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School-based Telemental Health and Family Psychoeducation: A Program Evaluation

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School-based Telemental Health and Family Psychoeducation: A Program Evaluation

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Table of Contents

Abstract	3
Introduction and Background	4
Problem Statement	7
Review of the Literature	7
Theoretical Framework	14
Methods	17
Measurement tools	19
Data Collection Procedure	21
Data Analysis	22
Ethical Considerations/Protection of Human Subjects	23
Results	24
Discussion	34
Limitations	35
Conclusion	36
References	37
Appendices	43
Appendix A Theoretical Model	43
Appendix C- PHQ-9	44
Appendix D –GAD 7	45
Appendix E-PROMIS	46
Appendix G-CGSQ	48
Appendix H- Teen satisfaction survey	50
Appendix I- Parent satisfaction survey	55
Appendix J- Letter from organization	60
Appendix K- IRB approval	61

Abstract

Background: Telemental Health has been established as an effective model of care in the adult population. There are few studies that addressed the effects of providing child and parent telehealth services in underserved communities where mental health services are sparse. Families who attend face to face mental health support report high levels of satisfaction, show increased knowledge about mental illness/treatment, and youth have a lower risk of relapse.

Purpose: The purpose of this DNP project was to evaluate an innovative Telemental Health model offering timely social/behavioral health support for children/families' mental health services in rural Massachusetts.

Methods: Performance indicators were collected monthly to assess progress and make program enhancements. Process evaluation included assessing technology functionality and patient parents' satisfaction. Project outcomes measured improvements in reported family communication, caregiver strain, and student clinical outcomes, based upon the following screenings and assessments: Patient Health Questionnaire-9 (PHQ9), Generalized Anxiety Scale (GAD-7) and PROMIS pediatric self-administered scale.

Results: Teens and parents were satisfied with the service quality of technology accessibility and convenience. Students noted increased communication with parents (94.1%), peers (88.24%) and teachers (82.3%). This included increased involvement in school (64.6). Teens who reported parent active involvement in the program showed higher percent of increased communication. Teen's clinical outcomes showed continuous improvement in mental health assessment scores.

Conclusions/implications: Families and caregivers are an integral part of their teens' care. Shortages of child and adolescent mental health in underserved communities are expected to continue. However, the rapid growth of reliable and affordable telecommunication technologies could effectively include family participation and improve clinical outcomes for children and their families.

Keywords: Telemental Health, Children and adolescents, Families, Program evaluation

Introduction and Background

Nearly one in five children have a mental health concern (National Research Council and Institute of Medicine [NCIM], 2009). Early diagnosis and treatment provides long term benefits. Only about 20% of children with mental, emotional, or behavioral disorders receive care from a mental health practitioner (Martini et al., 2012). In 2016, only 41 percent of the 3.1 million adolescents who experienced depression within the past year received treatment (U.S. Department of Health and Human Services [DHHS], 2017).

Only about 8,300 child and adolescent psychiatrists practice not being able to cover over 15 million children and adolescents with mental health needs (American Academy of Child & Adolescent Psychiatry [ACAP], 2016). Mental health practitioners work mostly in cities while many families with mental health needs live in rural areas. This creates disparities in mental health access. Families cannot find mental health care because of limited availability of providers in their area leading to long waiting lists (Center of Disease Control [CDC], 2018).

This service gap is expected to grow (Gloff et al., 2015). The current reality calls for innovative measures. Telemental Health is a technological modality in which child and adolescent mental health services can be expanded and provided to close the growing service gap for children and their families (Nelson et al., 2017).

The state's Medicaid program, MassHealth, announced in January 2019, that members can use an audio-visual virtual care platform to access a therapist, psychiatrist or substance abuse counselor. This expands access to needed behavioral healthcare for about 1.9 million state residents who might not be able to seek in-person care (Wicklund, 2019).

This DNP project evaluated the process and outcomes of an innovative program implementing Telemental Health in a remote Massachusetts rural area with children and their families. Tele Health was developed to provide access to services to geographic areas that have a

deficit in providers. Tele Health can be also implemented to overcome barriers related to mental health services (Comer & Mayers, 2016). Tele Health has been successfully implemented in medical offices and health clinics and schools (Nelson et al., 2003). Children and adolescents may be more comfortable with the videoconferencing interface because they are more likely to have used this method in their everyday communicating with their peers (Nelson & Bui, 2010).

Telemental Health is a remote specified Tele Health mental health service. It too can offer an approach to overcome geographic disparity in access to child and adolescent mental health services. Tele psychiatry was one of the first Telemental Health applications.

Videoconferencing allows the client and the practitioner to communicate while observing each other, similar to the in face-to-face traditional therapy. The ability to see the client and the client to see the practitioner via videoconferencing promotes familiarity, presence and observation of non-verbal behaviors. Mental health practitioners that used Telemental Health reported competence and comfort with videoconferencing practice compared to counseling via the phone (Bouchard et al., 2004).

Tele psychiatry can include medication management over video conferencing augmenting face to face meeting. Recent research demonstrated the effectiveness of Telemental Health for youth and family satisfaction with the use of Telemental Health delivered to familiar settings, including primary care settings (Myers et al., 2008; Hilty et al., 2013) and home settings (e.g., Comer et al., 2014). Although providing mental health while teleconferencing is a fast-growing field there are only a few randomized control trials to support the efficacy of this practice among children and adolescents.

Most studies have described the feasibility of a Telemental Health program (Goldstein & Myers, 2014). Most of those studies concentrated on Attention Deficit Hyperactivity Disorder (ADHD). ADHD is one of the most common child and adolescent mental health diagnoses.

ADHD is equally distributed geographically, yet mental health services are not, especially with regards to rural areas, ethnic and racial minorities (Palmer et al., 2011). Many of the ADHD cases are treated through the primary care physician-the pediatrician (PCP). Guidelines were developed for PCP's but they are not widely implemented and therefore the treatment is suboptimal (Epstein et al, 2013).

Research primarily investigated the use of Telemental Health to support PCPs in delivering pharmacotherapy to children with mental health conditions (Xie et al., 2013). Very few researchers have randomly tested the efficacy of Telemental Health directly with children and adolescents with ADHD and their parents. One of the studies, the Children's ADHD Telemental Health Treatment Study (CATTs) compared outcomes for adolescents and their parents who received treatment through a hybrid telehealth service delivery model to services via traditional model. The hybrid service model used video conferencing with a psychiatrist and in-person services from a community therapist. Remote training and supervision was conducted using Telemental Health. The study found that although there was observed improvement in both types of services, the adolescents received Telemental Health service model improved significantly more (Myers et al, 2015). In addition, the parents of the adolescents showed improved scores (stress and strain scales) above the comparison group (Vander Stoep et al., 2017).

In a feasibility study by Sibley et al. (2017), 20 adolescents and parents received evidence based videoconferencing therapy that incorporates skills building combined with motivational interviewing for controlling ADHD symptoms. The videoconferencing was doable and families reported high satisfaction. The families reported established therapeutic alliance and behavioral change motivation by the adolescents. Therapists reported that videoconferencing enhanced treatment reductions in ADHD symptoms. Nelson et al. (2012), chart review in a clinic

implementing Telemental Health showed high fidelity to American Academy of Pediatrics (AAP) guidelines for ADHD

Problem Statement

The prevalence of mental illness and the need to expand mental health services to children and families is an emergent need. Rural and remote areas in particular face significant challenges, as rural populations may experience higher levels of stress than those in urban centers. Travel to service locations will involve high cost and loss of school days and parent working hours. Telemental Health is an innovative, effective and cost-efficient method for addressing the gaps in mental health care (Myers, 2019).

School based Telemental Health can provide accessibility and capacity for many students who would be unlikely to reach traditional community mental healthcare because of barriers such as transportation and healthcare coverage (Stephan et al., 2016). To date, research projects that applied synchronous Telemental Health that use videoconferencing to deliver real-time treatment between therapists and families is relatively small and related to limited mental health disorders (Carpenter et al., 2018). There are very few evaluations of Telemental Health in schools that expand its services to parents as partners in their child's mental health and as a support for families (Stephan, et al., 2016).

Review of the Literature

An integrative review was completed to identify the impact of synchronous Telemental Health support to teens and their families on access to mental health care access and outcomes. The aim of this integrative review was to explore family's experiences of engagement in Telemental Health within children and adolescent mental health services. Specifically, it attempted to answer the question: a) Is Telemental Health beneficial in the support for family members of children and adolescents compared to face to face interaction? b) Does Telemental

Health with family support positive outcomes among children and adolescents? c) Does Telemental Health with families provide a feasible intervention? d) What were the barriers and enablers to implement Telemental Health with families of children and adolescents?

Search Strategy

Inclusion criteria included: 1. Original research articles 2. Articles including family involvement in the treatment or training via Telemental Health. Family active involvement was defined inclusively as any process allowing health professionals and families to actively collaborate in care planning, training or support such regarding child or adolescent mental health using a Telemental Health interphase. Excluded were the following: Systematic reviews; papers solely on children and adolescents; research studies not reporting clear information on how families were involved or did not include Telemental Health interphase; self-administered training and behavioral intervention technologies with minimal or without a therapist support via Telemental Health, or Telemental Health programs that only augment face-to-face services conducted in the clinic; papers published in languages other than English. Also excluded were theses or dissertations, books and book chapters, conference proceedings and abstracts. Papers were not excluded on the grounds of methodological quality because of the limited number of research studies.

A comprehensive search was undertaken to locate peer reviewed literature in databases including Medline, CINAHL, PubMed and the Cochrane Library. Key subject words used were: *Internet Delivered Video Conferencing, Telemental Health, Child and adolescent, Parents, Families, Caregivers* and the results were limited to the years 2013–2019. In addition, a manual search was conducted of articles in the reference lists of the articles identified to identify additional relevant studies. After duplicates were removed, titles and abstracts were screened for relevance based on the inclusion and exclusion criteria. Research articles that met eligibility

criteria were obtained in full text. Full-text papers were screened for relevance. The initial search returned 23 articles, in addition 5 more articles were found through the reference list. Peer-reviewed articles that fit the inclusion criteria were included in the analysis. Following this process, 12 studies were included in the analysis.

Assessment of Methodological Quality

Papers selected for review were evaluated using the Evidence Appraisal Tools from the John Hopkins Nursing Evidence-Based Practice Model (Dearholt & Dang, 2012). Papers were not dismissed due to low methodological score because of the sparse number of publications that fits the inclusion criteria. There is a little variability in range in the quality of evidence rating most of the papers in this review BI. Although randomized assignment, the studies were rated Level IB because it lacked a sufficient sample size and had the potential for bias.

Two of the research studies based on a RCT were the highest rating of Level IA due to its randomized control trial study design, rigor, sufficient sample size, and use of reliable and valid measures (Tse et al., 2015; Myers et al., 2015; Rockhill et al., 2013). Two research articles were rated Level IIB because of their quasi-experimental study designs that lacked randomization, a control group, had a high risk of bias, and/or lacked a sufficient sample size (Comer et al., 2017; Reese et al., 2015).

Data were extracted on authors, year of publication, mental health problem addressed, study type and methods, data collection procedures, how TMH was used with parents or families, benefits and outcomes of Telemental Health to children and to parents and families, cost effectiveness, barriers and enablers and authors' views about the limitations of their study.

Results

A total of 12 studies were selected for this review which included synchronous parent inclusion of Telemental Health Most settings were in rural areas bridging the gap of services.

Two studies described results from the same intervention project that was conducted in Miami Florida and Boston Massachusetts (Comer et al., 2017; Carpenter et al., 2018) where participants were recruited from university affiliated clinics for the purpose of looking at family training in cognitive behavioral therapy.

Studies in this review were limited to the mental health disorders: ADHD, Disruptive Behavior Disorders (DBD), anxiety and Autism. In addition, studies provided TMH support to children and their families with cancer. Three studies reported results related to a randomized controlled trial in underserved communities in Washington Oregon (Tse et al., 2015; Myers et al., 2015; Rockhill et al., 2013) looking at the effectiveness of delivering treatments for ADHD to families residing in their home communities using distant technologies.

Xie et al. (2013), also looked at interventions with parents with ADHD. They reported results from a randomized controlled trial on the effectiveness of videoconferencing on developing parenting skills. Three different studies were conducted in Australia. Two articles reported results from a study investigating the use of TMH with parents of cancer survivors implementing an evidence based program named CASCADE (Cope, Adapt, Survive, Life After Cancer) (Cohn, 2016; Wakefield et al., 2016). The studies looked at acceptability and feasibility and outcomes. The studies reported a randomized controlled trial of Internet-delivered parenting program for prevention and early intervention of anxiety problems in young children (Morgan et al., 2017).

Hepburn et al. (2016), reported results from a quasi-experimental study to examine the feasibility and preliminary efficacy of a telehealth of an evidence-based approach to anxiety intervention for families with youth with Autism Spectrum Disorder (ASD). Most studies used a randomized trial with the exception of two studies who conducted a pre-post design (Comer et

al., 2017; Reese et al., 2015). Studies used a variety of measurement tools to assess the effects on parents.

Outcomes of interventions and comparison to traditional services. Children's clinical outcomes are directly related to parent outcomes. The results will summarize children and parent outcomes from synchronous Telemental Health.

Children's clinical outcome. Clinical outcomes for children participating in the different studies were positive although not always sustainable. Measurements included improved children's symptoms based on the disorder studied. Comer et al. (2017) concluded that 70% of the children with DBT improved at the end of the intervention and in addition the improvement was sustained 5 months later (55%). The rate of treatment success was higher than face to face clinic based intervention. Carpenter et al. (2018), Also observed sustained results of decrease in anxiety among children 3-month post intervention. An additional paper by Comer et al. (2017), looking at improved symptoms of OCD with Telemental Health results showed parent reported improvement for child behavior and parent functioning.

Parents outcome. Overall parents reported high satisfaction of Telemental Health intervention. Parents were satisfied with the intervention content, delivery method, and alliance with therapist. In the research study about Telemental Health and autism 92.9% of parents reported high satisfaction. (Hepburn et al., 2016).

The interventions were time and cost saving. Both Parents and children felt comfortable being treated in their own environment (Comer et al., 2017; Reese et al., 2015). Parents also reported less barriers therefore for their participation (Comer et al., 2017). In the articles that reported results from the ADHD trail comparing between Telemental Health group and face to face intervention caregivers in both groups reported comparable outcomes for their children's ADHD-related behaviors and functioning (Tse et al., 2015; Myers et al., 2015; Rockhill et al.,

2013; Xie et al., 2013), but caregivers in the tele therapy group did not report improvement in their own distress (Tse et al., 2015; Myers et al., 2015; Rockhill et al., 2013; Reese et al., 2015).

It is important to note that parent assessment at baseline showed a high level of prevalence of comorbid conditions, functional impairment and caregiver distress (Rockhill et al., 2013). Cohn's 2016 article noted an additional benefit to parents. Parents noted they enjoyed talking to other parents.

Feasibility and barriers. All studies found Telemental Health for training or interventions with parents and families to be highly feasible as long as there is adequate technical support. High bandwidth video conferencing connections are essential for the success (Myers et al., 2015). Acceptability of Telemental Health by parents was overall high. There were some concerns with usability related to the technology that was challenging for some families and impacted some sessions (Hepburn et al., 2016; Wakefield et al., 2016).

Most of the studies reported setting up a special technology support team to take care of the challenges as soon as they occur. Overall families were highly engaged in the Telemental Health sessions. Yet, Carpenter et al. (2018) and Hepburn et al. (2016), noted in their findings that parents seemed distracted during sessions and had to take breaks to attend household chores suggesting Telemental Health flexibility may inadvertently allow for a less structured experience that interfered with parents truly being "present".

Limitations. Although a large number of studies reported randomized trials the sample size of the participants (parents and children) was relatively small (n= 13-33, families and their children). One exception was the articles related to the randomized controlled trial for children with ADHD and their families that had 223 participants (Tse et al., 2015; Myers et al., 2015; Rockhill, et al., 2013). Two articles reported pre-post design with no randomization (Comeret

al., 2017; Reese et al., 2015). Generalizability was another limitation due to sample size, social class differences to the general population and less diverse participants.

Synthesis Discussion

This review included 12 papers presenting research supporting parents of children with mental health disorders with Telemental Health services. The services provided were mainly training, but also counseling and peer to peer support. All papers supported the feasibility of the studies, but did not discuss the cost effectiveness of the service. The emphasis was on the accessibility, time saving on driving to a service and cost saving to the parents. Most of the studies included random assignment, but the sample size was small and did not allow complex analysis.

Overall patient outcomes were equal or above the traditional in clinic method. Recruitment sites were in the community or hospital clinic. None of the studies delivered the services via a school. Most of them were in remote or limited service areas. Parents reported improvement in their children's behaviors, but not in their own distress. They also expressed high satisfaction with the services provided, but also missed the personal touch of the face to face visit.

Technology overall was feasible, but required preparation and system support. Parents did have technical difficulties that were resolved with support. Barriers included challenges with technology and parent being distracted by home chores that interfered with the sessions. Results from this review supports implementation and evaluation of Telemental Health services through a school system.

Based on the literature review of the existing research on Telemental health this project focused on a formal program evaluation of an ongoing synchronous Telemental Health intervention with children and families with collaboration with the school system in rural

western Massachusetts. This one year program was funded by Blue Cross Blue Shields special initiative Grant.

Theoretical Framework

Program evaluation is a systematic method for data collection and analysis to evaluate a program effectiveness, accessibility feasibility and effectiveness by looking at positive outcomes for the patient. Health services research examines how people get access to health care, the care costs, and the outcome of the service. When evaluating health care services evaluation of quality of care and patient safety are essential. (Khoja et al., 2013; Rowley at al., 2008).

Telemental Health services are complex compared with traditional on-site mental health services. Therefore, evaluation for Telemental Health can also be complex. There is a wide choice of measurements (input and outcome) to consider. In addition, the human factor such as stakeholders play an important part in the evaluation. (Chang, 2015). A broad model considers the structure, processes, and outcomes of a service. Structure measures cover the accessibility, availability, and quality of resources; process measures can include the delivery of health care services by clinicians and providers; and outcome measures assess the outcome of the service.

It's important to note that there are multiple variables that can affect outcome for the patient including environmental and behavioral factors (Chang, 2015). DeLone and McLean 2003 model is an example of an all-inclusive model. It considers the structure together with the quality of information and system, process measures with system use and user satisfaction, and outcome measures with individual and organizational impact (Appendix A figure 1). This DNP project used components of DeLone & McLean (2003) model for the project program evaluation.

Process evaluation included assessing the structure: technology, accessibility, capacity (individual encounters and groups). Process evaluation measured students and families access to Telemental Health services by school-based encounters. The encounters (group or individual) via

Zoom were quantified. The process and outcomes goal of this evaluation was demonstrated by satisfaction and the improvements in clinical outcomes and functional performance of students with social-emotional problems. Patient/family satisfaction included ratings for: 1) levels of overall satisfaction; 2) technical quality and ease of using the tele-Zoom platform 3) reported increase in family and school engagement.

The goal of this program evaluation was to assess how increased access to behavioral health services for students and their families improved mental health outcomes. The program offered tele-behavioral health in individual, family and group sessions. The goals of the program evaluation included assessing whether Telemental Health for children and their families are accessible, feasible and have positive outcomes for the teens and their parents. Specifically, it evaluated elements in the process and outcomes of this program based on DeLone & McLean (2003) model (Delone, 2003).

Outcomes were measured by the improvements in clinical outcomes and functional performance of students with social-emotional problems. It measured improvements in family problem solving and communication skills and student clinical outcomes, based upon the following evidence practice screenings tools and assessments: Student-Reported Outcomes Measurement Information System (PROMIS Global Health Questionnaire), Patient Health Questionnaire-9 (PHQ9), Generalized Anxiety Scale (GAD-7) compared to baseline. Parents participation in the program was measured by improvement in caregiver strain as evident by the caregiver strain questionnaire score compared to baseline.

Gap Analysis- Expanding access to mental health services for youth, has been an identified need in regional assessments. The assessment findings were that the hospital has the only inpatient mental health unit in the region serving ages 16+ and is often at capacity. Inpatient care for youth < 16 is available only outside the area; post inpatient therapy appointments

are over 7 days, and 6-8 weeks for psychiatry. Child psychiatry is very limited. In 2017 over 55% of discharges from the hospital emergency department, ages 5-18, had ongoing mental health issues. A youth in the emergency department can wait 4-6 days for placement, often causing premature discharge by their families.

The target population for the project evaluated were adolescents from a regional Middle and High School and their families/caregivers. This school was identified because of academic/behavioral health indicators. The district is largely white, but the Latino student population increased 200% from 2010-2018, much more than the 29.9% increase statewide. Compared with the state, the area has a lower graduation rate (84.3%vs 88.3%) and a higher dropout rate (6.7%vs 4.9%). 37% are high needs students (economically disadvantaged, English Language Learners, or disability) and about 36% of the student population is Medicaid eligible.

The Special Education Department has 25 students and their parents identified with an Individualized Education Program for an emotional disability. School Adjustment Counselors average 8-12 students/day for counseling needs and there is a delay addressing some students due to the volume that exceeds the number of staff available. About two to three students/month first go to the school nurse with mental health issues before seeing anyone in the Guidance Department.

Students present with a range of symptoms: panic attacks, cutting, lying, anger, poor grades, sleeping issues, fears, poor hygiene or poor social skills. More than half of the students had experienced trauma, often related to physical/emotional abuse, unstable housing, domestic violence, divorce, or parent drug use.

Last year at the school 15 students were sent out for emergency screenings with approximately 21 students have been screened at a moderate to severe level of crisis during the school year by either voicing suicidal ideation or attempting suicide. Substance Abuse, drug and

alcohol use is an issue at the high school. From SBIRT screenings, 16% of middle and 20% high school students indicated using drugs and/or alcohol to relax, fit in, or feel better about themselves.

Methods

This DNP project consisted of a program evaluation of an innovative School-based Tele-behavioral and Family Psychoeducation program funded by Blue Cross Blue Shield health special initiative grant. This program evaluation focused on a Telemental Health innovative model. This innovative model offered social/behavioral health support and therefore bridged gaps of care for children and their families in a community in need. A major hospital that serves an economically depressed, rural area with limited mental health services was the grantee of the project.

School-based Tele-behavioral and Family Psychoeducation (Tele-BH and FP) shifts the traditional model of treatment from isolated medical settings to the community where it can reach children/families in a convenient familiar setting. Zoom, a secure video conferencing platform, was implemented to provide: 1) individual therapy for students in school; 2) behavioral family management and; 3) group meetings accessed remotely.

Initially, families met alone with the therapist with the intention to progress to multifamily groups emphasizing connecting with and learning from one another. The service model overcame existing barriers and fills service gaps inherent in the rural area. It kept students and parents from missing school or work while accessing mental health care. The delivery of behavioral health services was provided by Master's level educated licensed and credentialed clinicians providing clinical sessions via live video counseling between the designated clinician and the individual students/parents at the school. Based on the screening and assessment, the

type and frequency of the services included: psychotherapy, family therapy, and short family consultation.

In 2017, the Health Policy Commission funded the local hospital in Western Massachusetts to pilot Telemental Health services in the School District. The project had positive outcomes including increased behavioral health care access by 10%, reduced acute care crisis in the schools by 10% and reduced emergency department mental health visits by 20%.

This project evaluated the goal to expand the Telemental Health counseling (currently only provided to students) to include Tele-Family Psychoeducation and consultation options, an evidence-based practice that provides education and guidance to families coping with mental illness. Families who attend FP programs report high levels of satisfaction, show increased knowledge about mental illness/treatment, and youth have a lower risk of relapse. Using video conferencing, the evaluated project provided individual FP and group meetings so families can access services from home.

The project evaluated is a multi-organization collaboration where each organization has a designated role. **The hospital** has an oversight of all programmatic activities and communication with partners including identification and coordination of training. **Clinical Telemental Health Hub-** Participated in bi-monthly meetings. It provided telehealth behavioral services such as: diagnostic evaluation, psychotherapy, family therapy, family consultation, and attempted multifamily groups. In addition, the organization followed up with the patient in person or by phone as needed; Contribute data for process and program evaluation; Disseminate program results and advocate for policy and reimbursement changes to support telehealth model. **Spoke site: Regional high & middle schools** participated in bi monthly meetings. It provided space for school-based community health worker and Telemental Health counseling; The

community health worker educated students and parents about the offered services; Provided referrals for services; Contributed data for process and program evaluation.

Technical assistance: telehealth resource center. Advised on the program development, evaluation, scaling up and sustainability; Provided resources and connections to other telehealth programs.

A summary of the Telemental Health project in the area is provided in the link below

<https://www.facebook.com/MAHealthHosp/videos/909153616095882/?v=909153616095882>

Project evaluation included access, satisfaction (service and technology), reported improvements in family communication, school involvement, parent burden and student clinical outcomes. Specifically scores from the following screenings and assessments: Patient Health Questionnaire-9 (PHQ9), Generalized Anxiety Scale (GAD-7), PROMIS pediatric self-administered scale was administered by the clinicians' and available to the evaluator from the secure data set.

Measurement Tools

Patient Health Questionnaire-9 (PHQ9). Is the most common evidence based screening tool to identify depression. It is available in Spanish, as well as in a modified version for adolescents. The internal reliability of the PHQ-9 Cronbach's α of 0.89-0.86 in different settings (Kroenke et al., 2001). This questionnaire was administered at baseline and every 4 weeks until 12 weeks were achieved (Appendix C).

Generalized Anxiety Scale (GAD-7). (Spitzer et al., 2006) is a 7-question screening tool that identifies whether a complete assessment for anxiety is indicated. The 7-item anxiety scale has reported good reliability, as well as criterion, construct, factorial, and procedural validity. The internal consistency of the GAD-7 is strong (Cronbach $\alpha = .92$). Test-retest reliability is good as well (intraclass correlation = 0.83). Construct validity was demonstrated by the fact that

increasing scores on the GAD-7 scale were strongly associated with multiple domains of functional impairment. Furthermore, there was a strong association with self-reported disability days and a modest association with increased health care use. This questionnaire was administered at baseline and every 4 weeks until 12 weeks were achieved (Appendix D).

PROMIS pediatric self-administered scale. The Patient Reported Outcomes Measurement Information System (PROMIS®) is a National Institutes of Health (NIH) Initiative created to advance the assessment of patient-reported outcomes (PROs) in chronic diseases. The PROMIS Pediatric Cooperative Group has developed pediatric self-report item banks with several items for ages 8–17 years across five generic health domains (physical functioning, pain, fatigue, emotional health, social health) (Varni et al., 2014). This questionnaire was administered at baseline and every 4 weeks until 12 weeks were achieved (Appendix E).

The Caregiver Strain Questionnaire (CGSQ). Caregiver questionnaire originated in the gerontology field. Several variations and adjustments have been done for the tool during the years and adjustment to fit caregiving for specific disorders. Several research projects have adopted the caregivers tool for the use of measuring caregiver strain in parents with children with mental illness disorders (Brannan et al., 1997; Vaughan et al., 2013). The CGSQ is a 21 item self-report questionnaire designed to measure three dimensions of caregiver strain: objective strain, subjective internalized strain, and subjective externalized strain.

Objective strain refers to observable consequences resulting from caring such as missing work or financial difficulties. Subjective internalized strain refers to the degree to which the caregiver experiences internalizing related strain such as worry or fatigue. Subjective externalized strain refers to the experience of anger or resentment toward the child resulting from the caring experience.

The objective strain scale consists of 11 items. The subjective internalized and subjective externalized scales consist of 6 and 4 items, respectively. Higher scores in each dimension reflect more strain (Brannan et al., 1997). In a sample of caregivers receiving Medicaid (Taylor-Richardson et al., 2006), reliability alpha coefficients were .93 for the objective strain scale, .93 for the subjective internalized strain scale, and .78 for the objective externalized strain scale. Internal consistency alpha coefficients for the sample in the current sample were .91 for the objective strain scale, .83 for the subjective internalized strain scale and .75 for the subjective externalized strain scale. This questionnaire was administered at baseline before treatment (Appendix F).

Parent and patient satisfaction questionnaires. Developed by the DNP student in collaboration with the grantee team was available to the students and parents through an email including an anonymous link to an online survey (Appendix H, I). The surveys asked about accessibility, ease of use of technology, student/parent satisfaction with clinician/group sessions, students engagement with family and school (Appendix H, I).

The Plan, Do, Check, Act (PDCA) framework guided this DNP project. In addition, the program evaluation component was based on DeLone & McLean (2003) adjusted model for Telemental Health.

1. Plan

Pre-intervention- During September to November evaluation objectives, measurement tools and procedures were discussed with the multidisciplinary team. In addition, an Excel database was created to provide data for evaluation. It included de-identified data only.

In September 2019, the clinical team and school administration notified parents of the opportunity to participate in the tele-behavioral health service and evaluation. Students and families were referred to the guidance office for behavioral health services.

During the initial screening and assessment, the clinical measures and functional improvement pretest measures were completed with the clinicians. The DNP student evaluator received access to the pre-test data via established procedures protecting patient and parent confidentiality via assigning an ID number to each patient.

2. Do

*During intervention-*The DNP student evaluator prepared time tracking reminders for the clinicians about data collection on clinical and functional outcome measures at periodic times during counseling. Initial data including demographic and travel time to the closest mental health clinic was entered into the ID assigned (anonymous) evaluation database by the clinicians and project manager ensuring patient confidentiality. Throughout the project and at the conclusion of treatment the clinicians added outcome data to the data set.

3. Check

During and at the end of intervention- Data analysis was conducted by the DNP student evaluator to determine process and outcome evaluation. During intervention satisfaction surveys guided adjustment of technology and procedures. At decided time points data was compared to the baseline and expected outcomes to evaluate progress and achievement of goals.

4. Act

Post intervention- Dedicated to finalize analysis and summary of the evaluation results. Results were presented to the grant team, key stakeholders for discussions of sustainability and implementation in additional schools.

Data Analysis

A secure project excel data set was provided to the DNP student evaluator. All quantitative independent variables were computed for and presented describing the participating teens in aggregate. Quantitative data from the patient demographics and background, patient

outcome scales, patient and parent satisfaction survey and parent caregiver strain index were compiled into an excel database and analyzed utilizing descriptive statistics. Patient outcome, satisfaction surveys and parent caregiver burden scale scores were compared against data from the baseline.

Ethical Considerations/Protection of Human Subjects

The University of Massachusetts, Amherst (UMass) Internal Review Board (IRB) approval was obtained prior to initiating the DNP Project. All participants were protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) which, among other guarantees, protects the privacy of patients' health information (Modifications to the HIPAA Privacy, Security, Enforcement, and Breach Notification Rules, 2013). The service provided to families and their children followed the Standards of Care for practice in a primary care office and school setting. All patient and family information used for this evaluation were presented as aggregated data and did not include any potential patient and family identifiers.

The risk to children and families participating in this project was no different from the risks of patients receiving standard mental health care. Participant confidentiality was assured by coding the participants using individual identification numbers. The list of participants and their identifying numbers were kept in locked filing cabinets at each practice office, only accessible to the project coordinators and therapists.

All electronic files containing identifiable information were password protected to prevent access by unauthorized users and only the project coordinators had access to the passwords. The evaluator (DNP student) had access to an Excel sheet containing de-identified data regarding the evaluation scales and general demographic data. In addition, the name of the school and the towns were not shared in any formal meeting.

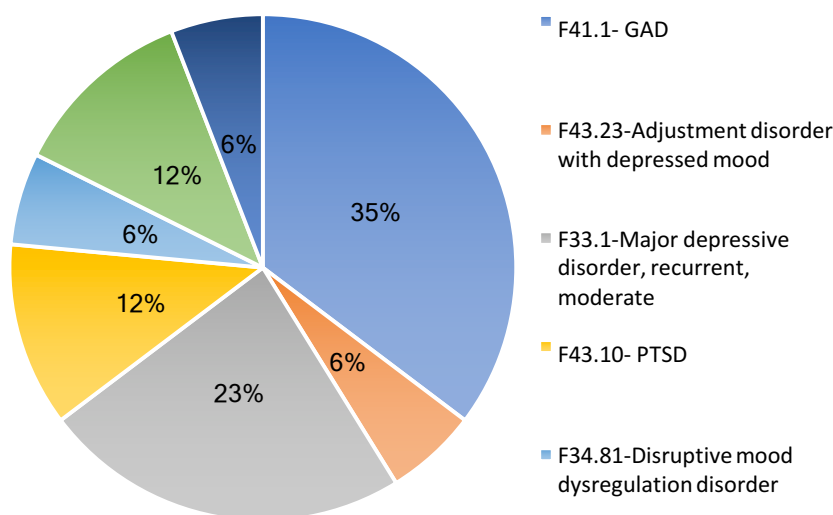
Results

From September to March 24 high-risk teens participated in a total of 379 therapy sessions in Telemental health counseling through the schools. The group consisted of 11 males and 13 females with ages ranging from 15-19 and an average age of 15.5. Ninety two percent were of Caucasian non-Hispanic origin, one teen was of Mixed Race Hispanic origin and the other was Black Hispanic origin. Fifty Four percent had their health insurance covered by Medicaid, and 50% had private health insurance.

Travel time to the next likely behavioral health site was nine miles. The teens were asked about the likelihood of traveling to a mental health service. Thirty eight percent replied minimal likelihood, 33% replied some likelihood, 29% replied moderate likelihood. Figure 2 presents the range of ICD coded diagnoses in the group surveyed.

Figure 2

Teen Participants ICD-10-CM Mental Health Disorders Diagnosis Code



The Major ICD diagnosis was General Anxiety Disorder (GAD) (35%). The second most common diagnosis was Major Depressive Disorder (MDD) (23%) (Figure 2). This data mirrors the most common mental health disorder in adolescents in the US. In the US GAD occur in

approximately 32% of 13- to 18-year-olds and MDD occurs in approximately 13 percent of 12- to 17-year-olds (US DHHS, 2019).

Teen Perceived Outcome

Teens were asked whether their relationship improved with teachers, school staff, peers and parents since starting the Telemental Health program. Table 1 presents the results for teen perceived outcomes related to relationship improvement.

Table 1

Teen Perceived Outcomes: Improved Relationships with Teachers School Staff, Peers and Parents

Statement	strongly agree		Agree		Disagree		Strongly disagree	
	%	n	%	n	%	n	%	n
Relationships with teachers	29.4	5	52.9	9	11.8	2	5.9	1
Relationships with other school staff who are not teachers	29.4	5	47.1	8	17.6	3	5.9	1
Relationships with peers	35.3	6	52.9	9	5.9	1	5.9	1
Relationship with parents	35.3	6	58.8	10	5.9	1	0	0

Ninety four percent of the teens reported improvement in the relationship with their parents. Improvement was reported also in relationships with teachers and school staff.

Social connectedness was measured by questions about school and class involvement, sense of belonging. Table 2. Presents teen perception about whether their connectedness to the school improved.

Table 2*Teen Reported Sense of Connectedness and Belonging to the School*

Statement	Strongly agree		Agree		Disagree		Strongly disagree	
	%	n	%	n	%	n	%	n
I'm more involved in school	17.6	3	41.2	7	41.2	7	0	0
I'm more connected to what is going on in classes	17.6	3	52.9	9	29.4	5	0	0
I feel a greater sense of belonging to the school community	11.7	2	52.9	9	35.3	6	0	0

Teens replies were split to whether their participation in the program improved their connectedness to the school. One of the measurement of interest was teen perception about improvement in their grades and school attendance (see Table 3).

Table 3*Teens Perceived Improvement in School Attendance and Grades*

Statement	improved a lot		Improved a little		Stayed the same		Gotten worse	
	%	n	%	n	%	n	%	n
My grades have improved	0	0	76.5	13	23.5	4	0	0
My attendance has improved	5.9	1	35.3	6	58.8	10	0	0

Teens reported their grades improved a little 76.5% (13), but their attendance stayed about the same 58.8% (10) (see Table 3).

Teens reported that they see value in the therapy sessions. They valued the attention and time “I value that someone takes their time to help me understand the steps I need to take to better myself. I value the care that is given to help me work towards my goals” (Teen). They

reported feeling understood and safe “*That I actually have someone I am comfortable to talk to about difficult things*” (Teen). They value “*having someone to talk to and not being judged*” (Teen).

Parents Involvement with the Telemental Health Program

When asked 59% (10) of the teens replied their parents are actively involved in the Telemental Health program. Comparing teen satisfaction surveys results between teens who reported active parent involvement to the teens that did not, showed that there was not much difference in overall satisfaction level and the ease use of the videoconferencing. Table 4 shows a comparison of teen perceived improved relationships between teens who reported parent active involvement to those who did not.

Table 4

Parent Involvement and Teen Perceived Improved Relationships with Teachers School Staff, Peers and Parents

	strongly agree		Agree		Disagree		Strongly disagree	
	No %(n)	Yes %(n)	No %(n)	Yes %(n)	No %(n)	Yes %(n)	No %(n)	Yes %(n)
Statement/ parents participation								
My relationships with teachers have improved	28.6(2)	30(3)	42.9(3)	60(6)	28.6(2)	0	0	10(1)
my relationships with other school staff who are not teachers have improved	28.6(2)	30(3)	42.9(3)	50(5)	28.6(2)	10(1)	0	10(1)
my relationships with other students have improved	28.6(2)	40(4)	57.1(4)	50(5)	14.3(1)	0	0	10(1)
my relationship with my parents have improved	14.3(1)	50(5)	71.4(5)	50(5)	14.3(1)	0	0	10(1)

Note: reported parents’ participation- yes, n=10; reported parents’ not actively participating- no, n=7

Regarding student perceived outcomes there was a slight difference between those teens who had parent's involvement to teens that had no parent involvement in the program. Table 5 shows the same comparison related top teen perceived connectedness to the school.

Table 5

Parent Involvement and Teen Perceived Connectedness to the School

Statement/ parents participation	strongly agree		Agree		Disagree		Strongly disagree	
	No %(n)	Yes %(n)	No %(n)	Yes %(n)	No %(n)	Yes %(n)	No %(n)	Yes %(n)
I'm more involved in school	0	30(3)	42.9(3)	40(4)	57.1(4)	30(3)	0	0
I'm more connected to what is going on in classes	14.3(1)	20(2)	42.9(3)	60(6)	42.9(3)	20(2)	0	0
I feel a greater sense of belonging to the school community	0	20(2)	57.1(4)	50(5)	42.9(3)	30(3)	0	0

Note: reported parents' participation- yes, n=10; reported parents' not actively participating- no, n=7

Similar to the difference in Table 4, was observed regarding school involvement.

Grades and attendance were similar for both groups.

Parents Perceived Outcome

Parents were asked whether their teen relationship improved with teachers, school staff, peers and parents since starting the videoconferencing program. Table 6, shows parents perceived relationship outcomes related to their teens.

Table 6

Parents Perceived outcomes: Relationships with Teachers School Staff, Peers and Parents

	Improved a lot	Improved a little	Stayed the same	Gotten worse
Statement	%	%	n	%
Relationships with teachers	16.66%	25%	3	58.33%
Relationships with other school staff who are not teachers	16.66%	41.66%	5	41.66%
Relationships with peers	16.66%	25%	3	58.33%
Relationship with parents	8.3%	50%	6	41.66%

Fifty percent of the parents stated that overall relationships stayed the same. Fifty percent of the parents noted that their relationship with their teen improved following the participation in the program. Table 7. Shows results to whether parents thought their teen connectedness with school improved since starting the program.

Table 7

Parents Perception Teen Connectedness to the School

	Strongly agree	Agree	Disagree	Strongly disagree
Statement	%	n	%	n
Teen more involved in school	9%	1	54.54%	6
Teen more connected to what is going on in classes	9%	1	45.45%	5
Teen feel a greater sense of belonging to the school community	9%	1	45.45%	5

Parents were split regarding changes in their teen connectedness. Close to 50% of the parents agreed there was an increased connectedness but around 40% disagreed.

In addition, parents reported their teen grades stayed the same 83.33% (10) and their attendance improved 25% (3) or stayed about the same 75% (9). When parents were asked about

their perceived stress level since the program started the parents replied that their stress level has reduced by “a great deal” 25% (3); “a lot” 16.66% (2); “Moderate amount” 25%(3); “a little” 25% (3); “not at all” 8.3% (1).

Teen and Parents Satisfaction Survey

Seventeen teens (71%) replied to the anonymous online satisfaction survey that asked about technology utilization. Fifty three percent (9) of the teens reported being very satisfied and 41% (7) reported being somewhat satisfied with the use of the video teleconference technology. When asked to compare video teleconference technology to seeing the provider in person 41% (7) of the teens reported video teleconference was better in some ways and 53% (9) reported that the experience was just as good.

Teens felt they could express themselves and accomplish the same goals. They felt comfortable with the technology and *“It’s easier to talk through a computer if you’re shy”*. Teens found it less intimidating: *“Talking over video makes me feel less pressured than if they were in the room with me”*. Teens reported they could see and hear the therapist well and the technical assistance was sufficient (64.71% strongly agreed; 35.29% agreed). They understood the reason for therapy and goals for treatment (64.71% strongly agreed; 35.29% agreed) and felt safe during the sessions (53%% strongly agreed; 47% agreed). When teens were asked if they had suggestions for improvement they were very satisfied by how it was *“I think that this is the best It can be, I love the way it is now”*. Some stated they would have liked more therapy time.

Parents were asked the similar questions their children were asked to allow comparison. Because of the need to protect anonymity parents’ reply could not be linked to their children and will be presented as a separate group. Twelve parents replied to the satisfaction survey. Two of the parents did not actively participate in the Telemental Health program.

Ninety two percent (11) of the parents reported being very satisfied and 8%(1) reported being somewhat satisfied with the use of the video teleconference technology. When asked to compare video teleconference technology to seeing the provider in person 58% (7) of the parents reported video teleconference was better in some ways and 42% (5) reported that the experience was just as good. Parents felt also that their teens felt comfortable with the technology: *“Our child likes it this way and it is in her own comfortable environment”* (parent) and *“Kids are used to communicating with people thru screens, it's no different for them”* (parent). Parents commented that this service model saved significant travel time and *“It allowed me to participate in counseling without leaving home. A time saver for sure! Normally a one hour session would take up at least two hours of time with travel”* (parent).

Parents noted the benefits of availability and flexibility of video teleconferencing *“I would say that it was better because doing it by videoconference allows for more flexibility with schedules and other responsibilities I may have at that time”* (parent). Parents reported they could see and hear the therapist well and the technical assistance was sufficient (64.71% strongly agreed; 35.29% agreed). Parents reported they and their teens understood the reason for therapy and goals for treatment and felt safe during the sessions (92% strongly agreed; 8% agreed). When parents were asked if they have suggestions for improvement they noted they would have liked more therapy time available.

Parents Care Giver Strain

Due to low parent participation comparing parents' caregiver strain from baseline to 12 weeks of treatment was not feasible. Baseline caregiver strain measured by average score showed that 12 participating parents had a mean score of 2.54 (SD 1.076) which is considered medium strain. One of the questions in the satisfaction survey inquired about perceived reduction

in stress since their child started the program. Twenty five percent (3) replied a great deal; 17% (2) a lot; 25% (3); 25% (3) a little; 8% (1) not at all.

Parents Synchronous Participation

This project reached out to teens and their families. Teens were evaluated through the school that acted as a facilitator. Once the teens were active in the program, and rapport was established with the clinician, efforts were made to initiate family therapy. The purpose was to involve parents with synchronous participation in the mental health care of their children. A total of 3 families participated in family therapy with a total of 27 sessions. In addition, because of the stigma associated with mental health families did not want to be officially in therapy. Therefore, clinicians initiated short check-ins with parents. Since the beginning of the program a total of 16 check ins with 24 families were initiated via Zoom.

One of the program objectives was to offer 3 virtual groups to parents. From the beginning of the school year clinicians made efforts to set up 7 virtual groups for the parents. Parents were notified about the groups and how to join via Zoom. From the beginning of the program only one parent made an attempt to join a group. Conversation with parents revealed they are reluctant to join the groups because of the mental illness stigma. They did not want to share their family challenges with other parents in the community.

Teen Telemental Health Therapy Outcome

As part of the project teens were evaluated monthly by the clinicians (about every 4 weeks) using reliable assessment tools. For the purpose of the evaluation an average group assessment score for each tool was calculated. Table 8 shows the calculated average assessment tool scores demonstrates the change in average score of the assessment tools over time.

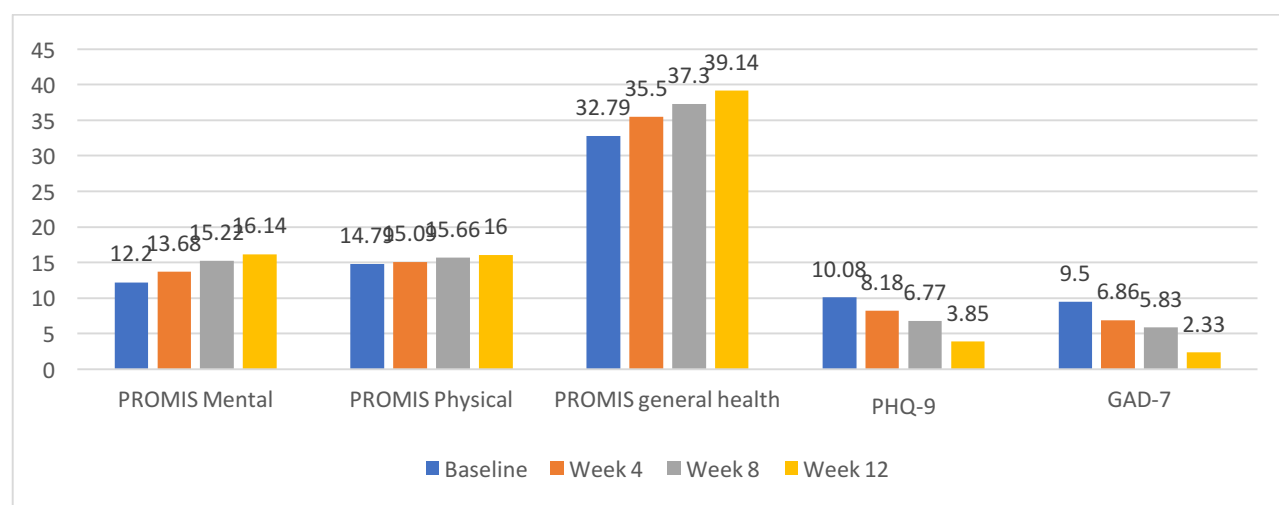
Table 8

Teen Outcome PROMIS, PHQ-9 and GAD-7 Assessment Scales Scores

	PROMIS MH	PROMIS PH	PROMIS GH	PHQ-9	GAD-7	n
Weeks	Average					
Baseline	12.2	14.79	32.79	10.08	9.5	24
W 4	13.68	15.09	35.5	8.18	6.86	22
W 8	15.22	15.66	37.3	6.77	5.83	18
W 12	16.14	16	39.14	3.85	2.33	

Figure 3

Teen Outcome PROMIS, PHQ-9 and GAD-7 Assessment Scales Scores Over Time



The PROMIS Mental Health and the PROMIS General health average measure showed small improvement over time. PROMIS Physical health stayed about the same. The PhQ-9 average assessment score for depression showed a reduced score from 10.8 to 3.85 and therefore showed improvement. The GAD-7 average score as well showed improvement over time from 9.5 group average score to 2.33 (see Table 8, Figure 3).

Discussion

This DNP project evaluated an innovative school based Telemental Health model offering timely social/behavioral health support through the schools and bridging care gaps for children and families' mental health services in rural Massachusetts. The project evaluated two new aspects of service. The first aspect was offering Telemental Health through the school for the teens and parents. The second aspect was offering a synchronous connection with the parents either through family therapy, short check-ins or virtual group participation.

The program evaluation was guided by the theoretical model developed by DeLone & McLean (2003), that considers the structure together with the quality of information and system, process measures with system use and user satisfaction, and outcome measures with individual and organizational impact (Appendix A figure 1).

The primary goal of the program evaluated was to provide mental health services to teens and their families in a remote rural area in Massachusetts. The school acted as a facilitator to the program. The student access to Telemental Health objective was achieved. Twenty-four students had access to tele behavioral health services providing 375 school-based Telemental health encounters over 12 weeks. This service was especially important since the distance from in person behavioral service was on average 9 miles and teens reported a low likelihood they would travel for services.

Although the parents had access to individual Telemental Health and group educational and support sessions via Zoom, parent's participation was much lower than expected. As a result the clinicians initiated short check-in encounters that seemed to work better. Parents caregiver strain at baseline showed medium strain score and parents report of reduction in stress was diverse almost distributed evenly from a lot to a little reduction in stress. These results are

similar to findings from Tse et al., 2015; Myers et al., 2015; Rockhill et al., 2013; Reese et al., 2015.

Satisfaction surveys were designed based on the theoretical model guiding the evaluation. Overall teen and parents' satisfaction with the Telemental Health service was high. Teens and parents were satisfied with the technical quality and ease of using the tele-Zoom platform. The video teleconferencing was rated similar or even better than in-person sessions. Teens reported feeling comfortable and safe in the familiar virtual world.

The parents felt this delivery model was time and cost saving similar to the findings by Comer et al. (2017) and Reese et al., 2015. Parents and teens were asked about perceived outcomes. Both parents and teens reported an increase in family engagement as a result of improved communication. Teens with parents actively involved on the program reported slightly better outcomes compared the teens with no direct parent involvement.

Project outcomes were demonstrated by the improvements in teens clinical outcome monthly assessed with the PROMIS Global Health Questionnaire, PHQ9, GAD-7. Although not being able to measure statistical significance the group average score progressed towards a desired direction. The results correspond with previous research by Comer et al., 2017 and Carpenter et al., 2018.

Limitations

This project evaluated a small innovative school based Telemental Health program for the purpose of proof of concept. Due to the small numbers of participants it presents descriptive data only from a cross sectional satisfaction survey. It also presented descriptive results from limited longitudinal outcome data. Although this small non-diverse sample project results cannot be generalized outside of this regional area, it shows a promising concept of service for further funding and other sites interested in adopting this model.

Conclusion

Families and caregivers are an integral part of their children's care. While shortages of child mental health in underserved communities are expected to continue, rapid growth and improved and more affordable high-speed and sophisticated technology present greater opportunities for Telemental Health and could effectively include family participation and improve clinical outcomes for their children. Telemental Health has the potential to improve care while lowering costs for families and practitioners by not having to travel to appointments. It will improve parents/caregivers to access to care and students' needs will be met at a location that is naturally convenient to them.

Telemental Health is an innovative model gaining traction in Massachusetts. MassHealth recently funded TMH services. The local hospital and its partners have been leading State efforts to advocate for and test school-based Telemental; Health. The Community health worker will obtain MA DPH certification with hopes that these services will be reimbursed. The evaluation of this project will help build the case for policy/payment reform to support the reimbursement for this service model.

This project evaluation demonstrated what is needed to support the Telehealth Service Model. These data may generate discussions that will center on payment reform, quality measures, data sharing and licensure/credentialing. Disseminating the results of this evaluation to the local stakeholders at the hospital, clinics and participating schools has been in progress since January 2020 at monthly meetings. An update with the final results is planned for late summer 2020 for all key stakeholders. Further dissemination to other health professionals is planned for fall 2020 at the American Public Health Annual Meeting.

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Appendices

Appendix A

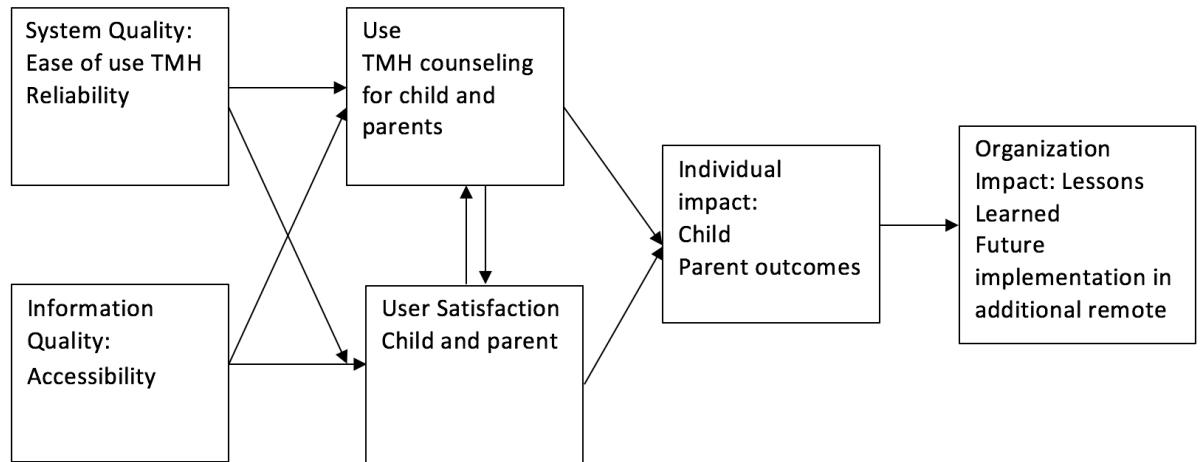


Figure 1: TMH theoretical model for program evaluation based on DeLone and McLean

2003

Appendix C

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(Use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + + +
=Total Score:

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix D

Generalized Anxiety Disorder 7-item (GAD-7) scale

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all sure	Several days	Over half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it's hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3
<i>Add the score for each column</i>	+	+	+	
Total Score <i>(add your column scores)</i> =				

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all _____
 Somewhat difficult _____
 Very difficult _____
 Extremely difficult _____

Source: Spitzer RL, Kroenke K, Williams JBW, Lowe B. A brief measure for assessing generalized anxiety disorder. *Arch Intern Med.* 2006;166:1092-1097.

Appendix E

Patient-Reported Outcomes Measurement Information System (PROMIS)

1. In general, would you say your health is:

- Excellent
- Very good
- Good
- Fair
- Poor

2. In general, would you say your quality of life is:

- Excellent
- Very good
- Good
- Fair
- Poor

3. In general, how would you rate your physical health?

- Excellent
- Very good
- Good
- Fair
- Poor

4. In general, how would you rate your mental health, including your mood and your ability to think?

- Excellent
- Very good
- Good
- Fair
- Poor

5. In general, how would you rate your satisfaction with your social activities and relationships?

- Excellent
- Very good
- Good
- Fair
- Poor

6. To what extent are you able to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair?

- Completely
- Mostly
- Moderately
- A little
- Not at all

7. In the past 7 days, how would you rate your pain on average?

- 0 (No pain)
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Worst pain imaginable)

8. In the past 7 days, how would you rate your fatigue on average?

- None
- Mild
- Moderate
- Severe
- Very severe

9. In general, please rate how well you carry out your usual social activities and roles. (This includes activities at home, at work and in your community, and responsibilities as a parent, child, spouse, employee, friend, etc.)

- Excellent
- Very good
- Good
- Fair
- Poor

10. In the past 7 days, how often have you been bothered by emotional problems such as feeling anxious, depressed or irritable?

- Never
- Rarely
- Sometimes
- Often
- Always

Appendix G

Caregiver Strain Questionnaire

Please think back over the past 6 months and try to remember how things have been for your family. We are trying to get a picture of how life has been in your household over that time.

For each question, please tell me which response (which number) fits best.

In the past 6 months, how much of a problem was the following:

	Not at all	A little	Somewhat	Quite a bit	Very much
1. Interruption of personal time resulting from your child's emotional or behavioral problem?	1	2	3	4	5
2. You missing work or neglecting other duties because of your child's emotional or behavioral problem?	1	2	3	4	5
3. Disruption of family routines due to your child's emotional or behavioral problem?	1	2	3	4	5
4. Any family member having to do without things because of your child's emotional or behavioral problem?	1	2	3	4	5
5. Any family member suffering negative mental or physical health effects as a result of your child's emotional or behavioral problem?	1	2	3	4	5
6. Your child getting into trouble with the neighbors, the school, the community, or law enforcement?	1	2	3	4	5
7. Financial strain for your family as a result of your child's emotional or behavioral problem?	1	2	3	4	5
8. Less attention paid to other family members because of your child's emotional or behavioral problem?	1	2	3	4	5
9. Disruption or upset of relationships within the family due to your child's emotional or behavioral problem?	1	2	3	4	5
10. Disruption of your family's social activities resulting from your child's emotional or behavioral problem?	1	2	3	4	5

In this section, please continue to look back and try to remember how you have felt during the past 6 months.

For each question, please tell me which response (which number) fits best.

In the past 6 months:

		Not at all	A little	Somewhat	Quite a bit	Very much
11.	How isolated did you feel as a result of your child's emotional or behavioral problem?	1	2	3	4	5
12.	How sad or unhappy did you feel as a result of your child's emotional or behavioral problem?	1	2	3	4	5
13.	How embarrassed did you feel about your child's emotional or behavioral problem?	1	2	3	4	5
14.	How well did you relate to your child?	1	2	3	4	5
15.	How angry did you feel toward your child?	1	2	3	4	5
16.	How worried did you feel about your child's future?	1	2	3	4	5
17.	How worried did you feel about your family's future?	1	2	3	4	5
18.	How guilty did you feel about your child's emotional or behavioral problem?	1	2	3	4	5
19.	How resentful did you feel toward your child?	1	2	3	4	5
20.	How tired or strained did you feel as a result of your child's emotional or behavioral problem?	1	2	3	4	5
21.	In general, how much of a toll has your child's emotional or behavioral problem taken on your family?	1	2	3	4	5

Appendix H

Teen Satisfaction Survey

Q1 Does your family actively participate in the family telehealth program

Yes (1)

No (2)

Q2 “Overall, how satisfied are you with the use of videoconferencing?”

very satisfied (1)

somewhat satisfied (2)

somewhat dissatisfied (3)

very dissatisfied (4)

Q3 Compared to seeing your provider in person, communicating with him/her by videoconferencing was:

better in some ways (1)

just as good (2)

somewhat more difficult (3)

much more difficult (4)

Q4 In relation to your previous question: In what way ? Please share with us

Q5 The next question ask you about your experience using the equipment during the video sessions

	Strongly agree (1)	agree (2)	disagree (8)	Strongky disagree (12)
Overall I feel comfortable with the equipment used (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was able to see the clinician clearly (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was able to hear the clinician clearly (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There was enough technical assistance if needed for my meeting with the clinician (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6 Please think back to when you first started meeting with the clinician through videoconferencing and select how much you agree with the following statements.

	Strongly Agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
Explanations and descriptions about the clinician's services were clear (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the goals of my meetings with the clinician (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the clinician provided mental health services (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood why I'm in therapy and or counseling services from the clinician (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 Please select how much you agree with the following statements

	strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
It is easy for me to get mental health care through Videoconferencing (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During my sessions with the clinician, I feel safe to say everything I think is important (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 Since starting receiving services from a clinician through videoconferencing how did your relationship improve?

	strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
my relationships with teachers have... (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my relationships with other school staff who are not teachers have... (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my relationships with other students have... (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my relationship with my parents has.. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 Since receiving services from a clinician through videoconferencing

	Strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
I'm more involved in school (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm more connected to what is going on in classes (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a greater sense of belonging to the school community (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 Since receiving services from a clinician through videoconferencing,

	improved a lot (1)	Improved a little (2)	Stayed the same (3)	Gotten worse (4)
My grades have (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my attendance has (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11 Please select how much you agree with the following statements

	A great deal (1)	A lot (2)	A moderate amount (3)	A little (4)	None at all (5)
I am satisfied with the support I get from the clinician. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The clinician communicates with me in a way that is easy to understand. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 What do you value most about your therapy/counseling services with the clinician?

Q13 How can the videoconferencing with the clinician be improved?

Q14 How long have you been working with the clinician?

- 1-3 months (1)
- 4-6 months (2)
- 7-12 months (3)
- More than a year (4)
- Not sure (5)

Appendix I

Parent Satisfaction Survey

Q1 Do you actively participate in the family telehealth program (talked to the therapist via teleconferencing)?

Yes (1)

No (2)

Q2 Overall, how satisfied are you with the use of videoconferencing?

very satisfied (1)

somewhat satisfied (2)

somewhat dissatisfied (3)

very dissatisfied (4)

Not applicable (5)

Q3 Compared to seeing your child provider in person, communicating with him/her by videoconferencing was:

better in some ways (1)

just as good (2)

somewhat more difficult (3)

much more difficult (4)

Not applicable (5)

Q4 In relation to your previous question: In what way? Please share with us

Q5

Please rate how much you agree with the following statement:

Bringing my child to a provider for face to face meeting make additional costs or challenges to my family

 Strongly agree (1) Agree (2) Disagree (3) Strongly disagree (4)

Q6 Please think back to when your child started meeting with the clinician through videoconferencing and select how much you agree with the following statements.

	Strongly Agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
Explanations and descriptions about the clinician's services were clear (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the goals of my child meetings with the clinician (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the clinician provided mental health services (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood why my child needed therapy and or counseling services from the clinician (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 Please select how much you agree with the following statements

	strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
It is easy for me and my child to get mental health care through Videoconferencing (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During my sessions with the clinician my child feels safe to say everything he/her think is important (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 Since starting receiving services from a clinician through videoconferencing how did it affect your child relationships?

	Improved a lot (1)	Improved a little (2)	stayed the same (3)	Gotten worse (4)
My child relationships with teachers have... (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My child relationships with other school staff who are not teachers have... (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My child relationships with other students have... (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My relationship with my child has (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 Since receiving services from a clinician through videoconferencing how did it affect your child?

	Strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
My child is more involved in school (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My child is more connected to what is going on in classes (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My child feels a greater sense of belonging to the school community (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 Since receiving services from a clinician through videoconferencing how did affect your child schooling?

	improved a lot (1)	Improved a little (2)	Stayed the same (3)	Gotten worse (4)
My child grades have (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My child attendance has (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11 Please select how much you agree with the following statements

	A great deal (1)	A lot (2)	A moderate amount (3)	A little (4)	None at all (5)
I am satisfied with the support my child get from the clinician. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The clinician communicates with me and my child in a way that is easy to understand. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Since my child started to see the clinician via videoconferencing my stress level has reduced (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 What do you value most about your child therapy/counseling services with the clinician?

Q13 How can the videoconferencing with the clinician be improved?

Q14 How long have your child been working with the clinician?

- 1-3 months (1)
- 4-6 months (2)
- 7-12 months (3)
- More than a year (4)
- Not sure (5)

Q14 For group session participants only
During group session:

	Strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
I felt supported and encouraged at the group session (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I received important information related to mental health during the group session (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The group sessions helped me with my child (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The technology worked well during the group sessions (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: We want to learn about your opinions and experiences working with the clinician

Appendix J



September 6, 2019

Ainat Koren, PhD, RN
Associate Professor
Susan and Alan Solomont School of Nursing
Zuckerberg College of Health Sciences
University of Massachusetts, Lowell
113 Wilder Street, Suite 200 (Mailing Address)
Health and Social Science Building
Lowell MA. 01854-3058

Dear Ms Koren,

It is my pleasure to have you be our evaluator for Heywood Hospital's Blue Cross Blue Shield Special Initiatives Grant as part of your DNP Capstone Project.

Our initiative, *School-based Tele-behavioral and Family Psychoeducation* shifts the traditional model of treatment from isolated medical settings to the community where it can reach children/families in a convenient familiar setting. We will use Zoom, a secure video conferencing platform, to provide: 1) individual therapy for students in school; 2) behavioral family management and; 3) group meetings accessed remotely. Family Psychoeducation (FP) is an evidence-based practice that provides education and guidance to families coping with mental illness. Families who attend FP programs report high levels of satisfaction, show increased knowledge about mental illness/treatment, and youth have a lower risk of relapse. We intend to adapt this traditional model of therapy using telehealth in order to improve access for families in a rural part of the state.

I am looking forward to being your mentor on this project and working closely with you to evaluate our proposed model. If you have any questions, please feel free to reach me at 978-630-5797.

Sincerely,

A handwritten signature in blue ink that reads 'Mary Giannetti'.

Mary Giannetti

Director of Resource Development
Project Director

Appendix K

UMassAmherst

Human Research Protection Office

Mass Venture Center
100 Venture Way, Suite 116
Hadley, MA 01035
Telephone: 413-545-3428

Memorandum – Not Human Subjects Research Determination

Date: October 15, 2019

To: Ainat Koren, Nursing

Project Title: *School-Based Tele-Behavioral and Family Psycho-Education: A Program Evaluation*

IRB Determination Number: 19-188

The Human Research Protection Office (HRPO) has evaluated the above named project and has made the following determination based on the information provided to our office:

- The proposed project does not involve research that obtains information about living individuals [45 CFR 46.102(f)].
- The proposed project does not involve intervention or interaction with individuals OR does not use identifiable private information [45 CFR 46.102(f)(1), (2)].
- The proposed project does not meet the definition of human subject research under federal regulations [45 CFR 46.102(d)].

Submission of an Application to UMass Amherst IRB is not required.

Note: This determination applies only to the activities described in the submission. If there are changes to the activities described in this submission, please submit a new determination form to the HRPO prior to initiating any changes.

A project determined as “Not Human Subjects Research,” must still be conducted in accordance with the ethical principles outlined in the Belmont Report: respect for persons, beneficence, and justice. Researchers must also comply with all applicable federal, state and local regulations as well as UMass Amherst Policies and procedures which may include obtaining approval of your activities from other institutions or entities.

Please do not hesitate to call us at 413-545-3428 or email humansubjects@ora.umass.edu if you have any questions.



Iris L. Jenkins, Assistant Director
Human Research Protection Office

