The Benefits of Implementing Collaborative Care into Pediatrics

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Objective

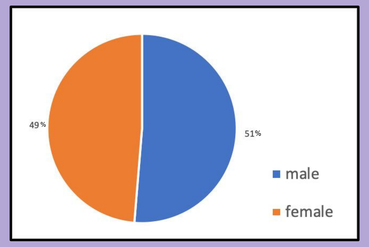
Collaboration between primary care and behavioral medicine is an established intervention in adult medicine that has shown to improve outcomes such as depression scores and adherence to treatment.[1] However, there is little research available on applying this model to pediatric populations. This project was designed to review the available literature on implementing Collaborative Care models in the pediatric setting.

Methods

PsycINFO was used for the literature review conducted December of 2020 through January of 2021. Peer-reviewed articles that included the terms “collaborative care,” “psychiatric care,” “anxiety and depression,” and “pediatric care” were examined. Articles that were literature reviews, meta-analyses, involved data on adults, or published before 1990 were excluded. With the exclusion criteria the search identified 1,351 papers, and after review of abstracts 11 were relevant to our topic. Demographic data below was generated by abstracting available demographic data from five of the 11 reviewed articles that had demographic information. The other reviewed articles examined cost and factors related to the parents and providers.

Patient Demographics

Figure 1.1: **Gender distribution across reviewed studies.** Five of the 11 reviewed studies had data on gender. Average age was reported in each study, which ranged from 4.9 years to 15.1 years. N=1243



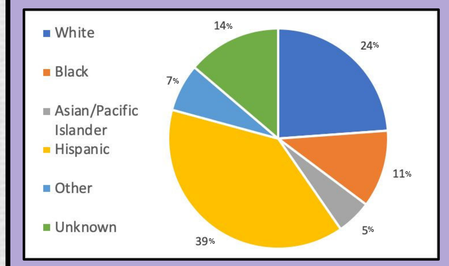
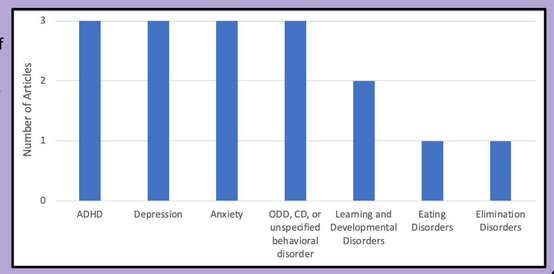


Figure 1.2: **Race distribution across studies.** Four of the 11 reviewed studies had data on race. “Unknown” indicates study patients where the race was not recorded and/or provided. One study inadequately reported race and was not included in this figure. N=914

Figure 1.3: **Diagnoses by frequency studied**. Five of the 11 reviewed studies are included in this figure. Frequency indicates the number of articles out of the five that studied the respective diagnosis. Abbreviations: ODD = Oppositional Defiant Disorder, CD = Conduct Disorder.



Results

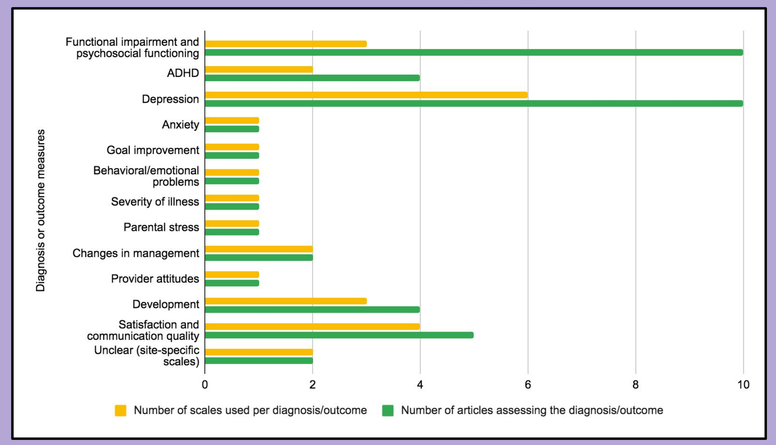


Figure 3: **Outcomes and Assessments.** Yellow bars indicate the number of assessment scales and surveys used to assess each diagnosis/outcome. Green bars indicate the number of studies that assessed each diagnosis/outcome.

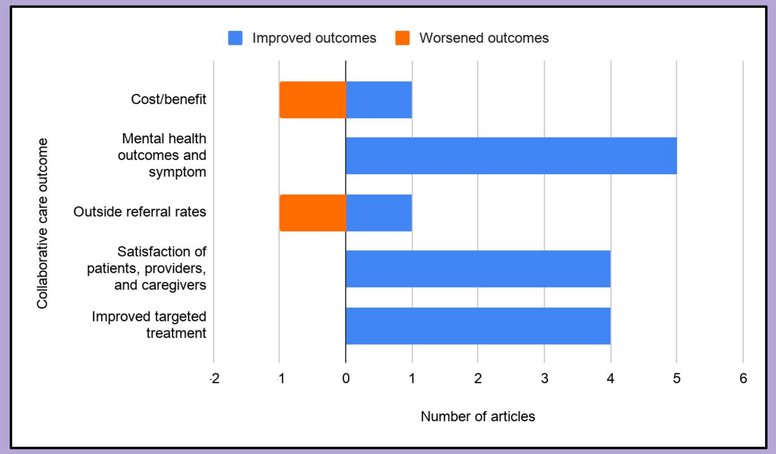


Figure 4: **Outcomes across reviewed articles.** Number of articles that showed positive or negative changes of collaborative care models on specific care outcomes. Articles that did not address the outcome were not included.

Key findings from the articles:

- 28 assessment modalities were used (24 different assessment scales and 4 site-specific surveys) with little overlap (Fig. 3)
  - 9 modalities with guardians, 12 with patients, and 7 with providers.
  - Most common: Pediatric Symptoms Checklist 17, PHQ-9 and Clinical Global Impression Improvement Scale
- Mixed outcomes on cost/benefit and referral rates (Fig. 4)
- Consistent benefit of collaborative care in mental health outcomes and symptom improvement, satisfaction of patients, caregivers, and providers, and improved targeted treatment (Fig. 4). Symptom improvement included:
  - Reduced externalizing behavior
  - Reduced hyperactivity
  - Reduced internalizing symptoms
  - Reduced parental stress and parent-child dysfunction
- Improved targeted treatment included
  - improved accuracy and evidence based practice
  - earlier initiation of targeted therapy
  - greater perceived practice skill among providers
- Younger children had different symptom reporting and referral rates than adolescents[5]
- Insurance effected caregivers’ perception of collaboration between providers[6]
- Availability of child adolescent psychiatry referral improved screening rates but decreased accuracy of mental health diagnoses by primary care providers[9]
- Child psychiatry consultations were frequently requested[4] and attended[2]

Collaborative Care Cost Analysis

Cost Category	Collaborative Care ($)	Enhanced Usual Care ($)
Initial Training		
Trainer	695.50	374.50
Case Managers Trained	2346.24	1263.36
Training Manual	26.00	14.00
Pediatricians trained	1818.00	n/a
Outreach and Communications		
Brochure	900.00	900.00
Initial Equipment		
Computer	2200.00	2200.00
Clinical Intervention		
"Back up" by Part-time Psychiatrist	1950.00	1050.00
Service Supervision and Quality-monitoring by part-time nurse	3609.60	1082.88
Intervention Preparation		
Screening/Intake	9384.96	9024
Psychoeducation	1804.80	1082.88
Paperwork	15882.24	10106.88
Intervention-service provision	41086.27	14544.71
Total Costs	**81703.61**	**41643.21**
Number of Children Enrolled	160	161
Number of Children Treated	157	70
Cost Per Patient Treated	**520.41**	**594.9**

Table 1: Cost Analysis. This table was adapted from the paper by Yu et al (2017) which was a cost analysis of the RCT by Kolko et al (2014), both included in this literature review. Enhanced Usual Care was used as a control group and consisted of psychoeducation with case management (CM) referral to a mental health professional and two-week follow-up by CM. Total cost of the two interventions is indicated in the table. Although the total cost was more for Collaborative Care, a greater number of children were treated for less money per child (highlighted in red).

Discussion

- Demographics showed approximately 50/50 male/female distribution with a larger amount of hispanic patients relative to other races represented across the literature review.
- ADHD, depression, anxiety, and behavioral disorders including Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) were the most frequently studied mental health diagnoses
- Results showed overall improvement in mental health outcomes, satisfaction, and targeted treatment demonstrating benefit for patients, families, and providers
- Cost-effectiveness was mixed. Insurance may play a role in cost effectiveness and accessibility of collaborative care[6]. Incentivizing reimbursement for collaborative care and reducing the unique costs associated with individual practice models may help expand collaborative care in the future.
- Other findings included earlier initiation of targeted therapy[10] and significantly increased remission rates of depressive symptoms at 12 months[11], demonstrating potential for reducing disease burden and long-term complications

Future research opportunities:

- Compare collaborative care benefits for specific mental health disorders
- Assess the unique barriers to collaborative care in younger children as compared to adolescents
- Examine the factors contributing to cost burden in some collaborative care models

Conclusion:

Collaborative care improves mental health outcomes and satisfaction of patients, parents, and providers. Targeted interventions could lead to improved accessibility and cost benefit. Further research is needed to assess collaborative care in specific patient populations.

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