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## Mental Health Resources for the Pediatric and Adolescent Populations in the Rural Setting

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## **Executive Summary**

### **Introduction**

There is a growing demand for mental health services amongst the pediatric and adolescent patient populations. The prevalence of major depressive episodes rose from 8.7% in 2005 to 11.3% in 2014 for children age 12-17 years old (Mojtabai et al. 2016). Despite the obvious need for mental health services, many youth do not receive the mental health services they need. Unfortunately, only 2% of children under 16 with a DSM diagnosis are seen by a mental health professional, and 75% are seen in the pediatric setting, a pediatrician or pediatric nurse practitioner were arguably the default mental health provider for this population (Husky, 2011).

Mental health care for children living in rural settings is even more challenging. There are unique stressors to living in rural areas for children and adolescents. Geographic isolation and lack of community resources present challenges to accessing screenings and treatment at large facilities. Pediatric patients in rural settings have limited access to mental health resources in their communities, which can lead to a failure to receive treatment and feelings of isolation. One pediatric primary care provider in rural Southern Illinois who sees a majority of the pediatric patients for two counties, acknowledged that many mental health providers do not accept Medicaid and there is a lack of nearby counseling services. These factors have created long wait times for pediatric psychiatry, counseling, and CBT services. This clinic prescribes medications for mental illnesses such as depression and anxiety but was looking for ways to increase access to CBT and counseling.

### **Literature Review**

Numerous studies have demonstrated the effectiveness of cognitive behavior therapy, alone or in combination with medications, for anxiety in pediatric patients. A systematic review of 111 studies conducted between 1967 and 2003 revealed substantial evidence to support the use of CBT as a first line treatment for pediatric anxiety (Charmaine et al., 2015). Guidelines for adolescent depression in primary care (GLAD-PC) in 2018 recommend psychotherapy such as CBT as the first line of treatment for depression (Cheung, et al., 2018). In cases of severe depression, combination therapy of CBT with antidepressant medications such as selective serotonin reuptake inhibitors, SSRIs, have proven effective over patients who were not taking medication (Cheung, et al.2018). While evidence supports counseling and cognitive behavioral therapy with or without pharmacologic management for treatment of anxiety and depression; obtaining proper treatment in a rural setting presents unique challenges such as a lack of resources, including access to trained staff, providers, and technology (Young, 2016).

Obstacles to an effective screening include lack of training, schedule limitations, issues with reimbursement, lack of information provided by parents or guardians, lack of access to specialized behavioral health services, and a reluctance by providers to diagnose (Husky, 2011). Research shows that the barriers to treating this patient population can be successfully overcome using alternative forms of CBT such as telehealth based CBT. Tele-based CBT has positive effects on children and adolescents and it can be especially beneficial in rural. Children and adolescents in today's generation have been raised in a technology rich environment, with most utilizing technology on a regular basis for school already. This form of cognitive behavioral health may appeal more to this age group.

## **Methods**

The goal of this project was to improve access to mental health resources for pediatric patients of one Midwest, rural, pediatric primary care clinic whose staff included a pediatrician/owner, a pediatric nurse practitioner, registered nurse, and certified medical assistant/office manager. The DNP project team researched smartphone applications that were designed to coach pediatric patients in CBT techniques. The team rated CBT applications based on cost, consistency with evidence-based techniques, ease of use, ability to be used on both iPhone and Android devices, and appropriateness for pediatric patients. Five smartphone applications were found to meet these criteria and detailed information was presented to clinic providers about these applications. The two providers selected Mindshift and Positive Penguins for this project.

Patients with significant scores on PHQ-9 or SCARED questionnaires were prescribed CBT homework. The project team designed CBT homework sheets that gave information on how to download the smartphone applications and begin using as a resource. The homework sheets gave step by step instructions to the patients for both Mindshift and Positive Penguins and the providers were given the opportunity to decide what assignments were the most appropriate. This project was determined by Southern Illinois University at Edwardsville to be a quality improvement project exempt from IRB review.

## **Evaluation**

The DNP project team received project data from the clinic via an excel spreadsheet accessible to both clinic providers. Data collected on the excel spreadsheet included patient age, initial date of service, diagnosis, SCARED score, PHQ score, CBT application prescribed, other interventions prescribed, compliance with CBT homework, follow up and post CBT application SCARED score. Providers and staff members were surveyed post project implication regarding

ease of use and participation in the applications. The survey asked opened-ended questions looking for limitations and areas for improvement.

This project was implemented from June of 2020 through September of 2020. A total of seventeen patients were assigned CBT application homework. The patients ranged from six to eighteen years old with the average age being twelve. All seventeen patients had an anxiety disorder diagnosis, with six patients also having a diagnosis of depression. Out of the seventeen patients, six of them were also managed with medication. Anxiety disorders represented were panic disorder (two patients), separation anxiety (five patients), oppositional defiant disorder (two patients), school avoidance (three patients), social anxiety (six patients), and obsessive-compulsive disorder (one patient). Patients twelve years old and under were assigned Positive Penguin or a combination of Positive Penguin with Mindshift. Patients over the age of twelve were assigned Mindshift. Pre-project patients' SCARED scores ranged from 26-71. The majority of the patient's scores were improved by two points, with as high as a nine-point improvement in scoring.

Of the seventeen patients prescribed CBT homework, approximately 65% completed their CBT homework: three completed Positive Penguin homework, and eight completed Mindshift homework. Majority of the patients were referred to counseling, while a small amount were already established with a counselor. Approximately 71% of patients returned for a follow up appointment. For the patients who did not complete the homework most of the excuses given related to forgetting to complete the homework, or not doing it unless prompted by their parent or guardian. Additionally, one patient lost his mobile phone privileges as a consequence for his behavior and another patient was overwhelmed with her responsibilities for school and additional homework caused her more anxiety.

Limitations of the study were sample size and lack of follow up. The COVID pandemic also created challenges by limiting the number of patients seen in the time frame, and those who showed up for follow up appointments. Another limitation of the study was narrowing of mobile application choices. With a longer timeline, it could have been more plausible to find an application better suited to some of the patient's needs. Some of the patients found the applications too time consuming. Finding an application that was interactive but also short and easy to complete may help improve compliance.

Common themes found in the staff and provider surveys included inconstant homework completion and inconsistent follow up with patients. Some of the staff also felt that one of the applications was slightly cumbersome. The instructions for use need to be simplified and include rationale for why they work. This information will be helpful for further use of the applications in the clinic and for additional projects related to this project.

### **Impact on Practice**

The immediate impact on this rural clinic site was the ability to get patients involved in CBT while waiting to see a counselor. Parents of the children who utilized mobile CBT applications are now more aware of tools that they can utilize while at home in between appointments, or during a particularly difficult time. Using CBT applications at home in adjunct with other traditional interventions for mental health disorders can lead to an increased knowledge in patients on how to cope with their emotions. The clinic intends to continue to prescribe CBT application homework to the patients.

Moving forward, making the CBT homework easier to follow could increase patient compliance. Finding applications that are easy and enjoyable, and perhaps less time consuming than the applications picked for this project may also increase patient compliance.

Approximately 35% of the patients did not complete the homework, some due to not being able to keep up with it. It is also important to gain buy in from the parents or guardians. Some of the feedback from the study was that the homework was only completed when the guardians reminded the patient to complete it. Having the guardians buy in could help increase patient compliance.

## **Conclusions**

For the patients who completed the homework, and returned for follow ups, their SCARED or PHQ-9 scores were overall lower. The clinic plans to continue using CBT applications as homework once some adjustments are made to better meet their needs. Now that zoom and telehealth visits are more mainstream due to COVID, implementing zoom telehealth visits with therapists for CBT may be more beneficial. Utilizing mobile applications could still be used as homework to adequately work through acute emotions in addition to discussing them with a provider at a scheduled session. This also gives the provider the opportunity to reflect with the patient on the experiences logged in the application. Mobile CBT applications can be useful for pediatric patients with psychiatric diagnoses as an adjunct to traditional therapies.

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