "Strongly Agree" or "Agree", n=66.

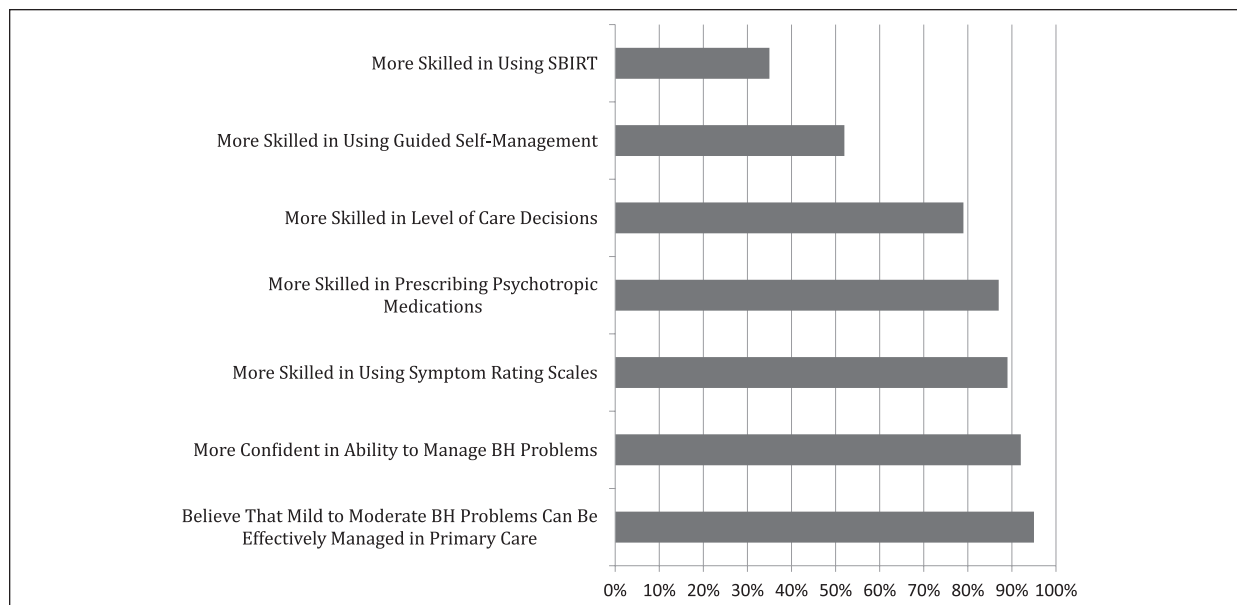


**Figure 2.** Perceived Value of CAP Telephone Consultation, Percent of PCPs Endorsing "Strongly Agree" or "Agree", n=66.

of referred cases back for ongoing treatment as mutually agreed. Taken together, these findings suggest that CAP consultation reinforced by BH education provided the guidance and support needed for participating PCPs to confidently expand their scope of practice to encompass BH health.

Three other published CAP telephone consultation programs supported by BH education of varying intensity are the Massachusetts Child Psychiatry

Access Program (MCPAP), launched in 2004 after a successful prototype (the Targeted Child Psychiatric Services program or TCPS)<sup>53</sup>; Project TEACH in New York State, launched in 2005; and the Washington State Partnership Access Line (PAL), launched in 2007. Similarly to the current program, MCPAP demonstrated high utilization and high PCP and parent satisfaction with the program<sup>54-56</sup> as well as the program's ongoing CAP support of PCP medication



**Figure 3.** BH Treatment Self-Efficacy Attributed to Program Participation, Percent of PCPs Endorsing Statement, n=66.

management<sup>57</sup> and program sustainability through legislatively mandated private and public funding streams.<sup>58</sup> The PAL also demonstrated high utilization and high PCP program satisfaction, as well as its association with increased use of medication for ADHD and depression/anxiety and decreased use of antipsychotic medication among Medicaid-insured youth.<sup>59,60</sup> Project TEACH demonstrated increased PCP confidence in assessing severity of BH problems, developing BH treatment plans, and prescribing psychotropic medications.<sup>61</sup>

While different structures and outcome measures preclude direct comparisons across programs, the findings from the current program, MCPAP, PAL, and TEACH, converge in their demonstration of high utilization and high satisfaction/perceived value among PCP participants. The current study extends these findings to demonstrate enhanced PCP self-efficacy in a broad range of specific BH treatment skills as well as emerging evidence of PCPs' ability to appropriately expand their scope of practice to encompass BH.

## Limitations

Given the pilot design, there are limitations to this study, including its geographic specificity, a posttest-only study design, an original survey instrument adapted from existing instruments, lack of directly measured PCP practice change, lack of patient- and parent-reported outcome measures, lack of economic analysis of the model, and the inability to disaggregate the individual

effects of the 2 program components (education and consultation).

The study's strengths include multiple levels of intervention "dosing" by phase of enrollment, standardization of program implementation across phases, a relatively large sample size, high participation in the outcomes survey, measurement of potential outcome moderating variables, and a long period of observation. However, in light of the limitations, the study's findings should be considered suggestive of further research opportunities rather than definitive. An important area of focus for future research is to disentangle the effects of the consultation and education program components; a second important area is to confirm that acquiring confidence in SBIRT skills is challenging for PCPs, and if so, to devise strategies to surmount those challenges.

## Conclusion

A 2-year study of a collaborative CAP consultation and BH education program for pediatric PCPs was feasible to implement on a statewide scale, was highly utilized and valued by PCPs, and was attributed by PCPs with enhancing their BH treatment self-efficacy and the quality of their BH care. If shown in further research to result in durable practice change that improves patient outcomes, programs such as this, if widely scaled and sustainably funded, have the potential to substantially extend the BH workforce and, as such, help alleviate the gap between the millions of youth needing quality BH services and those receiving them.



**Table 4.** Bivariate Associations Between Characteristics of PCP Survey Respondents (n=66) and PCP Treatment Self-Efficacy.

Characteristics	Greater <sup>a</sup> PCP Self-Efficacy		P
Phase of enrollment	n <sup>b</sup>	%	
Phase 1	16	64.0	.08 <sup>c</sup>
Phase 2	16	76.2	
Phase 3	14	87.5	
Profession			
Pediatrician ± subspecialty	40	71.4	1.0 <sup>c</sup>
Nurse practitioner/physician assistant	7	70.0	
Practice duration			
≤10 years	10	58.8	.52 <sup>c</sup>
11-20 years	13	76.5	
21-29 years	13	81.3	
≥30 years	11	68.8	
Practice type			
1-2 practitioners	8	80.0	.53 <sup>c</sup>
3-5 practitioners	13	61.9	
6-10 practitioners	19	79.2	
≥11 practitioners	7	63.6	
Practice activity			
<20 patients per day	28	65.1	.13 <sup>d</sup>
≥20 patients per day	19	82.6	
Co-located BH therapist			
None	17	68.0	.88 <sup>c</sup>
<12 months	10	76.9	
12-23 months	8	80.0	
≥24 months	12	66.7	
Treated BH problems (past year)			
ADHD or anxiety or depression	1	50.0	.04 <sup>e,f</sup>
ADHD and anxiety or depression	0	0.0	
ADHD and anxiety and depression	6	50.0	
ADHD and anxiety and depression and 1 other disorder	6	75.0	
ADHD and anxiety and depression and 2 other disorders	6	85.7	
ADHD and anxiety and depression and 3 other disorders	8	80.0	
ADHD and anxiety and depression and 4 other disorders	7	87.5	
ADHD and anxiety and depression and 5 other disorders	10	83.3	
Other combination	3	42.9	
Attended BHLC core <sup>g</sup> didactic sessions			
None	0	0.0	.03 <sup>e</sup>
≤One-half	7	70.0	
>One-half	13	72.2	
All	28	80.0	

Abbreviations: PCP, primary care practitioner; BH, behavioral health; ADHD, attention-deficit hyperactivity disorder; BHLC, BH learning community.

<sup>a</sup>Number and percentage of PCP survey respondents endorsing ≥6 of 8 treatment self-efficacy items (median number of items endorsed = 5): I believe that mild to moderate presentations of BH problems can be effectively assessed and treated in the primary care setting; I have become more confident in my ability to manage my patients with BH problems; I have become more skilled in using broad symptom rating scales to screen patients for BH problems; I have become more skilled in using narrow symptom rating scales to monitor response to medication for BH problems; I have become more skilled in prescribing psychotropic medications for BH problems; I have become more skilled in knowing which patients to refer to specialty BH services; I have become more skilled in delivering guided self-management to patients/families with subclinical BH concerns; I have become more skilled in delivering SBIRT to patients with substance use.

<sup>b</sup>denominator of n (not shown) is all survey respondents with the given characteristic.

<sup>c</sup>Fisher's exact test.

<sup>d</sup>Chi-square test.

<sup>e</sup>Mantel-Haenszel  $\chi^2$  test.

<sup>f</sup>"Other combination" group excluded from test of trend.

<sup>g</sup>Core didactic sessions: anxiety, depression, ADHD, substance use.

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## Author Contributions

HJW, DRD, and GF substantially contributed to the concept and design of the study. HJW, GK, EKT, and LV substantially contributed to data analysis and interpretation. HJW drafted the article and GK, EKT, LV, JB, DRD, and GF critically reviewed and revised the manuscript. All authors approved the version to be published.

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