2020

Examining the Efficacy of a School-Based Mental Health Program in Iowa

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Walden University
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Abstract

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MSW, University of Nebraska Omaha, 2000

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Social Work

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Abstract

Evidence shows that treating mental health issues has a positive impact on academic and other life outcomes for students. However, there remains a gap in knowledge specific to academic outcomes and to rural school districts. It is important for mental health providers, educators, and third-party payers to gain an understanding of how treating mental health in the school setting affects student performance. The purpose of this quantitative study, which had contribution analysis as its theoretical framework, was to examine the academic and behavioral outcomes of participating in a school-based mental health (SBMH) program in rural school districts in Iowa. The specific focus was on examining whether participating in an SBMH program affected grades, attendance, clinical outcomes via Child Behavior Checklist (CBCL) scores and behavior referrals. A single-group interrupted time series pretest-posttest design was used with secondary data provided by the schools and community mental health providers. The final sample size was 87 and included students who participated in the SBMH program in 8 rural schools in rural Iowa. The data collection was interrupted by the coronavirus pandemic and subsequent school closures; however, the data that were collected before and after school closures were analyzed using paired samples *t*-test of the pre/post data. The results indicate positive outcomes specifically in clinical CBCL scores in the various domains. Although further study with complete data sets is recommended, this study could inform decision makers on future education and behavioral health service program planning and staffing needs in rural school districts. It elicits social change by rethinking the way in which mental health services are provided and funded.

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Dedication

Equality of opportunity is the essence of social justice.

--Anthony Maurice Honoré, Causation in the Law

John F. Kennedy famously said, “All of us do not have equal talent but all of us should have an equal opportunity to develop our talent.” Every student has potential. This study is dedicated to those who must work to overcome mental health barriers to learn and develop their talent.

Acknowledgments

I would like to first and foremost thank God for whispering in my ear the call to complete this PhD, for being persistent when I was running away from it, and for instilling in me the ability and perseverance to complete it. I am Your humble servant.

I want to publicly acknowledge my husband, Phil, for his unwavering, consistent, unapologetic, and positive encouragement and support throughout this entire journey. This is as much your degree as it is mine as I would not have accomplished this without you. You not only never complained about my work, but you also ran interference so life would not interrupt me. You are my rock, my hero, my champion, my friend, and the best darn dad, son-in-law, and poppy ever. God blessed the broken road that led me straight to you.

To my daughter, Sarah, for your support, encouragement, and superior proofreading skills. You have always been my inspiration to do my best and be better. To my sons, Ephraim and Preston, I could not ask for better cheerleaders. To Tom, Andy, Declan, Tyler, and sweet Ellie, you are my heart. To my parents, Phil and Lou Funk, for instilling a strong work ethic, always telling us we could do or be anything we set our minds to, and passing along the stubborn will to persevere no matter what. To my siblings and their families, Mike, Mary, Kevin, Billy, Suesan, Jason, and Jeff, for cheering me on and keeping me grounded.

Finally, I want to thank Dr. Kristen Richards for being the rock steady voice of reason always ready to find logical solutions to big problems and keep things moving forward. I am so thankful that God placed you in my life to remind me that life happens,

and it is okay to adjust accordingly. I also want to thank Dr. Tom Mclaughlin for his support and guidance and Dr. Alice Yick for providing excellent feedback and guidance and always challenging me to be better. To Molly, Cyndi, Tracy, and Casie thank you for your support, expertise, and assistance. You are the best and the brightest stars for the future of mental health treatment.

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Chapter 1: Introduction to the Study

Those encountering children and adolescents daily in the education environment have become increasingly aware of the effect mental health disorders have on students' social and academic performance as well the inability of education professionals to address the mental health needs of students in the classroom (Eklund, McLean, Meyer, & Way, 2017; Larson, Chapman, Spetz, & Brindis, 2017; Paula et al., 2014; Wolpert et al., 2015). Positive improvement has been shown in academic, behavioral, and emotional outcomes for children and adolescents in the United States with mental health diagnosis who receive early intervention services, both direct and indirect, yet 70-80% of students do not receive treatment of any kind (Garmy, Berg, & Clausson, 2015; Larson et al., 2017; McAllister, Knight, & Withyman, 2017; Murphy et al., 2015; Paula et al., 2014; Weist et al., 2014). Children and adolescents with mental health concerns make up 60-70% of juvenile incarcerations and have the highest dropout rates in the United States (Koppelman, 2004; Paula et al., 2014; National Alliance on Mental Illness, 2016). About one in every five remain undiagnosed and untreated (Koppelman, 2004; Paula et al., 2014; [NAMI], 2016).

Leaders of U.S. school systems are beginning to recognize the importance of addressing mental health concerns in the school setting and are taking steps to integrate mental health care in various ways (Guo, Wade, & Keller, 2008; Guo, Wade, Pan, & Keller, 2010; Powers, Edwards, Blackman, & Wegmann, 2013; Wegmann, Powers, Swick, & Watkins, 2017). The assumption is that integrating mental health care into the school setting will have a positive impact on outcomes for students in a variety of ways

including clinical, behavioral, academic, and relational. However, current researchers have conducted their studies in large urban school districts with onsite health and mental health centers and have focused primarily on clinical outcomes. To address this gap in the literature, I examined the academic and behavioral outcomes for students in rural school districts where access to services requires a 30-60-minute one-way commute from the school setting. The results could support further discussion and examination of the overall impact of integrating mental health services into school settings. Findings may also potentially support the altering of the current service delivery system to promote school-community partnerships with mental healthcare providers in rural schools.

In this chapter, I will outline background information about the need for and impact of school-based mental health (SBMH) services. I will state the problem and purpose of this study on SBMH services along with the research question (RQ) and hypothesis I examined. In addition, I will describe and explain contribution analysis, the theoretical framework I used, and the nature of the quantitative methodology. The chapter also includes definitions of key terms and discussion of the assumptions, scope and delimitations, limitations, and significance of the study along with a summary.

Background

A number of studies indicate that community based mental health services have a positive impact on students and family functioning when they are utilized; however, there is a lack of utilization due to stigma, lack of availability or access, difficulty in scheduling appointments, transportation problems, lack of follow-through, or simply not understanding the services or needs of students by both parents and school officials (Doll,

Nastasi, Cornell, & Song, 2017; Eklund et al., 2017; Garmy et al., 2015; Kang-Yi et al., 2018; Larson et al., 2017; Murphy et al., 2015; Oduguwa, Adedokun, & Omigbodun, 2017). Current literature indicates that while there is general agreement regarding the need for and benefit of mental health care, there remains a lack of access and prohibitive cost especially in rural school districts (Amaral, Geierstanger, Soleimanpour, & Brindis, 2011; Cummings, Wen, & Druss, 2013; DeRigne, 2010; Swick & Powers, 2018). Although there is clear evidence of the effectiveness of addressing child and adolescent mental health needs, there is a gap in knowledge specific to academic outcomes and studies focusing on rural school districts. It is important for both mental health providers and the education community to gain an understanding about how treating mental health in the school setting affects student performance in academic and behavioral outcomes. This study could inform decision makers in both professions on future education and behavioral health service program planning and staffing needs in rural school districts.

Problem Statement

Approximately 20-25% of school-aged children in the United States have a diagnosable mental health disorder that significantly impacts school performance and the quality of the learning environment (Garmy et al., 2015; Larson et al., 2017; McAllister et al., 2017; Murphy et al., 2015). More than 70% of those students identified are not receiving mental health treatment services either in the community or in the school setting (Garmy et al., 2015; Larson et al., 2017; McAllister et al., 2017; Murphy et al., 2015). School social workers and guidance counselors are on the front lines in addressing untreated child and adolescent mental health disorders in the school setting.

These untreated disorders have led to an increase in risky, self-destructive, self-harming behaviors; accidental death; and suicide, which is now the second leading cause of death among those 15-29 years of age globally (Garmy et al., 2015; Larson et al., 2017; McAllister et al., 2017; Murphy et al., 2015; Oduguwa et al., 2017). However, school social workers and guidance counselors' training, scope of practice, time demands for academic counseling, and volume of need leaves them ill prepared to manage the significant mental health concerns they face in the school setting requiring referral to outside providers.

Untreated mental health disorders present a significant concern for adolescents, their families, and school environments. Yet, those affected are not being connected to the recommended treatment services indicating a need to integrate clinical mental health services for students within the school environment (Doll et al., 2017; Garmy et al., 2015; Larson et al., 2017; Leadbeater, Gladstone, & Sukhawathanakul, 2015; Murphy et al., 2015; Oduguwa et al., 2017). Students with mental health concerns are routinely referred for services outside of the school setting as this is not in the scope of practice for guidance counselors and school social workers. Research indicates that integrating mental health care in schools is highly effective in treating adolescent mental health disorders as it allows for ease of access to receive services with highly qualified providers in a setting that is familiar and comfortable for students and families and allows comprehensive integration of services (Doll et al., 2017; Garmy et al., 2015; Larson et al., 2017; Leadbeater et al., 2015; Murphy et al., 2015; Oduguwa et al., 2017).

Despite current knowledge, it is still unknown how effective SBMH programs are in reducing behavioral disruptions in the learning environment and improving academic performance of the participants (Baskaran, Sekar & Kokilavani, 2016; Capp, 2015; Garmy et al., 2015; George et al., 2014; Larson et al., 2017; Leadbeater et al., 2015; McAllister et al., 2017; Murphy et al., 2015; Oduguwa et al., 2017; Weist et al., 2014). The research literature indicates the need for more empirical examination in three key areas of SBMH programs including (a) program design, evidence based practices and efficacy; (b) implementation, administrative barriers, and sustainability; and (c) participant/stakeholder perceptions about mental health services including students, teachers/staff, and parents (Baskaran et al., 2016; Capp, 2015; Garmy et al., 2015; George et al., 2014; Larson et al., 2017; Leadbeater et al., 2015; McAllister et al., 2017; Murphy et al., 2015; Oduguwa et al., 2017; Weist et al., 2014). This research helped fill this gap by providing insight on the efficacy of integrating mental health care providers including clinical social workers and licensed mental health counselors in the school setting to treat students' mental health concerns. Specifically, I examined the impact that integrating mental health treatment services in the school setting may have on academic and behavioral outcomes of participants in a SBMH program in Southwest Iowa.

Purpose of the Study

Current research indicates significant improvement in outcomes for children and adolescents with mental health diagnosis who receive treatment support services in schools, yet more than 70% of those students are not receiving treatment services (Garmy et al., 2015; Larson et al., 2017; McAllister et al., 2017; Murphy et al., 2015; Weist et al.,

2014). The purpose of this quantitative study was to examine academic measures and behavioral outcome data of participants in a SBMH program in rural community school districts in Southwest Iowa. The aim was to determine if integrating mental health care services in the school setting rather than community-based referrals had any effect on academic and behavioral outcomes for students (Doll et al., 2017; Garmy et al., 2015; Larson et al., 2017; Leadbeater et al., 2015; Murphy et al., 2015; Oduguwa et al., 2017).

The results of this study could spur school administrators, guidance counselors, and staff; community mental health providers; third-party payers; parents; and students to have an open dialogue about offering mental health care services in schools and explore the impact of bringing the treatment to the students (Doll et al., 2017; Garmy et al., 2015; Larson et al., 2017; Leadbeater et al., 2015; Murphy et al., 2015; Oduguwa et al., 2017). This study directly affects intersecting disciplines of education and mental health, including clinical and school social workers, psychologists, licensed community counselors, medication prescribers, and school personnel in meeting the mental health needs of students in the community (Garmy et al., 2015; Larson et al., 2017; Lemberger, Wachter Morris, Clemens, & Smith, 2010; McAllister et al., 2017; Murphy et al., 2015; Oduguwa et al. 2017; Weist et al., 2014). Research indicates a gap this study could begin to fill by providing outcome data about the efficacy of mental healthcare service provision in the school setting (Baskaran et al., 2016; Capp, 2015; Doll et al., 2017; Garmy et al., 2015; George et al., 2014; Larson et al., 2017; Leadbeater et al., 2015; McAllister et al., 2017; Murphy et al., 2015; Oduguwa et al., 2017; Weist et al., 2014).

Research Question and Hypothesis

RQ: To what extent does participation in a school-based mental health (SBMH) program improve attendance and behavior disruptions of middle and high school students with a diagnosed mental health disorder in rural schools in Southwest Iowa?

H_1: Participation in school-based mental health services will improve attendance and behavior disruptions of middle and high school students with a diagnosed mental health disorder in rural schools in Southwest Iowa.

Theoretical Framework

Because of the complexity of measuring and assessing the impact of a SBMH program, I used the contribution analysis theoretical framework. Contribution analysis is a means of identifying key performance measures based on a logic model about the specific program to determine the effectiveness and causal attribution (Mayne, 2001). The theory of change is then tested and analyzed against outcome data, logic, and other external factors (Mayne, 2012). Contribution analysis is defined as a theory-driven "specific analysis undertaken to provide information on the contribution of a program to the outcomes it is trying to influence" (Mayne, 1999, p. 6). This aspect allows contribution analysis to be customizable to specific program performance measurements and outcome data analysis based on the theory of change developed from the logic model (Dybdal, Bohni Nielsen, & Lemire, 2010; Mayne, 2001, 2012).

Rather than focus on specific clinical interventions for which there is immeasurable variance based on the skill level of the clinician, I aimed to determine if simply accessing the appropriate services in the school setting had any impact on

academic and behavioral outcomes for participating students. I developed a logic model shown in Figure 1 to determine appropriate performance measurement variables based on intended outcomes of the program (see Mayne, 2001, 2012). The outcome data variables identified were attendance, behavior disruption in the learning environment, and clinical scores on Achenbach's Child Behavior Checklist (CBCL; Christensen, Margolin, & Sullaway, 1992; Mayne, 2001).

Goal(s): *Investigate program outcomes*

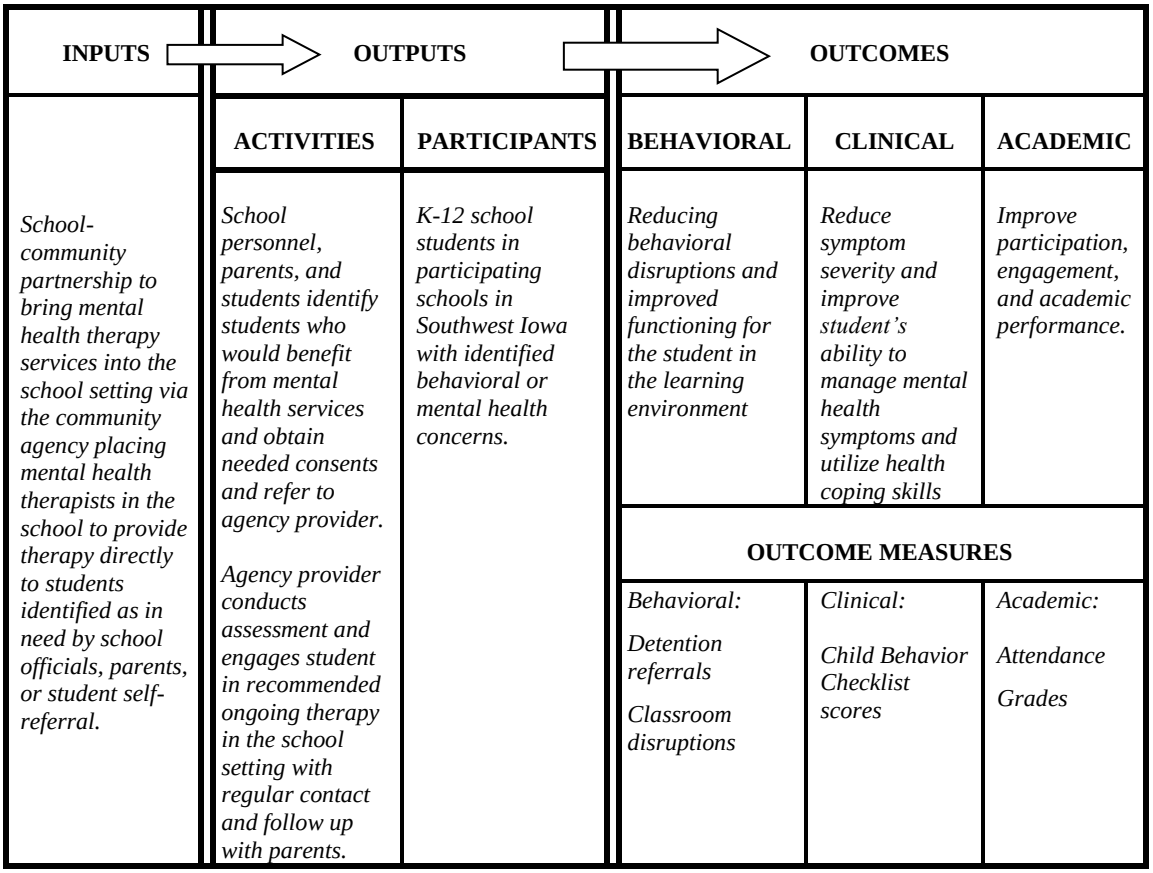

Figure 1. Logic model of a school-based mental health program.

Nature of the Study

I used a quasi-experimental quantitative approach to examine the relationship between the independent variable of participation in a SBMH program on the dependent variables of attendance, behavior referrals, grades, and clinical outcome test scores. I used secondary data obtained from partnering schools and a community-based mental health provider as part of their normal data gathering. The data were provided for the purposes of this study.

I used quantitative methodology to examine the intervention of participation in the SBMH program using pre/post administration of a standardized assessment tool, the CBCL (Christensen et al., 1992; Frizzo, Pedrini, De Souza, Bandeira, & Borsa, 2015), including the parent questionnaire, the adolescent self-assessment, and the teacher report form data from all three domains. Parent, adolescent, and teacher reports were provided by the community mental health provider. The CBCL is a widely used standardized tool that measures child adjustment in social, emotional, and behavioral domains using data from multiple sources (Christensen et al., 1992; de Wolff, Vogels, & Reijneveld, 2014). I analyzed the test results to determine what, if any, significant difference could be detected in the scores. The data set included attendance; number of school behavioral disruptions; and disciplinary measures such as detentions, suspensions, or principal referrals of students participating in the program. The participating schools obtained the data set from the community provider. I compared data from the year prior to participation in the program and the current year to assess for any differences in frequencies of negative behavior.

Definitions

Adverse childhood event (ACE): Exposure to traumatic events in childhood related to abuse, neglect, and household dysfunction (Stempel, Cox-Martin, Bronsert, Dickinson, & Allison, 2017).

Attendance: Number of in-session school days students marked as absent for half of the school day or more. Average daily attendance is the attendance rate that U.S. schools use for state report cards and federal accountability. Chronic absenteeism means missing 10% of a school year for any reason (Balfanz & Byrnes, 2012).

Behavior referral: Recorded disciplinary action in the school setting including but not limited to referral, detention, suspension, expulsion, or other disciplinary action (Esch et al., 2014; Hemphill, Plenty, Herrenkohl, Toumbourou, & Catalano, 2014).

Child Behavior Checklist (CBCL): A standardized questionnaire developed by Achenbach that is used to assess and screen for behavioral and emotional problems in school-aged children (Christensen et al., 1992).

Contribution analysis: Use of performance data to better understand the impact of a program on real-world outcomes and enhance reporting or explanation of how the program is performing (Mayne, 2001, 2012).

Grade point average (GPA): School system generated average of grades reported on mid-year and year end reporting processes. GPA is the total of points earned divided by the total number of credits earned (www.edglossary.org).

Guidance counselor: Education professional whose role is to help assigned students in the areas of academic achievement, career, and social/emotional development (American School Counselor Association, 2020).

Mental health: "A state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community" (World Health Organization [WHO], 2018).

Mental health disorder: "Mental illnesses are health conditions involving changes in emotion, thinking or behavior (or a combination of these). Mental illnesses are associated with distress and/or problems functioning in social, work or family activities." (American Psychiatric Association [APA], 2018).

Mental health provider: Professional with training, experience, broad-based knowledge, competency, and skills in the mental health discipline and who has earned the applicable licensure to practice by the respective state (Power, 2003).

Multitiered system of support (MTSS): Evidence-based framework for integrating student mental health needs into the learning environment by providing a three-tier based system for implementing mental health programs (Adamson, McKenna, & Mitchell, 2019; Dulaney, Hallam, & Wall, 2013; Eagle, Dowd-Eagle, Snyder, & Holtzman, 2015).

Participants: Students who engage in SBMH services at a participating school for three or more individual or family sessions and complete the CBCL pre- and posttest.

Rural school district: School district that is located in a community that has a population below 50,000, or an urban cluster placed around urbanized areas with a population of 2,500 or more (U.S. Census Bureau, 2010).

School-based health centers (SBHCs): Health centers that local health care providers have collocated with mental health services in clinics collocated within the school or on school campus (Bains & Diallo, 2016; Guo et al., 2008; Guo et al., 2010; Wegmann et al., 2017).

School-based mental health (SBMH): Integration of licensed mental health care providers directly in the school building to provide mental health assessment, treatment, crisis intervention, or prevention services (Dryfoos, 1994).

School-community partnership: Collaborations between schools and community based mental health providers to provide treatment services in the school setting and drawing from a system of care approach (Capp, 2015; Powers et al., 2013; Wegmann et al., 2017; Weist et al., 2014).

System of care: Expanded, shared, and integrated approaches for service provision in school systems (Weist et al., 2014).

Urban school district: School district located in a community with a population of 50,000 or more or an urban cluster placed around urbanized areas with a population of 2,500 or more (U.S. Census Bureau, 2010).

Assumptions

Students are unable to access mental health services via third-party payers without a qualifying mental health diagnosis, so the assumption is that all the participants have

some type of qualifying mental health diagnosis. Since the mental health intervention is in the form of psychotherapy, it is assumed that all participants have the basic cognitive ability to engage in and process talk therapy activities.

Another assumption is that SBMH services are made available to all students in each of the participating schools with no limitations to access for all enrolled students. It is assumed that the inclusion criteria are appropriate and assumes the participants have had similar or common experiences within the study, in their respective schools and in the community.

Since this study used a secondary data set provided by the community partners, it is assumed the participants do not have other motives for participating in the study. It is also assumed that the mental health providers were of average skill and experience and are a good representation of average providers available in the rural area.

Scope and Delimitations

This study was quantitative in nature and makes a reasonable attempt to measure and examine outcome data for students who accessed SBMH therapy. In this study, I examined the impact that participation in the SBMH program had on the dependent variables of attendance, behavior, CBCL scores, and GPA. The sample size was estimated to be approximately 10 students each from eight different rural schools in Southwest Iowa who were participating in a SBMH treatment program.

The data gathered was primarily secondary data generated by the schools and the community mental health provider in the form of attendance records, behavior referral records, grades, and CBCL pre- and posttest scores. The data was delimited only to

participants in the program and was compared to the same participants' records from the previous school year.

The result of this study will add to the current body of evidence by going beyond clinical outcomes and exploring academic and behavioral markers to identify the impact of integrating mental health services in rural school districts.

Limitations

There were many limitations to this study, including the small sample size which is part of the rural environment and the nature of purposeful sampling. The small sample size may or may not be a representative cross section of the whole school population but may be a good representation of students in need of mental health support. This study was quasi-experimental because it lacked a control group for comparison, thus compares to the same group from the year prior to intervention for analysis. The quality and skill of the individual providers, resistance to treatment by the students, family involvement, and school personnel buy-in may vary and have an impact on outcomes.

Future studies may benefit from a longer observation period, over several years, with a larger sample size to determine what if any impact over time can be detected. Further comparison to a similar control group who did not receive intervention may also add an additional perspective to future studies but may prove difficult in small rural districts with limited numbers of students.

Significance

There has been a growing awareness of the impact of mental health disorders on individual academic performance and on schools' inability to address the mental health

needs of students while providing a conducive learning environment since the 1990's (Larson et al., 2017; Weist et al., 2014). This topic was chosen to establish a research-based foundation to guide the possibility of shifting the way mental health services are delivered to students by providing mental health care within the school setting beyond the scope of practice of guidance counselors and school social workers (Garmy et al., 2015; Larson et al., 2017; Lemberger et al., 2010; McAllister et al., 2017; Murphy et al., 2015; Oduguwa et al. 2017; Weist et al., 2014). Simply having the services available in the community is not adequate if those who need it are unable or otherwise unwilling to utilize them due to lack of access, lack of transportation, scheduling conflicts, negative stigma, lack of understanding of the services, or parents not following through with recommended treatment for students (Doll et al., 2017; Garmy et al., 2015; Larson et al., 2017; Leadbeater et al., 2015; Lemberger et al., 2010; Murphy et al., 2015; Oduguwa et al., 2017). This study could contribute to understanding the efficacy of integrating the delivery of mental healthcare services to the children and adolescents who need them in the school setting where they can be readily utilized (Baskaran et al., 2016; Capp, 2015; Doll et al., 2017; Garmy et al., 2015; George et al., 2014; Larson et al., 2017; Leadbeater et al., 2015; McAllister et al., 2017; Murphy et al., 2015; Oduguwa et al., 2017; Weist et al., 2014). The results of this study could impact social policy, funding streams, and service delivery both in mental health and in education by informing policy makers, administrators, and third-party payers of the potential benefits of integrating mental health service delivery into the school system. The potential to change the way mental health services are provided to school age children and their families could influence

positive social change by removing the barriers and restrictions on how and where mental health treatment can be provided making it more accessible to children and families and enabling qualified mental health providers to be reimbursed at community provider rates for services rendered in the school setting.

Summary

In this study, I analyzed the academic and behavioral outcomes of students accessing mental health care in rural school districts. The independent variable was participating in the SBMH program and the dependent variables were attendance, behavior disruptions, CBCL scores, and GPA. The study compared the data from the intervention year 2019-2020 to the prior year 2018-2019 to determine what, if any, impact participating in the program had on the various outcomes. The results of this study will add to the conversation about changing the way children and youth access mental health services in the future and the impact it has on their academic performance.

A review of the literature in Chapter 2 explores the history of SBMH provision and the current body of knowledge about implementation and impact of integrated SBMH care. The information in this chapter illustrates a solid case for providing mental health care in schools and a large body of evidence centered around large urban school districts with integrated health and mental health centers. The review also shows a focus on primarily clinical outcomes omitting academic and behavioral outcomes and a lack of research examining rural schools needs and outcomes (Fedewa et al., 2016; Garmy et al., 2015; George et al., 2014). The aim of this study was to address this gap in the research literature.

Chapter 2: Literature Review

Introduction

There is a strong correlation between mental health problems and academic achievement (Adelman & Taylor, 2006, Larson et al., 2017; Merikangas et al., 2011; Powers et al., 2013). Nearly half of graduation rate failures are due to mental health problems and are a significant predictor of education termination at all levels (Breslau, Lane, Sampson, & Kessler, 2008; Hoagwood et al., 2007). Researchers over the past 20 years have consistently identified 20-30% of students in the United States as meeting clinical criteria for a mental health diagnosis, yet only a fraction of those identified receive any treatment services (Adelman & Taylor, 2006, Larson et al., 2017; Merikangas et al., 2011; Powers et al., 2013). With treatment, these students may be able to improve their academic performance.

Current research indicates that those students who received mental health services in the school setting had clinical and behavioral outcomes equal to clinic-based services (Armbruster & Lichtman, 1999; Kang-Yi et al., 2018). Although the benefit of SBMH services is known, most of the research has focused on large urban school districts with integrated health and mental health centers (Esch et al., 2014; Fedewa et al., 2016). There has been little research on the impact of accessing mental health services in rural school settings where there are additional barriers to accessing care such as distance, transportation, and lack of qualified providers.

Despite what is known about the benefits of SBMH services, integration of services has been largely dependent on school administration buy-in and integration of

services into the policies, practices, and culture of individual school districts (Powers et al., 2013). Merging education and mental health will require intertwining the goals and outcomes of the two services to elevate the importance of service provision and ensure availability of services to the students who need them. Currently, research outcome measurements have focused primarily on clinical and behavioral outcomes for students with a mental health diagnosis. More examination of the correlation between accessing SBMH services and academic outcomes is needed (Fedewa et al., 2016; Garmy et al., 2015; George et al., 2014). The purpose of this quantitative study was to examine academic measures and behavioral outcome data of participants in SBMH services in rural community school districts in Southwest Iowa.

In this chapter, I provide a review of the search strategies I used to locate related articles, books, and other literature for this review. I also explain the foundational theoretical framework for the study. The history and seminal research on SBMH concepts will be reviewed up through current research related to evidence of need, various types of programs, academic and behavioral outcome measures, and evaluation of effectiveness of SBMH programs. Finally, I will review current gaps in the literature and the need for further study.

Literature Search Strategy

I searched for current literature using online library databases accessed from Walden University, Buena Vista University, and Google Scholar. I also accessed statistical data from national sources including the Centers for Disease Control and Prevention, the Center for Mental Health in Schools at UCLA, the Federal Interagency

Forum on Child and Family Statistics, the School Social Work Association of America, and the World Health Organization. Individual database searches included Thoreau Multi-Database Search, CINAHL, MEDLINE, Academic Search Complete, ERIC, Education Source, NAMI, NCES Publications, ProQuest Central, ProQuest Health and Medical Collection, PsycARTICLES, PsycInfo, SAGE Journals, and SocINDEX.

In my initial search, I used terms such as *school mental health*, *mental health*, and *schools*, which resulted in articles mostly pertaining to mental health education or training of mental health professionals, but did lead to some relevant articles. Within those articles, I discovered the terms *school-based mental health*, *school-based health care*, and *school-based health centers*, which is the bulk of the literature I reviewed. During the review I added terms such as *programs*, *outcomes*, *outcome measures*, *academic outcomes*, *academic performance*, *attendance*, *absenteeism*, *dropout*, *suspension*, and *program evaluation*, which further defined specific articles related to my topic. I was able to locate multiple resources related to the history of SBMH care, evidence of the need for addressing mental health concerns, program design, outcome research, early intervention, and policy recommendations.

By reviewing these articles, I discovered secondary sources from the reference lists which I utilized to identify and locate additional resources and identification of seminal research. I continued this process of identifying additional literature until I began to notice repetitive articles and sources indicating I had reached saturation. I conducted an initial screening and eliminated unrelated articles and compiled the results in a spreadsheet containing 195 different resources which I then reviewed individually. I

sorted the research based on relevance to variables, age of the article (less seminal), methodology, and applicability. I found a large body of research conducted in the past 10 years that further supported this area of study and identified gaps in current knowledge. Many of the resources were articles published within the past 9 years, and many were duplicate information. Any duplicates were pared down based on age of the article, and the remaining resources were synthesized.

Theoretical Framework

Contribution Analysis

Often mental health programs and services are measured in terms of clinical outcomes which are a valuable tool in measuring specific treatment modalities or techniques. However, though a client may show significant improvement on clinical markers it may not be internalized and manifested in life outcomes for the client and may not be indicative of positive outcomes for the program itself (Carpenter-Aeby & Aeby, 2005; Doll & Cummings, 2008; Hess et al., 2017). In the age of limited funding and evidence-based mandates, identifying measurable improvement outside of clinical significance is paramount in identifying the value of programs (Dybdal et al., 2011; Mayne, 2001, 2012). Focusing on outcomes that matter in the education system is thus important in examining the benefits of integrating mental health services in the education environment and shifting the way services are provided to students in schools. The ability to demonstrate value to school administrators, staff, parents, and students could determine if the services are available in some schools or if the need continues to go unmet.

Contribution analysis involves the use of performance data to better understand the impact of a program on real world outcomes and enhance reporting or explaining how the program is performing (Mayne, 2001, 2012). Mayne (2012) offered this description of contribution analysis:

> The analysis examines and tests this theory against logic and the evidence available from results observed and the various assumptions behind the theory of change and examines other influencing factors. The analysis either confirms – verifies – the postulated theory of change or suggests revisions in the theory where the reality appears otherwise. (p. 271)

The theory offers researchers a practical application to program analysis. In a logical, goal-directed way, researchers are able to examine causal links between interventions and outcomes even in multilayered complex systems (Mayne, 2001, 2012).

While there is value in examining clinical markers, this study proposed the use of performance measures to get a clear appraisal of the programs impact and provide a feedback loop to the schools and providers to make necessary adjustments as indicated by the data (Mayne, 2001, 2012). The intention was to gain valuable data that will assist in identifying any links between the intervention activities and recipient outcomes and gain insight into additional performance markers and identify and understand areas the program needs strengthening (Mayne, 2001, 2012). The theory is also useful in identifying alternate or additional factors that may contribute to or have an influence on the performance measurement variables that either need further examination or provide evidence to refute the outcome data (Mayne, 2001, 2012).

To this end, contribution analysis examines program activities, outputs, recipients, and measures outcomes immediate, intermediate, and long term to determine the impact of the program (Mayne, 2001, 2012). The contribution analysis framework is based on a logic model connecting the problem the program is designed to address with specific performance indicators to measure how successful the program is in impacting the identified problem (Mayne, 2001, 2012). In other words, is the program making a difference in these specific areas, why or why not?

Contribution analysis encourages the use of a logic chart (see Figure 1) to map out the process of identifying the problem, program activities, outputs, and outcomes to focus in on the specific target outcomes that will generate meaningful feedback to the decision makers (Mayne, 2001, 2012). The logic chart is essentially a map that is utilized to carefully examine the problem, determine key outcome measures and influencing factors, gather evidence that links the intervention to the results, identifies alternative explanations for the outcome, and develops a contribution story to explain the data (Mayne, 2001, 2012).

Contribution analysis theory is well suited for this study because it considers the complexity of assessing the impact of SBMH by focusing on only specific outcome variables; in this case, attendance, behaviors disruptions, CBCL scores, and academic performance via grades (Achenbach, Bernstein, & Dumenci, 2005; Mayne, 2001, 2012). These performance measurement variables were selected based on the following logic model illustrated in Figure 1.

Goal(s): *Investigate program outcomes*

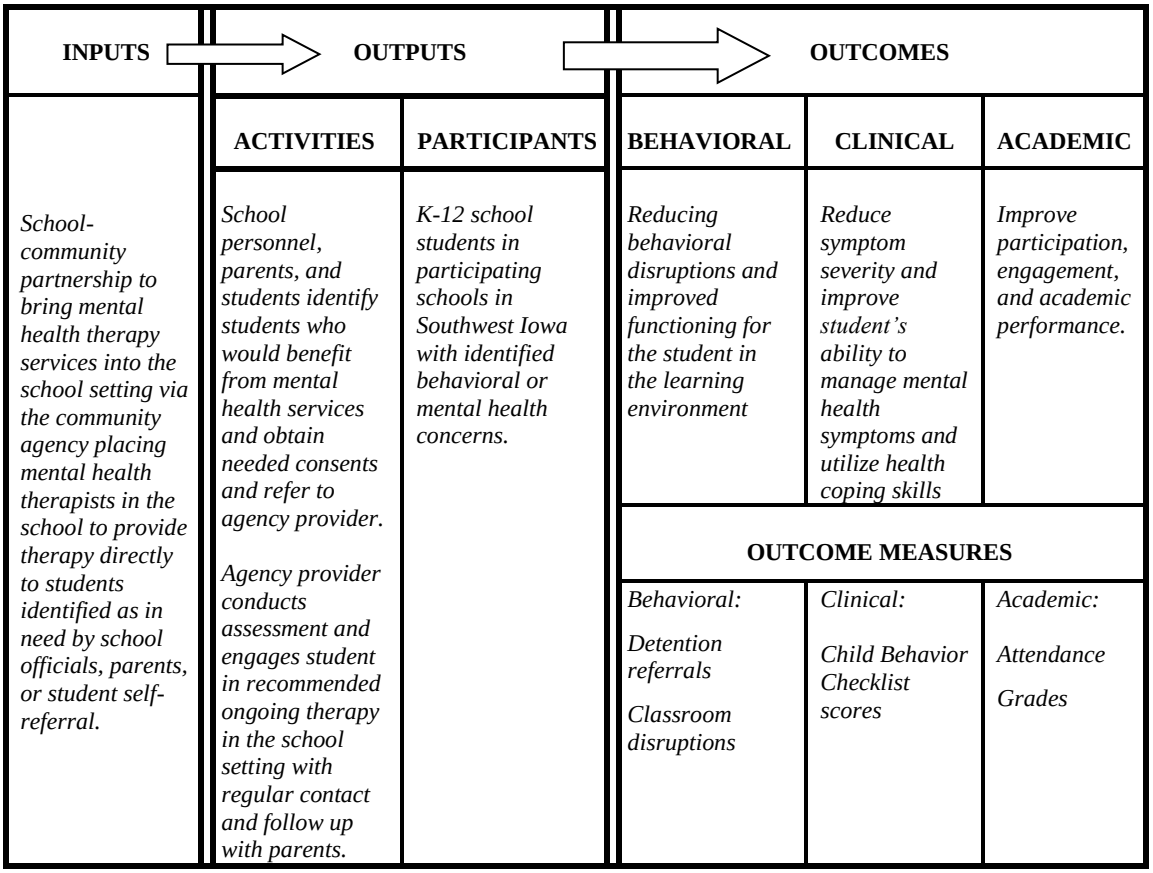

Figure 1. Logic model of a school-based mental health program.

Researchers using contribution analysis develop a logic chart to identify and carefully select performance indicators of program performance and track performance over time and location (e.g., multiple rural schools over an entire academic year; Mayne, 2001, 2012). Ensuring accurate interpretation of the data is done by using "multiple lines of evidence," not relying on only one type of outcome data, collecting additional relevant data, and entertaining skepticism by exploring all alternative explanations for the outcomes (Mayne, 2001, 2012). These steps help build a more credible contribution

story by using the logic model and applying other possible alternative explanations to either prove or disprove the evidence of inferred causality between the program activity and the outcomes (Mayne, 2001, 2012).

History of School-Based Mental Health Programs

The concept of incorporating mental health services into primary and secondary school settings is not new. This idea originated during the progressive era 1890-1930; (Flaherty & Osher, 2002) due to massive immigration, new laws limiting child labor, and required school attendance (Flaherty & Osher, 2002). The changing US educational landscape resulted in a longer school year and more than double the enrollment of students in public and private schools (Flaherty & Osher, 2002). This massive influx of students brought with a multitude of social and emotional problems, thus various ways of addressing these needs emerged including special education, community-based "mental hygiene," and calls for integrating social and mental health services in the schools by early social workers (Flaherty & Osher, 2002).

Students with mental health needs were then relegated to the special education programs along with students with learning and developmental disabilities. This perpetuated negative stigma surrounding mental health issues and overwhelmed special education teachers who were untrained and unqualified to manage emotional and behavioral disorders (Flaherty & Osher, 2002; Epstein et al., 1993; Powers et al., 2013). The sudden growth of special educational needs led the education system to enhance and develop resources in schools and collaborative relationships with community-based resources for students with developmental disabilities, but lacked the same focus,

integration, and comprehensive coordination for students with mental health needs (Epstein et al., 1993). The result was a focus on the individual educational needs of the child by promotion of special education services in the school setting and mental health treatment in community settings, effectively separating education and mental health into operational silos (Powers et al., 2013).

William A. Hunt (1968) presented the idea of integrating mental health and education for students in schools rather than operating in isolation from one another at a conference at the University of Nebraska in January 1967. The concept was largely dismissed as educators did not believe mental health care was the primary business of the school system. Joy G. Dryfoos (1994) described "full-service schools" advocating for the integration of health, mental health counseling, substance abuse prevention, parent education, and other important services into primary and secondary school settings for seamless access and collaboration which was beginning to emerge in large urban schools. England and Cole (1995) identified the importance of family involvement in education and mental health and recommended integrating mental health in the school setting that is child and family focused. Epstein et al, (1993) recognized the need for a system of care to provide a comprehensive community-based model of services to include education and mental health working together to meet the needs of emotionally disturbed children and their families, which would require community stakeholder commitment and investment.

In the 1990's Howard S. Adelman and Linda Taylor (1999) began to recognize the link between mental health and educational outcomes and noted schools were viewing mental health and psychosocial needs in terms of learning barriers with extremely

limited, short-term interventions available. Their research led to the proposal of a model to address barriers and reform school-community partnerships in treating mental health concerns for students and the development of the Center for Mental Health in Schools at UCLA (Adelman & Taylor, 1999; Adelman & Taylor, 2010). Since then there has been a large body of research supporting SBMH programs of various types indicating positive outcomes for students which has gained renewed vigor in recent years (Guo et al., 2008; Guo et al., 2010; Powers et al., 2013; Wegmann et al., 2017). Powers et al. (2013) conducted a qualitative analysis of a multi-system school-community partnership model in an urban school district that indicated positive support, yet identified continued barriers including system silos and resistance to integrating mental health into the education system. The school-community partnership model is shown to have a positive impact on student outcomes and is cost effective for the school district. Advancing this model will require addressing the identified barriers which are not limited to urban school districts.

Evidence of Need

There are multiple factors that can impede a student's emotional wellbeing and impair their ability to be successful in the school environment. Often student behaviors such as truancy, tardiness, behavior disruptions, acting out, engaging in risky activities, exhibiting symptoms of depression or anxiety, and academic decline are indicative of deeper socioemotional factors such as adverse childhood events (ACEs) impacting their ability to perform (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Hess, Pearrow, Hazel, Sander, & Wille, 2017; Stempel et al., 2017). In a 10-year review of

empirical research, Larson et al. (2017) found children exposed to childhood trauma had a significantly higher risk of developing mental health disorders which had a negative impact on their academic performance. Between 25-30% of students in the United States meet diagnostic criteria for mental disorders. This percentage increases to 50% when including social, emotional, behavioral, learning, and family problems and is projected to continue to rise by 2030 (Adelman & Taylor, 2006, Larson et al., 2017; Merikangas et al., 2011; Powers et al., 2013). This is not limited to the United States. The World Health Organization is predicting the rates of internalizing disorders will surpass those of HIV/AIDS by 2032 (Kato, Yanagawa, Fujiwara, & Morawska, 2015).

Signs and symptoms of emotional and behavioral disorders, including anxiety and depression, often begin to emerge in childhood, with onset as early as 7 years old and 75% of disorders emerging before age 25 (McGorry, 2013; Swick & Powers, 2018). Those early manifestations of symptoms are indicators of what frequently become serious mental, emotional, and behavioral disorders that can have a lasting effect with increasing acuity if not detected and treated early (McGorry, 2013; Swick & Powers, 2018). Cueller (2015) found "47% of 8-year-old boys diagnosed with ADHD and referred for psychiatric services were arrested at least once by age 25," (p. 116) thus shifting the problem to the criminal justice system. Husky et al. (2011) conducted a qualitative study in four high schools in an urban school district with 356 students screened for mental health risk in the school setting and a control group of 291 students. They found 78.8% of students screened in the school setting were identified as high risk compared to 4.9% of the control group indicating a significantly greater proportion of students identified

and referred for clinical services that would have otherwise gone undetected and untreated (Husky et al., 2011).

Despite the mounting evidence supporting early intervention (Husky et al., 2011; McGorry, 2013; Swick & Powers, 2018), of those students identified, only 25-35% will receive any level of treatment services either school- or community-based (Bains & Diallo, 2016; Larson et al., 2017; Merikangas et al., 2011). DeRigne (2010) found parents reported that services were not accessed primarily due to transportation, restricted access, lack of convenient scheduling, cost, and lack of insurance. The problem is amplified by lack of access. Only 63% of counties in the United States have at least one outpatient mental health provider treating youth, less than half have facilities with severe emotional disturbance (SED) programming for youth, and in rural counties it is less than 40% (Cummings et al., 2013). For those who can access services, nearly half are treated in the school setting, which is their only available treatment source if the schools can access resources and qualified personnel to provide the services (Amaral et al., 2011; Cummings et al., 2011). According to the 2008 National Survey of Mental Health Treatment Facilities, 9.5% of adolescents in rural areas received mental health treatment services by licensed providers in a community-based or in-home setting, while 12.2% received services in the education setting from school guidance counselors, school psychologists, teachers, or special education services in a regular classroom or placement in a special classroom (Center for Mental Health Services, 2008).

The results of untreated mental health issues in children can be devastating beyond underperforming academically and can lead to lifelong social and emotional

complications well into adulthood (Mendes, Crippa, Souza, & Loureiro, 2013; Powers et al., 2013; Swick & Powers, 2018). Students with untreated mental illness have lower grade scores, higher rates of absence, higher dropout rates, have poor job performance as adults, teen pregnancy, family discord and violence, and have higher rates of engaging in at-risk behaviors, including substance use and suicide, which is the second leading cause of death in people ages 10-24 (Breslau et al., 2008; Larson et al., 2017; Paschall & Bersamin, 2018; Perou et al., 2013; Swick & Powers, 2018). Paschall and Bersamin (2018) conducted a quantitative study of secondary data from 168 middle and high schoolers as well as data from a statewide teen survey in Oregon with 9073 participants. They compared data from schools with mental health services and those without and found significant reductions in suicide risk, tobacco use, and substance use in students from schools with mental health services available.

Left undetected and untreated, mental health and wellness problems cause increased contact with the juvenile and adult criminal justice system, often creating more life complications in adulthood including limiting employment opportunities (Bains & Diallo, 2016). Over time this creates a social and financial burden for families, individuals, schools, communities, criminal justice system, and healthcare networks, including Medicaid and private insurance (Alexandre, Dowling, Stephens, Laris, & Rely, 2008; Bains & Diallo, 2016).

Urban versus Rural

There are SBHCs in operation in all 50 of the United States, however most of the current school-based services are in urban school districts, where the need is higher due

to larger numbers of student enrollment (Bersamin et al., 2016). Urban and rural schools face similar social, emotional, and behavioral challenges on proportionate scales, but evidence indicates rural school districts have higher rates of poverty, ethnic minority farm workers, and lower parental educational attainment (Boyd, Hayes, Wilson, & Bearsley-Smith, 2008). However, large urban school districts often have more community partner resources to provide in-house mental health providers and more access to community resources to provide health and mental health care even if it is not available in the school setting (Green et al., 2013). Students in urban school districts are also found to utilize SBMH services more than rural students, possibly due to higher rates of availability (Green et al., 2013). Larson et al. (2017), Paschall and Besamin (2018), and Swick and Powers (2018) each conducted quantitative evaluations of SBMH programs in large urban school districts in Oregon, Pennsylvania, and a city in the southern United States that supported positive outcomes for students who had access to SBMH programs.

Conversely, rural school districts face additional challenges due to lack of services or the distance students must travel to access limited services (Boyd et al., 2008; Green et al., 2013). Swick and Powers (2018) stated "more than half of all rural counties in the nation have no psychologists, psychiatrists, or social workers" leaving parents and school districts without access to needed services (p. 132). Parents commuting long distances for work may be unable to miss work or unable to provide transportation to access services, leaving schools forced to manage often disruptive emotional and behavioral problems (Boyd et al., 2008; Swick & Powers, 2018). Cummings et al. (2013)

examined results of mental health providers surveyed in the United States and found less than 50% of counties in the United States have facility-based mental health services for children and adolescents. The survey also found that nearly 40% are lacking services due to problems with access, lack of qualified providers, and large geographic gaps in services in rural areas.

While there is a large body of research stemming from large urban school systems with SBMH services available on-site by community providers, there is a lack of data on the impact of school-based services in rural areas where school-based services may be a student's only option for treatment (Bersamin et al., 2016; Boyd et al., 2008; Green et al., 2013; Swick & Powers, 2018). Additional research may be beneficial to examine the efficacy of telehealth to provide mental health services to students in small rural school districts who would otherwise be unable to obtain onsite mental health care.

Types of Programming

With the push for school reform and outcome accountability mandates of No Child Left Behind (NCLB), many schools follow a three-tier based system for implementing mental health programs known as MTSSs (Adamson et al., 2019; Dulaney et al., 2013; Eagle et al., 2015). The MTSS model Tier 1 is a universal psychoeducational intervention delivered to the whole school usually in the classroom setting by a teacher our guidance counselor; Tier 2, interventions are selective or more direct, usually delivered in small groups, and are designed to address a specific problem or topic; Tier 3, are known as indicated and involve intense individual one to one interventions focused on reducing risk in children with emerging signs and symptoms but

are often delivered by a guidance counselor, school social worker, or teacher who may not be trained or qualified (Allen-Meares, Montgomery, & Kim, 2013; Power, 2003). These in-house tiered interventions are the most common forms of mental health and wellness support in schools and have shown effectiveness at teaching, improving, and encouraging prosocial skills and behaviors in a proactive, total school approach, but are not always designed for treating psychopathology if qualified providers are not available in house (Allen-Meares et al., 2013; Antaramian, Huebner, Hills, & Valois, 2010; Power, 2003). School counselors identify as academic advisors more than mental health professionals and are more comfortable focusing on academic success measures and referring to community providers for mental health needs (Adamson et al., 2019; DeFosset, Gase, Ijadi-Maghsoodi, & Kuo, 2017; Weist et al., 2014). DeFosset et al. (2017) conducted a secondary analysis of interview transcripts of 39 adolescents who reported having mental health problems. Students reported seeking help for problems and emotional disturbances from school guidance counselors only to be turned away and told they only help with course sign up, causing confusion about where to access needed support (DeFosset et al., 2017).

Some school districts have hired social workers and mental health professionals directly to provide these tiered services to their students, which gives them direct access to services in the school setting and has shown to be effective; however, this is not always feasible due to budget restrictions (Doll et al., 2017). School-employed providers are on-site full-time and can engage in the school culture, which allows greater access to both students and teachers who spend the most time with the students and can provide

valuable feedback on progress (Doll et al., 2017). Drawbacks to this model are the often very high ratios of students to providers, making it nearly impossible to deliver any Tier 3 services, and some parents view the provider as a member of the school staff, which creates distrust and reluctance to engage in treatment services whereas community providers are more likely to engage each child in Tier 3 services (Doll et al., 2017).

Leaders of many larger urban school districts in the United States have used an SBHC approach where a local health care provider entity incorporated health centers with mental health services in clinics collocated within the school or on school campus (Bains & Diallo, 2016; Guo et al., 2008; Guo et al., 2010; Wegmann et al., 2017). These programs have shown positive outcomes in both health and mental health domains, but are very expensive to establish and run, making them cost prohibitive for most school districts and community health care partners and are completely out of reach for rural school districts (Bains & Diallo, 2016; Bersamin et al., 2016; Guo et al., 2008; Guo et al., 2010; Wegmann et al., 2017).

Other schools have developed true school-community partnerships using a system-of-care approach partnering with community-based mental health providers to provide treatment services in the school setting (Capp, 2015; Powers et al., 2013; Wegmann et al., 2017; Weist et al., 2014). This model is very cost effective as the schools need only to provide a private space within the school to conduct therapy and the community provider is paid by their sponsor agency and engages in fee-for-service billing to Medicaid, private insurance, other funding so there is no cost to the school (Capp, 2015; Cappella, Jackson, Bilial, Harme, & Soule, 2010). School personnel, often

the guidance counselor or principal, identifies children in need of services and coordinates with parents and makes referrals to the community-based provider who meets with the student at the school and in turn the provider can serve as a resource for expertise, training, and guidance to the schools (Powers et al., 2013; Weist et al., 2014). Regardless of the model, accessing mental health services in the school setting helps to remove the stigma and improves utilization rates for students and both school-employed and community-based models have been endorsed as effective (Doll et al., 2017).

Academic and Behavioral Outcomes

Over the past 15-20 years there has been increasing awareness of the need for and multiple benefits of providing funding and other resources to support the mental health and wellness of children and adolescents in schools (Guo et al., 2008; Guo et al., 2010; Powers et al., 2013; Wegmann et al., 2017). Most of the focus has been on either examining specific clinical variables or on behaviors with labels like chronically disruptive, rebellious, or emotionally disturbed, but fail to connect with academic and performance outcomes (Carpenter-Aeby & Aeby, 2005). Kang-Yi et al. (2018) conducted a quantitative study of 755 students in first through eighth grades in an urban Philadelphia school district who received school-based therapeutic services compared to community-based mental health services outside of school examining academic, behavioral, and service use outcomes. They found improvement in academic and behavioral outcomes such as attendance and suspensions for both services, but they were unable to examine grades or other clinical or academic variables indicating an area in need of further study (Kang-Yi et al., 2018). While there is a growing body of evidence

highlighting the benefits of SBMH services, there is less emphasis on psychosocial, academic, or school-based outcomes to support integration of services (Kang-Yi et al., 2018). These variables are important to school districts with limited resources and those with administrators who do not fully embrace the need for mental health programming as an education function, especially in smaller rural districts where it is arguably needed most (Boyd et al., 2008; Green et al., 2013; Swick & Powers, 2018).

Attendance

Attendance is a direct indicator of student wellbeing, is a clear and precise way of tracking and measuring progress, and is a better predictor than grades or test scores (Balfanz & Byrnes, 2012; Stempel et al., 2017). Attendance problems in late elementary and middle school age students has been shown to be an indicator of high school dropout risk and associated with poor academic performance (Kang-Yi et al., 2018; Stempel et al., 2017). Balfanz and Byrnes (2012) reviewed multiple studies that showed less than 20 percent of students who were severely chronically absent graduated from high school.

Stemple et al. (2017) conducted a quantitative secondary analysis study using National Survey of Children's Health data with a sample size of 58,765 comparing absenteeism with Adverse Childhood Experience [ACE] scores and found a significant association between the two. Their research also indicated a correlation between childhood adversity, early onset of mental disorders such as oppositional defiant disorder, depression, and anxiety symptoms, and school attendance and dropout rates (Breslau et al., 2008; Stempel et al., 2017). There is a high correlation between internalized mental health symptoms and somatic complaints such as stomach, head, and muscle aches, with

67% of children complaining of recurrent abdominal pain meeting diagnostic criteria for anxiety disorders (Dufton et al., 2009). These common somatic complaints lead to frequent school absence and unnecessary treatment by primary care physicians (Dufton et al., 2009). Mental health problems, family problems, parental substance abuse, and poverty are all contributing factors to school avoidance and attendance problems (Balfanz & Byrnes, 2012; Kang-Yi et al., 2018; Stempel et al., 2017).

Academic Performance

Schools are a microcosm of student's lives, thus their ability to engage in the learning process is impacted by social and emotional processes, relationships, family strife, and school supports. Students' ability to function in the school environment and learn is directly impacted by mental health needs and failing to recognize this connection has a negative impact on student performance, behaviorally and academically (Durlak et al., 2011; Hess et al., 2017). Cueller (2015) states "children with mental health problems have higher rates of academic deficits, are overrepresented in special education programs, and teens are more likely to drop out of school and not attend college" (p. 115).

Exposure to Adverse Childhood Events [ACE] is highly linked to mental health disorders in children such as depression, anxiety, antisocial acting out behaviors, poor academic achievement, and school avoidant behaviors like truancy (Durlak et al., 2011; Hess et al., 2017; Stempel et al., 2017). Internalizing disorders such as anxiety have less correlation with dropout rates and attendance but are shown to adversely affect concentration and academic performance (Esch et al., 2014; Wegnann et al., 2017). Further research has shown a converse effect of low academic achievement on long term

health outcomes with high school dropouts having higher rates of chronic disease and other health and mental health problems in adulthood (Telfair & Shelton, 2012; Vaughn, Salas-Wright, & Maynard, 2014).

SBMH programming is shown to improve academic outcomes for students including increasing achievement scores in literacy and reading comprehension (Hess et al., 2017; Durlak et al., 2011; Wegmann et al., 2017). Esch et al. (2014) conducted an analysis of research articles from 1990 to 2014 examining the relationship between adolescent mental health and school dropout rates and found a direct link between GPA and depression, indicating a decrease in risk of depression with higher academic scores and a higher risk of depression and dropout rates for students who repeated grades and used substances. Durlak et al. (2011) conducted a meta-analysis study and found students who received school-based social-emotional support programming showed an improvement in academic achievement scores of 11 percentage points overall and maintained improvement at a 6 month follow up. Another study was conducted in the Seattle school district using latent variable growth curve modeling to examine the effects of SBMH utilization on academic outcomes and found student utilization of SBMH resources was strongly associated with increased GPA (Walker, Kerns, Lyon, Bruns, & Cosgrove, 2010).

Academic achievement markers are not routinely used as outcome measures in school mental health studies. Durlak et al. (2011) found that only 16% of studies in their meta-analysis examined academic performance measures relying on unstandardized measures of social and emotional skills, which may not be helpful data for decision

makers in the education field. Examining variables such as grades and other academic outcomes is a standardized way to measure the impact of SBMH interventions and can potentially elevate the importance of integrated mental health programming in all school districts.

Behavior Disruptions

Behavior disruptions leading to detentions, suspensions, and expulsions are symptoms of externalized mental health and behavioral health problems that can be targeted and tracked as effective outcome measures. Externalizing and substance abuse disorders such as oppositional defiant, antisocial, or violent behaviors have a high predictive connection to school absenteeism, behavior disruptions, suspension, academic failure, and dropout rates (Esch et al., 2014; Hemphill et al., 2014). Behavior disruption variables such as detentions and suspensions are connected to long term outcomes for students such as substance abuse, self-harming behavior, delinquency, and dropping out of school (Hemphill et al., 2014; Kang-Yi et al., 2018).

Hemphill et al. (2014) conducted a quantitative survey of students, parents, and school officials in Washington State and Victoria Australia using multilevel modeling with a sample size of 3129 students from 172 schools and found both student and school factors associated with behavior disruptions and suspensions. However, schools lacking the resources to manage emotional and behavioral disruptions rely heavily on disciplinary policies and have higher rates of suspensions (Hemphill et al., 2014). With early identification and availability of services in the school setting, students with behavior disorders are more likely to utilize treatment services and show improvement (Green et

al., 2013). Providing mental health supports in schools has been shown to reduce behavior disruptions supporting the use of detention and suspension tracking as key measurement variable (Hemphill et al., 2014; Kang-Yi et al., 2018).

Effectiveness of School-Based Mental Health Programs

Treating and managing emergent mental health symptoms is linked to improved academic, social and behavioral outcomes, and reduction in disruptive and at-risk behaviors in adolescents (Baskaran et al., 2016; Leasbeater et al., 2015). In early studies Armbruster and Lichtman (1999) found SBMH services to be equally as effective as clinic-based services in a shorter period. Baskaran et al. (2016) conducted a nonrandomized interventional study with a stratified random sampling of 30 participants of a SBMH program using a pre- and posttest and found significant improvement in students social and mental health dimensions such as self-esteem, prosocial behaviors and coping skills after participating in the program. However, children and adolescents rarely self-refer for mental health treatment, so it is up to parents and school personnel to recognize and intervene appropriately (Loades & Mastroyannopoulou, 2009; Masia-Warner et al., 2005). There are many models and programs across the country working to meet the mental health needs of students in the school setting from prevention focused to integrated clinics on school campuses. The challenge for researchers and school personnel is to determine the effectiveness of the efforts and which models work best in which schools which is a complex issue when funding is a constant consideration for tight school district budgets.

Evaluation process. With so many programs emerging in a relatively new field of focus, the first challenge is to identify and define the various levels of SBMH programming such as system of care, expanded, shared and integrated approaches (Weist et al., 2014). One example of an integrated system model is MTSS, which is an evidence-based framework for integrating student mental health needs into the learning environment (Adamson et al., 2019; Dulaney et al., 2013; Eagle et al., 2015). Most of the literature indicates one size fits all approaches are not supported by evidence and describes MTSS as integrating both academic and behavioral/emotional needs of the students with intensities increasing according to student need (Adamson et al., 2019; Dulaney et al., 2013; Eagle et al., 2015). In most applications MTSS is divided into three tiers depicted in Figure 2. including Tier 1 which is psychoeducational support given to all students usually in the classroom setting, Tier 2 which is targeted supplemental interventions for students at high risk or exhibiting early signs of concern, and Tier 3 whish is provision or referral for intensive interventions and treatment services (Adamson et al., 2019; Dulaney et al., 2013; Eagle et al., 2015). Students can access services from either academic or behavioral/emotional perspectives and can be initiated by students, teachers or parents and are driven by data and evidence-based practices (Adamson et al., 2019; Dulaney et al., 2013; Eagle et al., 2015).

Tier 1:	School wide behavior supports, bullying prevention, mindfulness education, social skills and emotional intelligence curriculum, restorative practices.
Tier 2:	Behavior interventions, group counseling and support groups addressing mental health needs such as grief, social anxiety, depression, coping and social skills development.

Tier 3:	Specific behavioral/mental health interventions, individual therapy through community agencies, as needed referrals for higher levels of care.

Figure 2. Example of a multitiered support system.

Understanding and identifying the tier level of program interventions and evaluating them in comparable terms is also essential in establishing valid outcome comparisons. Evaluating a Tier 1 psychoeducational program integrated into teaching curricula may differ from evaluating Tier 3 therapeutic intervention services. Because there are multiple factors associated with student outcomes, best practice indicates the use of multiple informants and multiple methods of measuring that includes teachers, parents and students if age appropriate along with clinical variables (Weist et al., 2014). In this study, focus will be on the Tier 3 onsite individual psychotherapy component for students identified and referred for services in rural Southwest Iowa schools.

Summary and Conclusions

Upwards of 30% of children and adolescents in the United States have mental health needs and only 20-30% of those identified are receiving services (Adelman & Taylor, 2006, Larson et al., 2017; Merikangas et al., 2011; Powers et al., 2013). In the rural areas, access to mental health service is even more difficult than in urban areas due to lack of qualified providers and geographic isolation, but there is a lack of study to identify needs and viable solutions specific to rural school districts (Boyd et al., 2008; Green et al., 2013; Swick & Powers, 2018). The evidence indicates a connection between mental health needs and academic and behavioral performance in students, however; current literature is focused mainly on large urban school districts (Kang-Yi et

al., 2018). The impact of untreated mental health issues compounded by schools' lack of alternatives to suspensions or other disciplinary measures can be lifelong and carry a large price tag for the student, their family, and the community (Esch et al., 2014; Culler, 2015; Hemphill et al., 2014). There is a need to address the barriers to accessing needed mental health treatment and improve academic outcomes for students (Cummings et al., 2013).

SBMH services is a collaborative approach to meeting these needs in rural areas but lacks resources and support to make systemic changes to both the educational environments and funding. I found extraordinarily little literature addressing school-community collaborations in rural school districts and none examining the impact on rural student outcomes. Identifying the clinical, academic, and behavioral outcomes of accessing mental health services seamlessly in the school setting could help bridge this gap by providing data to determine the effectiveness of the services and inform policy makers in determining effective solutions designed to meet the needs of rural districts. Because current knowledge is primarily focused on large urban school districts, this study examined the impact of participating in SBMH therapy in rural Southwest Iowa schools on participant attendance, behavior disruptions, and academic performance. In Chapter 3, I present the RQ and hypothesis, research design chosen, and rationale for this study. A description of the instrument used, description of data, methodology of data analysis, threats to validity, ethical procedures, and protection of confidentiality are discussed.

Chapter 3: Research Method

Introduction

Current research indicates significant improvement in outcomes for children and adolescents with mental health diagnosis who receive treatment support services in schools, yet more than 70% of those students are not receiving treatment services (Garmy et al., 2015; Kang-Yi et al., 2018; Larson et al., 2017; McAllister et al., 2017; Murphy et al., 2015; Paschall & Bersamin, 2018; Swick & Powers, 2018; Weist et al., 2014). The purpose of this secondary data analysis was to examine academic measures and behavioral outcome data of participants in a SBMH program in rural community school districts in Southwest Iowa. The aim was to determine if integrating mental health care services in the school setting rather than community-based referrals had any effect on academic and behavioral outcomes for students.

In Southwest Iowa, several school districts are working with community-based providers to bring mental health services into the school setting. The leaders of these schools responded to student need by engaging in a school-community partnership to provide mental health therapy services to students within the school setting. In this study, I explored the impact, if any, that providing services had on academic and behavioral outcomes to students who participated. I compared outcome data on students who participated in the SBMH programs to the previous school year to determine if participation in the school-based therapy program had any significant impact of outcomes in attendance, behavior, grades, or in clinical outcomes.

In this chapter, I describe the quantitative methodology, study design, and rationale. I also discuss the process of data collection, the sample population, the instrumentation used, and I explain how the data were processed and analyzed. Threats to validity, reliability, and ethical considerations are also explored in this chapter.

Research Design and Rationale

Although there is evidence that providing SBMH services has a positive impact on student outcomes, most of the existing research is focused on federally qualified community mental health centers integrated into large urban school districts (Boyd et al., 2008; Esch et al., 2014; Fedewa et al., 2016; Green et al., 2013). Little is known about serving the mental health needs of students in rural areas who are required to drive up to 60 minutes away to access services (Boyd et al., 2008; Green et al., 2013; Swick & Powers, 2018). Additionally, current research focuses on clinical outcomes for a specific diagnosis but lacks exploration of the link between mental health service provision and student performance outcomes (Cueller, 2015; Durlak et al., 2011; Hess et al., 2017).

Conducting an outcome evaluation of the SBMH program was essential for many reasons, not the least of which was determining if the program outcome justifies providing the services in the school setting (Royse et al., 2016). The evaluation required focus on the specific independent variable of providing mental health services in the school setting versus not providing them or referring to community-based providers (Allen & Bronte-Tinkew, 2008). The dependent variables were attendance, behavior disruptions, CBCL scores, and GPAs for the student participants. Results of this study may be beneficial to school officials, mental health provider administration, and

community stakeholders such as third-party payers and juvenile law enforcement. The purpose of the study was to determine if providing access to mental health treatment services at school was more effective in improving academic and behavioral outcomes than referring out to community providers.

Research Design

In this quantitative research study, I used data provided by the community mental health provider agency and from the participating school districts. Clinical outcome data from the CBCL scores and number of sessions attended were obtained from the community mental health provider and the attendance, behavior, and grade data were provided to the community agency from the respective participating school districts. The study methods utilized instrument-based scores, with performance and observational data examined through statistical analysis and interpretation (Creswell, 2014). The school mental health program outcomes can be evaluated on both the individual and the program levels using a quasi-experimental design (see Creswell, 2014; Royse et al., 2016). I evaluated the individual clinical impact by examining pre- and post-test data from the community-based mental health provider who administered the CBCL to client participants to evaluate symptom improvement before and after treatment intervention. These data were correlated with school performance records data provided by the participating school from the current and previous school year of the same identified students. The community provider administered a pre- and post-CBCL screening tool to a convenience sample of all students in the program from the various schools. Additional CBCL pre- and post-evaluation tools were administered and obtained by the community

mental health provider from parents and teachers and were examined to determine their perceptions and observations of the clients' symptoms and level of amelioration. The participants' school performance outcomes were evaluated for the year prior to implementing the program as a benchmark and compared with the participation year to determine what, if any, improvement can be identified on variables of grades, attendance, and behavioral interventions.

I used a single-group interrupted time series pretest-posttest design for my analysis of the secondary data. Therefore, the evidence may not be as definitive as an experimental design (see Creswell, 2014; Royse et al., 2016). Because the program participants are school children and adolescents, it would be unethical to withhold services to establish a control group for an experimental design (see Creswell, 2014; Royse et al., 2016). As such, I was not be able to rule out all other influencing factors besides the SBMH program intervention on the results (see Royse et al., 2016). I was, however, able to delineate any changes in outcome measures before and after the intervention. I utilized a single-group interrupted time series pretest-posttest design in which dependent variable measures that were recorded before and after the treatment intervention were examined (see Creswell, 2014). The design is depicted in the following diagram:

Group A 0—0—0—0—X—0—0—0—0.

I examined the impact of the independent variable, participation in a SBMH program, on the dependent variables of attendance, behavior disruptions, and GPAs in student participants of SBMH programs in rural schools in Southwest Iowa. I used a one-group

pretest-posttest design to analyze the CBCL scores pre- and post-therapeutic intervention (Creswell, 2014). The design is illustrated as follows:

Group A 01------X------02.

Methodology

Population

I examined secondary data provided by school districts that participated in a SBMH program. Eight rural school districts in Southwest Iowa that participated in the SBMH program provided secondary data for the study. The schools were comprised of some combination of Pre-K through 12th Grade levels, and all students in the participating schools had access to the mental health program services offered by a community-based provider agency through a school-community partnership. School demographic data for 2018-2019 for all eight participating schools are shown in Table 1.

Table 1

2018-2019 Demographic Data for Eight Participating Schools

School	F/R lunch %	Total students	Male	Female	Hispanic	Black	White
1.	39.3%	741	376	374	28	3	685
2.	51.3%	407	201	206	9	2	384
3.	43.0%	455	235	220	14	4	431
4.	29.5%	703	369	334	19	0	664
5.	33.8%	659	337	322	54	1	582
6.	11.1%	835	421	414	13	5	807
7.	28.1%	715	366	349	9	7	694
8.	59.7%	319	137	182	5	2	302
Total		4,834	2,442	2,401	151	24	4,549

Note. F/R lunch = free or reduced-price lunch.

The student demographic was evenly divided between male and female students. Most students were white non-Hispanic at 94.1%. Hispanic students represent 3.12% and African American students made up 0.496% of the student body. The percentage of students receiving free or reduced lunches varied from 11.1% to 59.7%. This indicates an average of 36.975% of students were economically disadvantaged across all eight schools. The identified population for the study was $N = 87$ students attending one of the eight participating schools who received treatment through the SBMH program in their respective school. A power analysis was conducted using Cohen's d using a two-tailed test with a medium effect size of .50, and an alpha of .05 (Pek & Flora, 2018). The results indicated complete records on at least $N = 34$ students would be required to achieve a power of .80.

Procedures for Recruitment, Participation, and Data Collection

The focus of the original study, which constituted the secondary data set for this study, were students in the participating schools who utilized the SBMH program. Out of a potential sample size of 4,549 students, those needing mental health services were identified by school personnel, such as the guidance counselor or principal, who contacted the parent/guardian to discuss the referral and obtain releases to the community provider agency. Once the school personnel obtained the required signed release documentation from the parent/guardian, a referral was made to the community provider who contacted the parent/guardian and the student to initiate services in the school setting. Students and parents could, and often did, self-refer or request services directly

through the community provider, through the school guidance counselor, or other personnel.

All students who received mental health services were administered the CBCL as part of the intake and discharge process by the community provider. All students from participating schools who participated in the SBMH program were included in the secondary data set provided. Students from the secondary data set were included in the data analysis if they attended three or more individual or family sessions and completed the CBCL pre- and post-service provision.

The community-based mental health provider administered the CBCL as part of their internal case assessment and monitoring at intake and case closure for all students for whom they provided services. The school districts collect school performance data of attendance, grades, and behavior referrals as part of their educational statistical data and student record keeping. The secondary data set was further screened for students who were determined to meet the inclusion criteria of attending at least three individual or family sessions and completed the CBCL, which produced a sample size of $N = 87$ to be included in the data analysis for the study.

Instrumentation and Operationalization of Constructs

To evaluate the efficacy of the school mental health program fully and accurately, I examined the clinical aspect of the SBMH program. The community-based provider utilized the CBCL standardized testing instrument as part of their intake and case closure procedures to measure progress. The CBCL is a pre- and post-test administered to

measure progress of participants across several domains assessed by the therapist, teacher, parent, and student self-assessment if age appropriate.

Standardized tests like the CBCL have already been tested and retested to ensure accuracy of the instrument in the target population for which the test was designed (Royse et al., 2016). Utilizing a pre-normed standardized testing instrument increases the validity and reliability of the outcome data versus a newly developed tool because there is existing empirical data to support the validity of the test, especially when testing complex subjects like mental health programming (Royse et al., 2016).

Determining the best and most reliable standardized assessment tool to administer both pre- and post-intervention is one of the most important aspects of research design. It is essential to assess the purpose or goal of the intervention in selecting the appropriate tool to measure the specific areas identified (Holosko, 2010). In this case, the CBCL was the most appropriate choice because it includes a parent questionnaire, an adolescent self-assessment, and a teacher report form to obtain a clear picture of symptomology and progress from all three informers (Christensen et al., 1992; Frizzo et al., 2015). The CBCL has been widely utilized as an effective tool for assessing and measuring behavioral and emotional disturbances in children and adolescents (Christensen et al., 1992; Frizzo et al., 2015). Frizzo, Pedrini, De Souza, Bandeira, and Borsa (2015) found the CBCL to have extremely high reliability in assessing and measuring severity of behavior problems and, when retested at one year, the tool showed exceptionally good stability of findings. This indicates the CBCL tool was reliable for both pre- and post-

testing for the SBMH program research design. The established reliability studies on this tool supported its utilization and strengthens the research design.

The CBCL, parent report, the teacher's report form, and the youth self-report, which is designed for adolescents aged 11-18 years, are part of the Achenbach system of empirically based assessment (ASEBA) forms widely used to assess functional, behavioral and psychological problems (see Appendix B) (Achenbach & Rescorla, 2004). The ASEBA system was developed in the 1960s due to a lack of diagnostic criteria available in the Diagnostic and Statistical Manual (DSM) at the time and it has been revised and retested countless times since its development, has been normed with large samples of participants in numerous countries, and continues to be widely used (Achenbach & Rescorla, 2004). The ASEBA system is so well-known and well-respected, it has become the standardized tool that other newer standardized tools are measured against to test for validity (Hanssen-Bauer, Langsrud, Kvernmo, & Heyerdahl, 2010). The CBCL has been shown to be a reliable tool in conjunction with DSM diagnostic criteria in children and adolescents for initial assessment and evaluation of progress during and following treatment (Sisteré, Domènech Massons, Pérez, & Ascaso, 2014). Additionally, the CBCL has been shown to be accurate and useful when used as a screening tool with children and adolescents for mental health diagnosis, thus provided dual usefulness in the school mental health program (Krol, De Bruyn, Coolen & van Aarle, 2006). Because of the numerous long-term, wide-ranging validity testing, the CBCL has demonstrated to be a reliable and an appropriate testing tool for this study.

The SBMH program evaluation utilized all three parts of the CBCL, the parent report, teacher report form and the youth self-report, where appropriate, provided by the community mental health provider in a pre- and post-model (Frizzo et al., 2015). The test results were analyzed to determine what, if any, significant difference can be detected in the scores. The standardized testing data results were combined with the student performance data collected by the partnering schools including grades, attendance, and behavior data of students participating in the program from the year prior to participation in the program and the current year to assess for any differences in attendance, frequencies of negative behavior, and changes in grades.

Operationalization of variables. The independent variable was participation in the SBMH program with the criteria of attending a minimum of three individual or family therapy sessions in the school setting and completing the CBCL. There were four dependent variables which were attendance, behavior disruptions, CBCL scores, and GPA which were analyzed. Attendance is a discrete ratio numerical value measured as the number of days missed for each participant for the school year and was compared to the number of days missed by the participating students in the previous school year. Behavior disruptions were defined as referrals for any disciplinary action such as detention, suspension, or any other disciplinary intervention. This is also a discrete ratio numerical value that was counted and compared to the previous school year. The CBCL scores were calculated by the ASEBA web-based program (see Appendix A) and pretest scores taken at the initiation of services were compared to posttest scores at discharge.

GPAs at the end of the participatory year for the participant group were compared to GPAs for the school year prior.

Data Analysis Plan

The operational data gathered for attendance, behavior referrals, CBCL scores, and GPA was manipulated for analysis. Each participating school was assigned a number and each student participant was assigned a corresponding participant number, ex. School 01, student 06, to allow for comparison by school. The student participant number was used to code corresponding CBCL data so the aggregate data could be provided without any individual identifying information included. Data for the participant group during the intervention year 2019-2020 was compared to the previous 2018-2019 school year accordingly.

Data preparation. Attendance data was calculated by counting the number of days the student was recorded as absent for at least half of the school day during the school year. Behavior disruptions were calculated by counting the number of discipline referrals student participants received during the school year. CBCL assessments were automatically scored by the computer program and delineated based on pretest and posttest scores for each student participant. GPA was calculated by the schools and provided for the study.

Research question. The RQ and hypothesis were as follows:

RQ: To what extent does participation in school-based mental health (SBMH) program improve attendance and behavior disruptions of middle and high school students with a diagnosed mental health disorder in rural schools in Southwest Iowa?

H_1: Participation in school-based mental health services will improve attendance and behavior disruptions of middle and high school students with a diagnosed mental health disorder in rural schools in Southwest Iowa.

Statistical tests. I examined the data using the statistical package for the social sciences, a statistical analysis program. The study used paired samples *t*-test to examine the differences in ratio level dependent variable attendance, behavior referrals, and GPA in the treatment year and the prior school year. Paired samples *t*-test were used to compare the dependent variable, pre- and posttest CBCL scores, for differences at the beginning and end of the intervention period. Each variable was examined separately comparing the intervention year to the prior year for each participant. Descriptive statistics analysis was utilized for demographic data of gender, age, school, and ethnicity.

Threats to Validity

Threats to validity include history as there was an entire school year that passed during the study period and the participants were experiencing life events that can have an impact on the outcomes of the study (Creswell, 2014). One way to ameliorate the effects of history was the assumption that most of the study participants were experiencing the same or similar external events.

Another threat to validity was maturation (Creswell, 2014). This occurs as the study participants were naturally growing, learning, and changing over the study period. This was especially prevalent in studying juveniles who can grow and mature significantly in a year. This was addressed by having all the participants be similar in age and looking at the same participants in the data comparisons over a course of time.

The quasi-experimental design posed an internal threat to validity as there was not a randomly selected control group to cross compare results with as in experimental studies (Creswell, 2014). Comparing scores to the same students for the study year and the previous year increased the internal validity. Additionally, external factors such as provider skill and experience, participant resistance to treatment, and family involvement with the therapy process are uncontrollable factors that can affect validity.

This study was focused on a specific group of participants from a specific location. These narrow characteristics can prevent generalization of findings to the larger population but can indicate a need for further study with larger groups. Participants were selected by referral via school personnel or by self-referral and may not be a complete cross section of the school population.

Reliability

The standardized tool CBCL has well established reliability and was administered using the ASEBA web-based program with computerized scoring rather than hand scoring. This reduced or eliminated the chance of human error associated with hand scoring. The other dependent variables of attendance and GPA were standardized measures tracked by the school system. Behavior disruption referrals are more subjective depending on the behavior interpretation of the school officials and are subject to bias.

Ethical Procedures

Protecting and maintaining confidentiality and protection of participants in the study was a primary concern for conducting this study. The participating organizations, which included the community-based provider, who gathered data from the participating

schools agreed to share data by signing a data use agreement specifying the information to be shared and the intended use for the data. Included were provisions for maintaining participant confidentiality in compliance with both Family Educational Rights and Privacy Act and Health Insurance Portability and Accountability Act regulations. A data use agreement was signed by designated officials at the community partnering agency, such as board chair, chief executive officer, or another designee.

Participant confidentiality was protected by using the assigned participant number consisting of a two-digit school identification number and a two-digit participant number for the data provided by the partnering agency. This allowed the data for each participant group to be matched for both the participating year and the prior year without revealing individual identifying information. A list of participants and corresponding participant numbers was provided by an identified contact at the community provider agency to a designated school official, such as guidance counselor or principal, as identified by the school for the purpose of data gathering. Once the data has been gathered, the corresponding names were eliminated and the analysis was conducted from aggregate data sets based on participant identification number only.

Names of the school districts and community provider agencies were included in the study documentation. The data collected was considered a normal byproduct of the intervention and education practices. No client names or identifiers were recorded in the research documents and all Family Educational Rights and Privacy Act and Health Insurance Portability and Accountability Act regulations were covered in the data use agreement process. This process met the criteria for secondary data analysis.

Summary

I analyzed secondary data from participating schools and providers from the community mental health partner who were providing mental health services in the school setting. The independent variable was participation in the SBMH program. The dependent variables were attendance, behavior disruptions, CBCL scores, and GPAs. These variables were analyzed comparing data from the participant school year 2019-2020 to the previous school year 2018-2019 for the participant group and pre- and post-test scores on the CBCL. The analysis was conducted to determine what, if any, impact participating in the SBMH program had on academic, behavioral, and clinical outcomes for the students. The data was analyzed using the statistical package of social sciences, conducting paired samples *t*-test to examine if there were any significant differences in outcomes and is reported in the following chapter.

The results of this study could generate conversations among community stakeholders to examine the current system of service delivery to school-aged students and assess solutions to the availability and accessibility problems (Doll et al., 2017; Eklund et al., 2017; Garmy et al., 2015; Kang-Yi et al., 2018; Koppelman, 2004; Larson et al., 2017; Leadbeater et al., 2015; Lemberger et al., 2010; Murphy et al., 2015; Oduguwa et al., 2017). Examining the result of this study will be helpful in making decisions about how to improve access to mental health care for children and adolescents ages 3-17 in rural areas and have possible implications for changes to the service delivery system. Chapter 4 discusses how and when the data was collected, a description of the sample demographics, and a statistical analysis of the findings of this study.

Chapter 4: Results

Introduction

Untreated mental health issues lead to poor student performance academically, behaviorally, and socially, yet access to treatment remains a barrier for many U.S. students. This is especially the case in rural areas such as Southwest Iowa. The purpose of this quantitative study was to examine academic measures and behavioral outcome data of participants in a SBMH program in rural community school districts in Southwest Iowa. The aim was to determine if integrating mental health care services in the school setting rather than community-based referrals had any effect on academic and behavioral outcomes for students (Doll et al., 2017; Garmy et al., 2015; Larson et al., 2017; Leadbeater et al., 2015; Murphy et al., 2015; Oduguwa et al., 2017).

The results of this study could spur school administrators, guidance counselors, school staff members, community mental health providers, third-party payers, parents, and students to have an open dialogue about offering mental health care services in schools. Findings may also encourage stakeholders to explore the impact of bringing treatment to students (Doll et al., 2017; Garmy et al., 2015; Larson et al., 2017; Leadbeater et al., 2015; Murphy et al., 2015; Oduguwa et al., 2017). I sought to identify if providing treatment services in the school setting has an impact on grades, attendance, behavior referrals, and clinical outcome scores using the CBCL (Christensen et al., 1992).

I partnered with a community mental health provider who was providing SBMH services in school districts in southwest Iowa. I examined secondary data gathered over the course of the 2019-2020 school year and compared it to data from the 2018-2019

school year to determine what if any impact participating in the school based therapy program had on the variables of grades, attendance, behavior referrals, and CBCL scores. The RQ and hypothesis were as follows:

RQ: To what extent does participation in school based mental health (SBMH) program improve attendance and behavior disruptions of middle and high school students with a diagnosed mental health disorder in rural schools in Southwest Iowa?

H_1: Participation in school based mental health services will improve attendance and behavior disruptions of middle and high school students with a diagnosed mental health disorder in rural schools in Southwest Iowa.

In this chapter, I describe the data collection process and report demographic and descriptive characteristics of the sample. The data analysis process and findings are presented with statistical data and a summary of the answer to the RQ.

Data Collection

The community provider agency had a current memorandum of understanding with each of the schools it provided mental health services to which included provisions for data sharing between the agency and the schools. The community provider agency provided me with an aggregate data set of secondary data on the participants of the school mental health programs. The data set was deidentified of both personal identifiers of the students and the names of the schools they attended. The data provided included a coded four-digit participant number with the first two numbers identifying the school and the second two numbers assigned to the student. The community provider identified students who participated in the SBMH program during the 2019-2020 school year and

then prepared the aggregate data set accordingly. The aggregate data set included pre- and post-CBCL scores for the 2019-2020 school year and attendance, grades, and behavior referral data from the 2018-2019 and 2019-2020 school year for comparison purposes.

Adjustments

The coronavirus pandemic affected key aspects of this study. As a result of the impending spread of the coronavirus, officials closed all Iowa schools on March 17, 2020. The public was initially told that schools would be closed for 2 weeks, but this very quickly changed to 30 days and then the remainder of the school year. The community agency also closed its offices and transitioned to providing teletherapy online and by phone during this time.

In response, I adjusted the data collection to reflect the closure dates. I used only data from the first day of school to March 15th for both 2018-2019 and 2019-2020 school years to have similar time frames for comparison. The pandemic and corresponding closure of the schools and community organization made data gathering more cumbersome as communication was limited to phone and electronic communication and school personnel and partner agency staff were working from their homes. The adjustments made by the schools and community agency to remain in business and develop alternative education plans understandably took precedence over assisting with this study. As a result, the community agency was able to provide only limited data from the participating schools, yet while limited, the data do shed light on the effectiveness of the school-based therapy program from a clinical perspective.

Sample Demographics

The demographics of the participating schools indicate an increase in free and reduced lunch and a decrease in total enrollment from the 2018-2019 school year. Table 2 shows the demographic breakdown of the participating schools. The schools had a 1.6% decrease in student enrollment (down 78 students) and a 1.6% decrease in free and reduced lunch eligibility from an average of 36.98% to 36.38% over the 2018-2019 school year. Three reporting schools showed a 6.7% increase in student enrollment (up 143 students) and a 3.13% increase in free and reduced lunch eligibility from an average of 33.73% to 36.86% over the 2018-2019 school year.

Table 2

2019-2020 Demographic Data for the Eight Participating Schools

School	F/R lunch %	Total students	Male	Female	Hispanic	Black	White
1.	40.3%	736	366	370	33	4	667
2.	44.7%	399	193	206	7	1	379
3.	43.9%	440	228	212	18	6	409
4.	27.4%	699	361	338	13	0	660
5.	40.3%	641	323	318	48	0	574
6.	10.8%	822	419	403	17	0	795
7.	30.0%	714	370	344	9	8	692
8.	53.6%	305	141	164	5	2	289
Total		4,756	2,401	2,355	150	22	4,465

Note. F/R lunch = free or reduced-price lunch.

The total number of students who participated in the SBMH program from the eight participating schools during the 2019-2020 academic year was 87. Table 3 shows

the gender of the sample. As shown, over half of the sample population, nearly 58% of the participants, were female students. The remaining 41.1% were male and one student identified as trans male. This is disproportionate to the total school demographics which are almost even divided at 49.5% female and 50.5% male indicating that female students used the school-based therapy services at a higher rate than male students.

Table 3

Respondent Gender

Gender	Frequency	Percent
Female	50	57.5
Male	36	41.4
Other	1	1.1
Total	87	100.0

The univariate analysis in Table 4 indicates that the largest age group to utilize the service were elementary school students ages 6-10 with 40.2% of the sample followed by high school students ages 14-18 representing 35.6% and middle school students making up 28.7% of the sample population. This appears to be a mostly even distribution demographically but may indicate that further investigation is warranted into the high number of elementary age students experiencing emotional distress.

Table 4

Age of Respondent

		Frequency	Percent
Age	6-10	35	40.2
	11-13	25	28.7
	14-18	31	35.6
	Total	87	100.0

Racial demographics shown in Table 5 indicate 87.4% of the sample population is made up of Caucasian students and 12.6% of the sample identified as Hispanic, Black, Native American, Asian, or multiethnic for a total of 11 participants. The demographic make-up of the total school population in the participating schools is 93.8% Caucasian, which is proportional to the demographics of the geographic area. The sample population shows a difference in proportional utilization of school-based therapy services with a higher percentage of minority students, 12.6%, participating which is more than double what is represented in the overall population of the participating schools at 6.2%.

Table 5

Race of Respondent

		Frequency	Percent
Valid	White	76	87.4
	Black	4	4.6
	Hispanic	3	3.4
	Native American	2	2.3
	Multi	1	1.1
	Asian	1	1.1
	Total	87	100.0

Intervention Fidelity

The community provider agency was unable to continue providing therapy services in the school setting as of March 17, 2020 when the schools closed due to the coronavirus pandemic. The provider agency made continued therapy services available to the students enrolled in the program via telehealth on a secure video platform or by phone if needed, but reported that very few of the SBMH program participants continued with telehealth services after the schools closed. Treatment services were inconsistent for students following the school closures, so data analysis was conducted only through March 15th for both the current and previous comparison academic year.

The CBCL questionnaires were sent electronically from the ASEBA web software to identified parents and teachers via email to complete. Responses from teachers, parents, and youth participants were difficult to obtain prior to the pandemic and nearly nonexistent after the school closure. Table 6 shows less than 25% response rates for teachers and parents on the pretest and less than 20% for the posttest. Because the

schools were closed abruptly without advance notice, the therapeutic intervention also ended abruptly without closure for the clients. When it was determined the schools would remain closed for the rest of the school year, the providers attempted to get post testing completed via electronic communication with teachers, parents, and students but reported dismal success rates. The posttest response rates for all three groups were less than 20% total responses received.

Table 6

Rate of Responses by CBCL Respondent

	Counselor	Percent	Teacher	Percent	Parent	Percent	Youth	Percent
Pretest	63	72.4%	20	22.9%	21	24.1%	31	35.6%
Posttest	56	64.3%	16	18.3%	11	12.6%	10	11.4%
Total	119		36		32		41	

The poor response rates resulted in the primary data analysis focused on the CBCL pre- and posttest submitted by the therapy staff. The responses by teachers, parents, and youth data analysis were performed with the understanding that the minimum sample size of 34 was not met in these categories; therefore the results were unreliable.

The coronavirus pandemic and subsequent school closures left the participating school districts scrambling to develop alternative education plans and resulted in diminished response rates for the academic data of GPA, attendance rates, and behavior referrals. Of the academic data received, several of the records were excluded because the school did not record grade data in the form of GPA and was incompatible with the

data analysis structure of this study. Table 7 breaks down the response rates for the academic data and indicates the minimum of $N = 34$ was not achieved in any of the reporting categories; therefore, the results were unreliable.

Table 7

Academic Data Response Rates

	GPA 2018-2019	GPA 2019-2020	Days Absent 2018-2019	Days Absent 2019-2020	Behavior Referrals 2018-2019	Behavior Referrals 2019-2020
Valid	20	21	28	29	22	22
Missing	67	66	59	58	65	65

The academic data analysis was performed with the understanding that the minimum sample size was not achieved; therefore, the results were unreliable, yet the data received suggests possible positive outcomes that warrant further study.

Results

The CBCL has four possible informants per student to include the therapist, teacher, parent, and youth when age appropriate. Each scored CBCL provides outcome data scores in eight clinical measurement categories consisting of anxiety, depression, somatic symptoms, social problems, thought problems, attention problems, aggressive behavior, and rule breaking behavior. These categories are present on both pretest and posttest for each informant creating a depth of data for examining clinical outcomes.

Statistical Test

Paired samples *t*-test was performed on the data in each of the eight clinical domains for each of the four informant categories. Paired samples *t*-test was appropriate because this study was a matched subject design with an intervention using pre- and post-intervention measurements. The underlying assumptions for the paired samples *t*-test are that there are two scale measurements per participant, the difference scores are independent of each other, the difference scores are normally distributed in the population, and the cases represent a random sample of the population (Green & Salkind, 2005). Green and Salkind (2005) stated that a sample size of 30 pairs of scores is generally accepted value, however the power analysis performed indicated a minimum sample size of $N = 34$ for this study.

Therapist Results

To test the hypothesis that therapist reported CBCL $N = 55$ pretest ($M = 59.60$, $SD = 4.42$) and posttest ($M = 55.71$, $SD = 3.33$) were different after the intervention of participation in the SBMH program, a paired samples *t*-test was performed. The assumption of normally distributed difference scores was examined by generating an average mean of the therapist pretest and posttest scores of the eight domains on the CBCL (labeled PreCave and PostCave) and testing for skew and kurtosis in the distribution of the sample. The assumption was considered satisfied as the skew and kurtosis were estimated at (.469 pre, .750 post) skew and (.508 pre, .790 post) kurtosis, which is less than the maximum allowable values for a *t*-test (Frankfort-Nachmias &

Leon-Guerrero, 2015). The correlation between the pretest and posttest scores was estimated at r =.464, $p < .001$, suggesting that the paired samples *t*-test is appropriate.

The results shown in Table 8 indicate a mean difference of 3.89 between the pretest and posttest scores which falls between the 95% confidence interval of 2.77 and 4.99. The null hypothesis of no difference in CBCL scores after participation in the SBMH program is rejected, t (54) = 6.99, $p < .001$.

Table 8

Therapist Report CBCL Pre-Post Average Paired Samples Test

	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
PreCave - PostCave	3.88636	4.11807	.55528	2.77309	4.99963	6.999	54	.000

Paired samples *t*-test were also performed on the therapist-reported CBCL scores in each of the eight domain categories individually as well for a closer examination of the results. Table 9 shows that all the domains had statistically significant differences in scores $p < 0.001$ except depression (M = 2.69, SD = 8.73) and rule breaking (M = 2.29, SD = 4.74) which both had $p > .001$ indicating that while they did have a difference in scores, they were not statistically significant in those specific domains. The most significant improvements were noted in anxiety (M = 5.18), thought problems (M = 5.11),

somatic complaints (*M* = 4.27), and attention problems (*M* = 4.07) mean reduction is severity scores all with $p < .001$.

Table 9

Therapist Reported CBCL Pre-Post Domain Scores Paired Samples t-test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pre C Anxiety Post C Anxiety	5.18182	6.73050	.90754	3.36231	7.00133	5.710	54	.000
Pair 2	Pre C Depress Post C Depress	2.69091	8.73451	1.17776	.32964	5.05218	2.285	54	.026
Pair 3	Pre C Somatic Post C Somatic	4.27273	6.19873	.83584	2.59698	5.94848	5.112	54	.000
Pair 4	Pre C Social - Post C Social	3.61818	6.93753	.93546	1.74271	5.49366	3.868	54	.000
Pair 5	Pre C Thought Post C Though	5.10909	7.64168	1.03040	3.04326	7.17493	4.958	54	.000
Pair 6	Pre C ADHD - Post C ADHD	4.07273	5.98410	.80690	2.45500	5.69046	5.047	54	.000
Pair 7	Pre C Aggress Post C Aggress	3.85455	5.88916	.79409	2.26248	5.44661	4.854	54	.000
Pair 8	Pre C Rules Post C Rules	2.29091	4.74409	.63969	1.00840	3.57342	3.581	54	.001

Paired samples *t*-test performed on the remaining data categories of teacher, parent, and youth informant CBCL scores and academic categories of GPA, attendance, and behavior referrals. The results indicated no statistical significance in any of the remining categories likely due to the small sample sizes (teachers *N* = 7; parents *N* = 7;

youth $N = 7$) although there were $N = 31$ youth CBCL pretest, there were only $N = 10$ posttests due to the abrupt school closures. Subsequently results in all these categories were unreliable and the research hypotheses were unable to be accepted or rejected.

Summary

Analysis of these qualitative data was performed to examine the impact on outcomes for students who participate in SBMH programs is rural school districts in southwest Iowa. The results of this study indicate participation in the SBMH program had a significant impact on clinical outcomes on the CBCL scores as assessed and reported by the therapist. Lack of data collection due to the school closure and subsequent quarantine and social distancing mandates prevented further data analysis of the remaining variables. Because of these unusual circumstances, the hypothesis was not able to be fully tested and the RQ can only be partially answered. The null hypothesis for only the therapist informant CBCL was rejected and the remainder of the RQ cannot be answered due to lack of data.

Repeating this study with adjustments in reporting with the pandemic parameters in consideration may increase available data. It was noted that the rate of return of CBCL data from teachers and parents was low even prior to the pandemic therefore, identifying alternative means to obtain more consistent reporting would be advised. Additionally, of the academic data reported, it was discovered that not all students' grades were recorded in GPA format which further limited the available data. Future studies should explore alternative ways to measure the impact of SBMH participation on academic outcomes.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Mental health providers, educators, and parents are tasked with meeting the needs of children to ensure that they are provided the best opportunities to learn, grow, and develop. An untreated mental health diagnosis affects the social, emotional, behavioral, and educational domains of students and has been shown to have an impact on their academic achievement and long-term success as adults (Culler, 2015; Esch et al., 2014; Hemphill et al., 2014). Identification of barriers to accessing treatment in rural school districts has led school districts in rural Iowa to implement SBMH services in the learning environment so students can receive mental health treatment without missing school or parents missing work. I conducted a secondary analysis of data collected on the participants of a school mental health program in eight rural Iowa schools. The aim of this study was to explore the impact these SBMH services had on clinical, academic, and behavioral outcomes for the student participants.

I examined four outcome measurements to determine what, if any, impact the SBMH program had on CBCL scores, GPA, attendance, and disciplinary rates of the students who participated in three or more sessions during the 2019-2020 academic year in eight Southwest Iowa school districts. I hypothesized that participation would result in improvement in these four areas. Confirmation of this hypothesis would suggest that providing mental health services in the school setting could help improve the overall academic performance of students with mental health needs.

Summary of Key Findings

Contribution analysis involves the use of a logic chart to identify, select, and track performance indicators over time and location (e.g., multiple rural schools over an entire academic year; Mayne, 2001, 2012). The contribution analysis logic model developed for this study identified clinical, academic, and behavioral performance indicators of CBCL scores, GPA, attendance, and behavior referrals to determine the impact of treating mental health in the school setting. The coronavirus pandemic prevented a full analysis of all the variables; however, there were some encouraging findings. Findings indicate improvements in clinical outcomes and while the other findings are inconclusive due to lack of data, there is some indication of improvement in attendance and behavior outcomes. This may point to the program having a positive impact in at least three of the performance indicators identified on the logic model which includes clinical outcomes, behavior, and attendance.

The CBCL provides outcome data in eight clinical domains and can be used to gather data from four different informants including the therapist, teachers, parents, and youth where age appropriate (Achenbach & Rescorla, 2004). This tool provides a robust set of data that informs clinical, social, and behavioral outcomes. The data analysis showed statistically significant improvement in the CBCL scores as reported by the therapist indicating there were clinical benefits for the students in accessing mental health treatment services in the school setting. The most improvement was in anxiety and thought problems followed by somatic complaints and attention problems. There was no statistically significant improvement in the depression scores. This is consistent with

previous research indicating that a positive improvement in clinical outcomes from mental health intervention provided in the school setting (Baskaran et al., 2016; Leadbeater et al., 2015).

Interpretation of the Findings

Interpretation of these findings must be tempered with the reality of what was happening in the world during the secondary scoring period. Beginning in January 2020, the students in the study schools began hearing about the impending coronavirus pandemic and experienced uncertainty and stress related to it. The pandemic culminated in the unprecedented school closure and associated loss of social and extracurricular activities including spring and summer sports, prom, plays and music events, speech competitions, and graduation for the seniors. The therapists completed closing CBCL assessments after the school closure in most cases based on their last interaction with the students prior to March 17, 2020, when students' anxiety was unmeasured. The pandemic event presents an unknown factor that must be considered when interpreting the findings.

Despite the unusual circumstances, these findings appear to be aligned with previous research that indicate a significant positive impact on clinical mental health outcomes for students who receive services in SBMH programs (Kang-Yi et al., 2018; Lyons, Huebner, & Hills, 2013). The limited data prohibit making definitive claims; however, these findings show similar improvements in behavior and attendance as were found in urban school districts and support the integration of mental health services in rural school districts for behavior disorders and truancy as well as mental health (Atkins

et al., 2006; Balfanz & Byrnes, 2013; Swick & Powers, 2018). Previous researchers found a similar positive impact on students of receiving services from a collaborating mental health provider in the community (Atkins et al., 2006). Although limited, these preliminary findings seem to suggest that simply being able to access mental health services has a positive impact on several key outcome areas for students which is an important finding for rural school districts (Swick & Powers, 2018).

Limitations of the Study

Limitations for this study include the limited sample size due to the small sample population and problems with CBCL response rates from teachers and parents. The sample appears to be a fair representation of the overall population of the participating schools but may not be generalizable to the larger population. I experienced difficulties in gathering data due to the emergence of a pandemic as schools were consumed with completely shifting their education models to accommodate remote and online learning for the remainder of the 2019-2020 academic year and making tri-level education access plans for the coming 2020-2021 academic year. One superintendent told me that they were “overwhelmed and scrambling” to meet the needs of their students and had no time or staff available for additional duties. The community provider had to shift their practice completely to a telehealth online platform and had difficulty completing posttests after the school closure. These events created a void of data available for the study.

The level of anxiety generated by the coronavirus pandemic affected and continues to affect everyone on many levels, including some parents losing their employment or having to close small businesses in the communities. The students lost

their routines and social groups. The lack of assurance of what would be happening in the future and the anxiety that these events generated cannot be accounted for and may have skewed the results of the clinical outcome measurements.

Aside from the effects of the pandemic, other limitations also exist such as the skill level of the individual therapist, age and acuity level of symptoms, and the presence of outside supports for the students. These are all factors that can have an unmeasured impact on participant outcomes. Additionally, not all study participants' academic performance was measured in the form of GPA limiting the ability to measure the impact on academic achievement.

Another issue is that the lack of a control group for comparison limits this study. A dependent sample analysis of the same group before and after the intervention was conducted and may not account for external threats to validity. Control groups from the same schools would allow for assumptions to be made about general equality of external and environmental circumstances and provide a more reliable experimental model for future study.

Recommendations

There is ample opportunity for further research from this study including potentially replicating the first attempt with some adjustments for the limitations encountered by the pandemic that occurred during this study period. Expanding the scope of the study to include more schools with SBMH programs to increase the sample size would allow for greater generalizability of the findings. Collecting completed CBCL data from teachers and parents would provide a more well-rounded picture of the impact

on clinical outcomes and behaviors in various settings. Administering some form of standardized academic measurement pre- and posttest would provide data for analyzing the impact on academic performance when GPA is not available as a measurement.

While attendance rates are a good indicator of outcomes, future study would benefit from adding tardy rates along with attendance rates (Balfanz & Byrnes, 2012; Balfanz & Byrnes, 2013). Adjusting for the low response rates from teachers and parents by building in ways to connect with and follow up with these informants is recommended to improve response rates and provide varied perspectives on clinical and behavioral outcomes. One recommendation is to identify more than one respondent in the teacher and parent categories who can report for each student as well as possibly gathering the data by personal interview rather than asking them to complete a questionnaire and return it to the community agency.

Additional recommendations for future research include comparing outcomes in rural school districts to those of urban programs to determine if there is a difference with limited provider availability. A qualitative exploration of the impressions and attitudes of the SBMH program stakeholders including students, (both participating and non-participating), parents, teachers, and administration would be useful in learning how to implement and improve the program. Examining the cost effectiveness of school-community partnerships and the parity of coverage by third-party payers would clarify the funding needs and limitations.

Implications

The implications for social change of this study cannot be separated from the extraordinary events and circumstances that have occurred in our world with the pandemic and the impact it will have on the way we provide both educational and mental health services moving forward. Recent research findings suggest the pandemic and subsequent school closure caused increased acuity levels in young people, specifically on stress, anxiety, and depression symptoms (Zhou, MacGeorge, & Myrick, 2020). Children and adolescents are found to be at higher risk for adverse mental health effects from the pandemic from fear, isolation, family stress, social distancing, loss of educational supports, and for some exposure to violence, making the need for accessing mental health services even more important than before (Fegert et al., 2020). The impact of the coronavirus only further enhances the findings of this study indicating the need for improved access to mental health care in the school setting.

The coronavirus pandemic amplified the need for social work and other mental health professionals to reassess the current delivery system for providing mental health services to minors and their families, especially in rural areas. Practice location restrictions, interstate licensing rules, and lack of insurance coverage for SBMH services create barriers between the providers and the students in need. Further implications for social work practice are in advocating for the expansion of telehealth services for mental health, including increasing access to technology and improved reimbursement from both public and private health insurance options (Fegert et al., 2020). Additionally, exploring attitudes and experiences of students and parents using online telehealth technology for

mental health services would be useful in moving forward with planning for both school officials and mental health providers. Technology-based mental health services have quickly moved to the forefront of SBMH programming, especially considering the pandemic and online education increases. It is imperative that the mental health delivery system adjust accordingly to prevent a lapse in service access at a time when students need it most.

Conclusion

Recognizing the interconnected nature of education and mental health is foundational in helping students with mental health needs find a path toward academic and vocational achievement (Durlak et al., 2011; Hess et al., 2017). An integrated system of care delivering mental health services to students in the school setting appears to have a positive impact on clinical and behavioral outcomes. Providing access to mental health care, especially in the rural areas is essential in ensuring students get the services and support they need to be successful (Green et al., 2013).

Despite the indication that treating mental health improves academic, behavioral, social, and clinical outcomes, there remains a lack of services especially in rural school districts (Kang-Yi et al., 2018). True school-community partnerships with strong school administration buy-in will be needed to make these services a routine and essential part of the education system (Weist et al., 2012). While there has been improvement in recent years, as evidenced by the eight schools represented in this study, more work is needed to further develop the collaborative approach with rural school districts and community mental health providers. Further developing a system of care that includes SBMH

programs and potentially telehealth models for student mental health care appear to be promising directions for future advancement of school-community partnerships.

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Appendix A: Child Behavior Checklist ASEBA web Data use Permission

The University of Vermont

ASEBA
Research Center for Children, Youth & Families, Inc.
A Non-Profit Corporation
1 South Prospect Street, St Joseph's Wing (Room #3207), Burlington, VT 05401
Telephone: (802)656-5130
Email: mail@aseba.org / Website: http://www.aseba.org

CONSENT TO COLLECT, PROCESS AND STORE DATA

All access to this data is restricted to users of your account. The ASEBA applications collect, process and store data based on the information your users enter on the applications, with access to data restricted to the users of your account. You may revoke this consent at any time by closing your account.

Appendix B: Child Behavior Checklist ASEBA Web Licensing

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