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AN EVALUATION OF A SCHOOL MENTAL HEALTH PROGRAM FOR UNDERSERVED YOUTH IN RURAL SOUTH CAROLINA

by

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Bachelor of Science University of South Carolina, 2016

Submitted in Partial Fulfillment of the Requirements

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ABSTRACT

School, community, and youth-serving system partnerships can support implementing comprehensive school mental health (SMH) systems including services beyond direct therapy for students (i.e., multiple tiers of support). Utilizing a comprehensive approach to SMH allows clinicians to form stronger relationships with administrators, school staff, and most importantly, students who may need services. This comprehensive approach to SMH includes incorporating the SMH clinician into the culture and daily activities of the schools (e.g., helping direct students in the bus line), to increase the visibility of the clinician and services available as well as provide opportunities for direct outreach to students. One such program, the Pee Dee Resiliency Project (PDRP) utilized a multi-tiered approach to enhance the roles of SMH clinicians in eight underserved elementary schools in South Carolina. The following article is an evaluation of the PDRP.

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LIST OF ABBREVIATIONS

ACEs	Adverse Childhood Experiences
CYRM	Child Youth and Resilience Measure
FES	Family Engagement Specialist
IEP	Individualized Education Plan
MBD	Mental or Behavioral Health Disorder
MHC	Mental Health Center
MTSS	
NCES	National Center for Education Statistics
PBIS	Positive Behavioral Interventions and Supports
PDRP	Pee Dee Resilience Project
PSC	Pediatric Symptom Checklist
REDCap	Research Electronic Data Capture
SES	Socioeconomic Status
SMH	School Mental Health
US	

CHAPTER 1

INTRODUCTION

Comprehensive school mental health (SMH) systems have the greatest opportunity to support youth when partnering with community and youth-serving systems, expanding SMH services beyond direct therapy for students (i.e., multiple tiers of support). Using a comprehensive approach to SMH can allow clinicians to form stronger relationships with administrators, school staff, and most importantly, students in need of services. This comprehensive approach to SMH includes incorporating the SMH clinician into the culture and daily activities of the schools (e.g., serving on school teams, helping direct students in the bus line, etc.), to increase the visibility of the clinician and services available as well as provide opportunities for direct outreach to students. One such program, the Pee Dee Resiliency Project (PDRP), utilized a multi-tiered approach to enhance the roles of SMH clinicians in eight underserved elementary schools in South Carolina. The following article is an evaluation of the three-year PDRP utilizing parentand student self- reports of student clinical and resilience outcomes related to receiving treatment from a PDRP clinician.

Need for services

In the United States (US), approximately 20% of youth have a diagnosable mental or behavioral health disorder (MBD; Merikangas et al., 2010a; Merikangas et al., 2010b). Recent analyses suggest that this process begins early, with 17.4% of children aged 2-8 in the US having an MBD (Cree et al., 2018). However, many children in need of mental health services do not receive them, with only 50% of youth with or at risk of developing an MBD receiving some form of services and only 20-25% of youth completing treatment (Anderson & Gittler, 2005; Burns et al., 1995; Kataoka et al., 2002; Nock & Ferriter, 2005). Further, the need for mental health services is heightened for youth living in poverty (Cree et al., 2018), youth who have Adverse Childhood Experiences (ACEs), and youth living in rural areas. Providing high-quality mental health services for youth with heightened needs has historically been difficult due to the myriad of barriers youth face to accessing services (Santiago et al., 2013).

Socio-economic disadvantage

In addition to an increased risk of adverse physical health outcomes, learning disabilities, and low academic achievement (Brooks-Gunn, 1997; Hernandez, 2011), having a lower socio-economic status (SES) is also a risk factor for developing a MBD (Cree et al., 2018; Reiss, 2013; Yoshikawa et al., 2012). Specifically, 22.1% of youth below the federal poverty level have a MBD versus 13.9% of youth in high-income households (Cree et al., 2018). In a review of the child poverty literature, McCarty (2016) suggests that the length of poverty exposure is positively associated with the likelihood of experiencing negative outcomes and that early life exposure may be particularly detrimental to brain development. Similarly, Reiss (2013) concludes in a review of international studies of poverty and mental health that youth from socioeconomically disadvantaged families are two to three times as likely as their advantaged peers to develop a mental health problem, which demonstrates the generalizability of this association.

Poverty and accompanying resource scarcity can have dramatic impacts on caregivers' and, in turn, children's stress levels. For instance, children in poverty tend to report higher levels of stress and tend to have a lowered ability to regulate stress as compared to their affluent peers, which may be related to experiencing resource deprivation (Evans & Kim, 2007). Youth who contend with food insecurity are more likely to develop externalizing and internalizing problems (Slopen et al., 2010). Additionally, children who experience homelessness are at an increased risk of experiencing trauma and developing a MBD (David et al., 2012; Perlman et al., 2012). Conger et al. (2002) have proposed a family stress model that helps to explain the association between experiencing economic hardship and youth mental health outcomes. Specifically, Conger et al. (2002) suggest that family economic pressure can lead to increased caregiver stress and emotional distress. Increased caregiver stress and emotional distress can lead to worse parenting practices including reduced warmth, increased hostility, and a reduced ability to manage child behavior. These stress-induced reductions in parenting efficacy are related to increased child internalizing and externalizing problems as well reduced academic performance (Conger et al., 2002).

Overall, contending with family socioeconomic disadvantage increases the risk of youth developing a MBD and can heighten the severity of MBDs (Nurius et al., 2020). Fortunately, there is evidence that as caregiver strain is alleviated, youth are more likely to access outpatient mental health services (Brannan et al., 2003). Further, alleviating material resource needs may reduce stress for youth and families, which can lead to better treatment outcomes (Kazdin et al., 2002). For instance, participation in family food assistance programs (e.g., special supplemental nutrition program for women, infants,

and children) relates to a reduced likelihood of parental depression and childhood physical health risks (e.g., obesity; Black et al., 2012). Kazdin et al.'s (2002) findings are consistent with Conger et al.'s (2002) family stress model, suggesting that on-going familial stress can impact severity of a MBD, and the efficacy of therapeutic treatment can also vary with the intensity of on-going familial stress.

In addition to being at a heightened risk for developing a MBD, youth living in poverty are significantly less likely to receive mental health treatment compared to their more affluent peers (Angold et al., 2002; Ghandour et al., 2019). Youth living in poverty face a myriad of barriers to accessing regular mental healthcare including difficulty with the timing (e.g., mental health centers operating hours coinciding with parental work hours) and transportation to local mental health centers (Santiago et al., 2013), maintaining insurance coverage for mental healthcare (Graaf & Snowden, 2020; Kataoka et al., 2002), and culturally specific forms of stigma (see stigma section; Galvan & Gudiño, 2021; Mendenhall and Frauenholtz, 2015). Specifically, working families with private insurance who do not qualify for public insurance (e.g., being just above the income cutoff line for public insurance benefits), report greater unmet mental healthcare needs as a result of a high personal cost (Graaf & Snowden, 2020). Additionally, there is evidence to suggest that lower income families may not be made aware of cost-saving programs designed to increased youth access for mental healthcare (Iskra et al., 2018).

In sum, youth living in poverty contend with heightened risks of developing a MBD, significant logistical barriers to accessing care, as well as social barriers to accessing care. Fortunately, the available evidence suggests that low-income adults and youth receive the same benefits from psychotherapy as higher-income adults and youth

(Santiago et al., 2013). Comprehensive SMH systems integrating multiple tiers of support represent a strong framework for meeting the needs of youth from low-income families (see School Mental Health Systems section).

Adverse Childhood Experiences

Adverse Childhood Experiences (ACEs) are defined by exposure to negative events during childhood which can include abuse (e.g., physical, sexual, and/or emotional), neglect (e.g., physical, emotional), and household dysfunction (e.g., violence exposure, substance abuse, parental separation; Felitti et al., 1998; Felitti & Anda, 2010). ACEs are related to a variety of negative long-term physical health outcomes such as tobacco use (Anda et al., 1999), alcohol/substance abuse (Anda et al., 2002; Dube et al., 2003), obesity (Burke et al., 2011), heart disease (Felitti et al., 1998), and premature mortality (Brown et al., 2009). In addition to the negative physical health outcomes, ACEs are associated with developing a MBD (Chapman et al., 2004; Choi et al., 2019) as well as suicidality (Dube et al., 2001). ACEs have a dose-response relationship with negative outcomes, meaning that as the number of ACEs increase, the risks for developing negative physical, mental, and behavioral health outcomes increase proportionately (Felitti et al., 1999).

Given the variety of negative outcomes associated with ACEs, understanding the prevalence of ACEs, especially among diverse populations, can help coordinate intervention and prevention efforts. Approximately 45% of children in the United States have experienced at least one ACE (Sack & Murphy, 2018), the most prevalent of which is experiencing economic hardship (22.5% of children) or experiencing parental

separation/divorce (21.9% of children; Crouch et al., 2019). Parental stress and mental well-being may serve as mediators between children's experiences of poverty and the likelihood of ACEs (Liming, 2018). Further, youth living in poverty are more than twice as likely to be exposed to three or more ACEs (Anda et al., 2010), which consequently increases the risk of experiencing behavioral problems by two to five times (Clarkson-Freeman, 2014). These findings are consonant with Conger et al.'s (2002) family stress model which posits that increased economic pressures can relate to poorer parent and child mental health (Conger et al., 2002; Solantaus et al., 2004).

There are ethnic/racial disparities in the probability of experience ACEs, with 51% of Hispanic youth and 61% of African American youth reporting at least one ACE compared to 40% of white youth and 23% of Asian-American youth (Sack & Murphey, 2018). Among samples of children at a heightened risk for ACEs (e.g., youth in the child welfare system or youth involved with juvenile justice), white children do not significantly differ from African American and Hispanic children in the number of ACEs experienced (Fagan & Novak, 2018; Garcia et al., 2017). However, among the general population, African American and Hispanic youth are more likely to experience ACEs than their white peers as racial and ethnic minority youth are more likely to experience other predictors of ACEs such as poverty, child maltreatment, and exposure to violence (Maguire-Jack et al., 2020). Relatedly, there are also racial differences in the types of ACEs reported by youth. For instance, while White youth are more likely to report experiencing a parent with a substance use problem, African American and Hispanic youth are more like to report experiencing neighborhood violence and racial discrimination (Maguire-Jack et al., 2020). Further, African American youth are more

likely to experience parental incarceration than youth of other racial backgrounds (Maguire-Jack et al., 2020).

In sum, racial/ethnic minority youth among the general population contend with more ACEs than their white peers and are more likely to experience significant correlates of ACEs, such as poverty. This is of particular importance when considering school and community level mental health prevention and intervention efforts. For instance, racial/ethnic minority youth receive a disproportionate number of office discipline referrals compared to their white peers, the majority of which are explained by subjective discipline referral codes (e.g., defiance; Girvan et al., 2017). School mental health systems are well positioned to help teachers and administrators develop Individualized Education Plans (IEPs), 504 behavioral plans, or classroom management techniques to reduce unnecessary office discipline referrals for students with ACEs and/or an MBD, with an emphasis on historically marginalized groups such as youth of color.

Rurality

The National Center for Education Statistics (NCES) distinguishes between schools in urban and rural areas through measures of population size, population density, and distance from urban centers, for a given school locale (Greenough & Nelson, 2015). Approximately 28% of public elementary and middle schools in the US reside in geographically rural areas (National Center for Education Statistics; NCES, 2019a). Within the state of South Carolina, approximately 40% of elementary and middle schools are within rural areas (NCES, 2019a). While the prevalence of many psychological problems in youth such as anxiety (Lyneham & Rapee, 2005), depression (Jameson &

Blank, 2010; Rost et al., 2002), conduct problems (Angold et al., 2002), and substance use (Donnermeyer & Scheer, 2001; Levine & Coupey, 2003) are similar across rural and urban settings, youth in rural settings may be more likely to experience risk factors for developing an MBD such as growing up in poverty and experiencing ACEs (US Department of Health and Human Services, 2015).

Despite similar MBD prevalence between rural and urban areas in the United States (Angold et al., 2002; Donnermeyer & Scheer, 2001; Jameson & Blank, 2010; Lyneham & Rapee, 2005), longitudinal evidence suggests that the rural youth suicide rate is nearly double the urban youth suicide rate, and this gap is continuing to grow (Fontanella et al., 2015). Researchers have offered several explanations as to the broadening gap in suicide rates between rural and urban youth, including a lack of access to mental healthcare, increased geographic and social isolation, and greater access to lethal means (Fontanella et al., 2015; Hirsch, 2006). Relatedly, the urban male youth suicide rate has decreased while the rural male youth suicide rate has increased between 1996 and 2010 (Fontanella et al., 2015). While many of the risk factors for suicide are the same across rural and urban settings (e.g., previous history of suicide attempts, impulsivity, being female, older age; Florez et al., 2019), rural youth's increased access to lethal means (i.e., firearms) may explain a significant portion of the rural/urban youth suicide rate disparity as rural youth are 2.7 to 3.3 times to commit suicide using a firearm (Fontanella et al., 2015).

In addition to the heightened risks for poverty, ACEs (US Department of Health and Human Services, 2015), and suicide (Fontanella et al., 2015), youth in rural areas face additional challenges surrounding access to mental healthcare. Rural communities

contend with a myriad of challenges related to accessing mental health care including significant transportation barriers (Aisbett et al., 2007; Ghorbanzadeh et al., 2020), an ongoing shortage of mental healthcare professionals in rural areas (Bird et al., 2001; Merwin et al., 2003), and considerable stigma around utilization of mental health services (Grief Green et al., 2013). Youth in rural areas, particularly those without the means and ability to drive themselves, report transportation as a major barrier to accessing mental health services (Aisbett et al., 2007). Additionally, transportation as a barrier to mental healthcare access is heightened for African American youth compared to their white peers, particularly for African American youth in rural areas (Kodjo & Auinger, 2004).

The long-standing shortage of mental healthcare professionals in rural areas is well-documented (Bird et al., 2001; Merwin et al., 2003; Thomas et al., 2012). For instance, fewer than half of rural counties have a mental health facility with outpatient treatment for youth, and only one-third of counties have outpatient facilities with services designed for youth experiencing a severe MBD (Cummings et al., 2013). Half of US counties with populations between 2,500 and 20,000 do not have a master's- or doctorallevel social worker or psychologist (Holzer et al., 2000). Rural mental healthcare professionals necessarily serve a wide array of mental health needs as there are few, if any, available specialists for referral (Jensen et al., 2020). Further, rural mental healthcare professionals may have fewer opportunities for supervision and consultation due to the lack of resources and providers within a given rural locale (Jensen et al., 2020). The isolation experienced by mental health professionals practicing in rural areas can lead to less professional social support, which is related to higher levels of emotional exhaustion and burnout among staff (Kee et al., 2002). The low availability and additional challenges

faced by the mental health workforce in rural areas constitutes a significant barrier to rural youth accessing mental health services.

Stigma

The stigma surrounding mental health represents a significant barrier for youth accessing mental health services (Bowers et al., 2013; Huggins et al., 2016). Mental health stigma can lead to the disruption of social relationships, increase an individual's stress related to their mental health concern (in addition to the symptoms of the mental health concern itself), and reduce the likelihood that individuals seek or receive help for their concerns (Corrigan & Watson, 2002; Stuber et al., 2008). Youth can experience strong feelings of embarrassment and self-blame around having a mental health concern. These experiences of internalized shame around mental health are referred to as self-stigma, which is negatively associated with help-seeking behaviors (Hartman et al., 2013). In addition to self-stigma, youth perceptions of other's stigma are a significant unique predictor of not seeking help for a mental health concern (Nearchou et al., 2018).

An individual's cultural and/or ethnic background can also influence the likelihood of asking for professional support and/or holding stigmatizing beliefs about mental health. For instance, African American male youth experiencing depression are unlikely to disclose this "personal vulnerability" (Lindsey et al., 2010, p. 473) to mental health professionals related to beliefs that this information should not be shared outside of the family system. Further, African and Latinx Americans have reported that they experience a mistrust of formal mental health systems due to systemic and historical mistreatment of minority groups in US healthcare settings as a primary reason for not

seeking mental health services (Matthews et al., 2006). Mental health stigma represents a significant barrier to youth accessing mental health services, and that barrier may be more significant for youth of color. Thus, SMH providers and systems should consider how to reduce stigmatizing attitudes towards mental health treatment.

The most widely used intervention/prevention technique for addressing mental health stigma is improving public mental health literacy (Kelly et al., 2007). Specifically, significant research has demonstrated that when individuals know more about mental health, they are less likely to hold stigmatizing attitudes (Kelly et al., 2007). Mental health literacy is become a particularly useful approach in school settings as schools provide an optimum environment for student learning and have the potential to reach the majority of children (Yamaguchi et al., 2020). Additionally, increasing school staff's knowledge about mental health can further reduce staff's stigma and improve their responsiveness to student mental health needs (Yamaguchi et al., 2020).

While school mental health literacy programs represent the ideal prevention/intervention strategy for reducing stigma, these programs can be costly, timeintensive, and require significant implementation support to maintain adequate implementation fidelity (Yamaguchi et al., 2020). Additionally, school systems must have the capacity to make structural changes to implement SMH literacy programs or risk inadequate or only brief implementation of these programs (Samdal & Rowling, 2013). For schools that may not have the capacity to implement a mental health literacy program, increasing the connections between school clinicians and teachers, administrators, and students and families may yield the benefit of a modest improvement in stigmatizing attitudes towards mental health (Frauenholtz et al., 2017). For instance,

SMH clinicians may improve the likelihood of getting referrals from school staff by meeting with teachers and administrators regularly. Further, families may be more likely to reach out to SMH clinicians for support after meeting clinicians at drop-off/pick-up or regular school functions (Vernberg et al., 2008). While these connections may not lead to the same enduring attitudinal changes that mental health literacy programs are associated with, creating these personalized connections with school staff and families may reduce some level of reticence in reaching out for support.

Multi-Tiered Systems of Support

While SMH systems largely focus on providing treatment for the students with the highest level of need, comprehensive schoolwide systems of prevention and intervention called multi-tiered systems of support (MTSS) have been developed to provide a continuum of supports. These supports include promotion/prevention at Tier 1, early intervention at Tier 2, and more intensive intervention at Tier 3 (Sugai & Horner, 2002). MTSS provide a range of supports across domains of student social, emotional, behavioral, and academic functioning, with specialized supports for students with higher degrees of need (Marsh & Mathur, 2020). One of the most prominent forms of MTSS, Positive Behavioral Interventions and Supports (PBIS), has flourished in the United States with over 26,000 schools implementing PBIS (Center on PBIS, 2022).

Within the PBIS framework, Tier 1 practices include supports for all students such as established schoolwide behavioral expectations, procedures for encouraging positive behaviors, and procedures for discouraging problem behavior (Center on PBIS, 2022). Tier 2 practices include increasing student social and self-regulatory skills,

academic support, and increased opportunities for positive reinforcement (Center on PBIS, 2022). Tier 3 practices include a stronger focus on the function of problem behaviors (i.e., functional behavior assessment), wrap-around supports, and individual case consultation by multi-disciplinary teams (Center on PBIS, 2022).

PBIS has significant research support with findings indicating reductions in office discipline referrals (Bradshaw et al., 2010), reductions in suspensions (Bradshaw et al., 2010), increases in student perceptions of safety (Horner et al., 2009) and increases in academic test scores (Lassen et al., 2006; Simonsen et al., 2012) as a result of implementing PBIS. Implementation of PBIS is also associated with systemic reductions in student's externalizing and internalizing problems, an effect that is even more pronounced when combined with a social-emotional learning curriculum (Cook et al., 2015). Additionally, completion of a PBIS curriculum by juvenile justice involved youth is directly related to increased rates of attaining career and technical industry certifications (Johnson et al., 2013).

While PBIS presents an outstanding opportunity for schools to improve a variety of indices of student functioning (e.g., academic achievement, discipline referrals, etc.), implementing PBIS is a resource and time intensive process for schools to undertake. Schools implementing PBIS tend be in suburban communities with higher household incomes, lower rates of students receiving free or reduced lunch, and a higher proportion of students who identify as white than non-PBIS schools (Goodman-Scott et al., 2021).

School Mental Health Systems

Mental health services for youth in the US began to shift from community health centers to schools in the 1980s and 1990s due to the high need for easily accessible mental health services for youth (Flaherty & Osher, 2003). Although the proliferation of SMH programs was slow at first (Flaherty & Osher, 2003), the establishment of the National Center for School Mental Health in 1995 greatly advanced SMH research, practice, and policy initiatives across the country (Flaherty & Osher, 2003). Currently, approximately 38% of public schools in the US have a school mental health program (NCES, 2019b).

School mental health programs are primarily defined as having at least a part-time mental health clinician located within the school with the explicit purpose of providing mental health treatment to students (Flaherty & Osher, 2003). Schools often partner with community mental health organizations (public and/or private) to integrate mental health clinicians into regular practice within the school building (Weist & Evans, 2005). Although this defines the minimum standard for a school to have a mental health program, ideally the SMH clinician role would extend to include significant collaboration with youth serving systems in the school and community (Franke et al., 2020). SMH programs have several important advantages over traditional, co-located services including reducing logistical barriers to treatment (e.g., transportation, finding a provider, insurance), an improved capacity to holistically meet student needs, and increased likelihood that families follow-up with referrals to access mental health services (Stephan et al., 2007).

Transportation to and from therapy appointments represents a major barrier to mental healthcare access for youth, particularly among youth living in poverty (Santiago

et al., 2013), youth living in rural areas (Aisbett et al., 2007; Ghorbanzadeh et al., 2020), and youth of color (Kodjo & Auinger, 2004). In a meta-analysis of youth mental health treatment barriers, Reardon et al. (2017) found that many families either were not aware of mental health services available in their area or could not commit the time to facilitate their child getting mental health services. For parents who sought services, many reported difficulties finding a provider, and if so, a provider with affordable services or services covered by insurance (Reardon et al., 2017).

While SMH programs do not necessarily address all barriers to service access, a large body of evidence suggests that youth are more likely to access mental health treatment when it is available in schools (Farmer et al., 2003; Juszczak et al., 2003; Kataoka et al., 2003; Kutash & Rivera, 1996). For example, youth and families perceive less mental health stigma (a major barrier to service) when they access services within the school building (Vernberg et al., 2008). Additionally, students receiving some level of support in schools (e.g., IEP or 504 behavioral plan), may be more easily identified, referred, and initiate treatment with a SMH clinician. These collaborative processes involving key school systems such as special education, school health services, MTSS, and student support teams are more likely to occur in when SMH clinicians are integrated across school planning teams (Weist et al., 2005; Splett et al., 2017).

One of the strongest articulations of integrating the SMH clinician into other school process and teams (especially MTSS) is the Interconnected Systems Framework (ISF; Barrett et al., 2012). The ISF is designed to address the traditional lack of collaboration in many schools between MTSS (typically PBIS) and SMH systems (Barrett et al., 2012). This is accomplished through the SMH clinician's inclusion in MTSS team meetings, student support team meetings, and school quality assessment and improvement initiatives (Splett et al., 2017). The SMH clinician can provide valuable input about both individual student needs that they may work with, as well as broader SMH promotion and prevention planning. While the ISF presents a very strong structure for integrating MTSS and SMH, implementation is resource and time intensive, often requiring significant coaching and implementation support (Splett et al., 2017). While many schools may have a strong desire to implement PBIS and ISF with strong fidelity, it may take significant time and resources not initially available for the school to accomplish this goal.

The Pee Dee Region

The Pee Dee Region of South Carolina is named after the Great Pee Dee River and lies in the northeastern portion of the state. Several counties encompass the Pee Dee region, including Marion, Darlington, and Florence County, which were the focus of the Pee Dee Resiliency Project (PDRP). The estimated population of these three counties is 237,000 people, with 52.8% of individuals identified as White, 44.4% Black or African American, and 2.5% Hispanic or Latino. While the region has experienced a significant growth in business and industry in the past few decades (e.g., FedEx, General Electric Healthcare, Honda), an average of 33.4% of children are living in households with income below the poverty line, 10.8% are living with an unemployed caregiver, and 15.8% live with a household member who lacks a high school diploma (Children's Trust of South Carolina, 2019).

The three-county Pee Dee Region has seven public school districts. Combined, these districts have 14 high schools as well as multiple middle, elementary, alternative, and magnet schools. Schools in this region experience relatively high percentages of students failing grades 1, 2, or 3 (8%); third graders testing below state standards in English/ Language Arts (70.3%); and eighth graders testing below state standards in math (78.9%) (Children's Trust of South Carolina, 2019).

The region's largest mental health provider is the Pee Dee Mental Health Center (Pee Dee MHC), a public, outpatient facility of the South Carolina Department of Mental Health. Pee Dee MHC has more than 160 employees, including psychiatrists, nurse practitioners, nurses, licensed professional counselors, master's-level mental health professionals, bachelor's-level therapists, and peer support specialists. Twenty-five of Pee Dee MHC's mental health professionals provide school mental health services. These clinicians are embedded in schools and provide a range of treatments including individual, group, and family therapy. Pee Dee MHC averages a caseload of 2,500 patients, with more than 4,000 individuals receiving services each year. Because of their established position within the region as a provider of school-based mental health services, the Pee Dee MHC was a natural partner for the PDRP.

Pee Dee Resiliency Project

The Pee Dee Resiliency Project (PDRP) was a multi-year partnership (2017-2020) between the BlueCross BlueShield of South Carolina Foundation, Children's Trust of South Carolina, the South Carolina Department of Mental Health, the University of South Carolina School Behavioral Health Team, and the Pee Dee Community Mental Health

Center. The goals of the PDRP were to 1) address the needs of students and families through expanded school mental health services, including schoolwide prevention and intervention, 2) provide resources for schools and families in need, and 3) build community resiliency through partnerships. Through the PDRP, over 400 students received mental health services and over 280 families met with a Family Engagement Specialist to assess their practical living needs (e.g., clothing, housing, food, utilities, etc.).

The South Carolina Department of Mental Health, including the Pee Dee MHC, employees a large workforce of school mental health clinicians. Many clinicians serve multiple schools to build a caseload capable of achieving a minimum number of billable hours to ensure SMH placements for clinicians are sustainable. The PDRP placed each clinician in a school full-time and supplemented the clinicians' salaries to afford more time for practices beyond direct services, including participating in promotion, prevention, and intervention activities across multiple tiers of support. Specifically, PDRP clinicians participated in delivering community outreach/trainings, family engagement, use of modular evidence-based practice (i.e., the PracticeWise system; Barth et al., 2012) and safety and support teams (i.e., tier 3 meetings focused on specific students). Additionally, PDRP clinicians participated in a variety of trainings including schoolwide systems training which focused on integrating SMH clinicians into established MTSS practices, working with families in need of material resource assistance (i.e., referring to the family engagement specialist), and ACEs focused trainings designed to give therapists skills to improve student resilience.

Through the PDRP, clinicians were able to go beyond direct therapy services and participate in multi-tiered support team meetings, student support team meetings, and Tier 1 and Tier 2 activities. Tier 1 activities included helping school staff with lunch and bus duty, volunteering for school events (e.g., dances, academic ceremonies, etc.), and consulting with teachers on classroom management strategies. Tier 2 activities included interventions such as Check-In Check-Out (Crone et al., 2010) as well as therapeutic groups focused on anger management, conflict resolution, and self-esteem. In total, PDRP clinicians logged over 1,300 hours participating in tier 1 activities and 1,000 hours in Tier 2 activities. In addition to providing an array of supports for students, PDRP clinicians were able to increase their visibility to school staff, students, and families who may not be aware of the continuum of supports available in the school. Further, increasing clinicians' facetime with students and families may have the added benefit of reducing stigma as a barrier to services as the SMH clinician is a familiar face for students rather than an unknown mental health specialist.

The Current Evaluation

The PDRP represents a multiorganization partnership which sought to promote and expand school mental health services beyond a typical SMH model. The PDRP accomplished this through giving SMH clinicians training in modular evidencebased practice, incorporating SMH clinicians into MTSS teams, and increasing clinicians' relationship building capacity with school staff, students, and families through inclusion in tier 1 practices and other school activities. Through these efforts, it is hypothesized that students who received clinical treatment through a PDRP clinician will

experience significant reductions in psychological symptoms and experience significant increases in resilience.

CHAPTER 2

METHODS

Sample

The data were collected from students receiving mental health services in eight elementary schools in the Pee Dee region of South Carolina as part of evaluation of the PDRP. The eight schools that participated in the PDRP have an average rate of 93.5% of students eligible for free or reduced lunch (students are counted eligible if their households are at 130% of the poverty line or lower; NCES, 2019a). A total of 414 students and families received school mental health treatment by PDRP clinicians between the beginning of 2017 and the end of 2019. Demographic data were obtained from the South Carolina Department of Mental Health records database for 409 cases (five cases were missing demographic data). Among those 409 students with demographic data, 70.4% were male (n=288) and 29.6% were female (n= 121). 77.3% of the sample identified as African American (n=316), 19.1% identified as white (n= 78), and 3.7% identified as other (n=15). A final sample of 409 students were used for all analyses. A total of 345 families were served by the PDRP Family Engagement Specialist (FES), of which 121 had at least one identified resource need.

Measures

The Pediatric Symptoms Checklist (PSC), parent report (Murphey et al., 1989) was used to measure general psychological status for students receiving mental health services. The PSC included 35 statements about child behaviors (e.g., "my child is irritable, angry", "my child feels hopeless"). Parents rated how often their children displayed each behavior by selecting either "never", "sometimes", or "often", which equate to a score of zero, one, and two respectively. Children's overall psychological status was calculated by summing each student's results on the PSC, with a score of 28 or higher indicating psychological impairment. The PSC is a widely used measure, which has been validated with diverse samples of youth (Jellinek et al., 1999; Murphey et al., 1989; Murphey et al., 1992), with Murphey et al., (1996) finding an overall Cronbach's Alpha score of 0.91. The current study supports the PSC's strong internal consistency with an overall Cronbach's Alpha score of 0.89 found among the current sample.

The Child Youth Resilience Measure 12 (CYRM; Liebenberg et al., 2013) was used to measure each student's capacity to access resources to support their mental health functioning and overall wellbeing. The CYRM is a widely used measure and has been validated cross-culturally as a reliable measure of youth resilience (Ungar & Liebenberg, 2011), including the shortened 12-item form (Liebenberg et al., 2013) used in the PDRP. Students completed the CYRM by indicating how much each statement (e.g., "I know where to go to ask for help") described them on a five-point Likert scale ranging from "not at all" to "a lot," with higher scores indicating greater resilience. The shortened CYRM has moderately strong internal consistency with Liebenberg et al. (2013) finding an overall Cronbach's Alpha score of 0.75. The current study supports the CYRM's strong internal consistency with an overall Cronbach's Alpha score of 0.85 found among the current sample.

In addition to the PSC and CYRM, parents and clinicians completed some additional questions at case closure to contextualize practical gains related to treatment. For instance, clinicians were asked at case closure how many treatment goals were established and how many of those goals were attained throughout treatment. Parents were asked if they noticed their child demonstrating more positive behaviors at home (yes or no response). Additionally, parents were asked if they found school-based services easier than community-based services and to rate their satisfaction with the services they received on a five-point Likert scale ranging from "not at all satisfied" to "very satisfied," with higher scores indicating greater resilience.

Procedure

Caregivers of students receiving mental health services from a school mental health clinician were asked to complete a survey (including the PSC) about the mental health of their child/children upon intake, at case closure, and every 90 days throughout the course of treatment. SMH clinicians aided students receiving services in completing a survey about their resilience (i.e., the CYRM) on the same schedule that parents were asked to complete the PSC. These measures were collected using the REDCap (Research Electronic Data Capture) electronic data capture tool hosted at the University of South Carolina (Harris et al., 2009; Harris et al., 2019) to improve the ease of data collection for clinicians. Additionally, clinicians referred all families of students receiving mental health services to the Family Engagement Specialist (FES). The FES contacted families and conducted a needs assessment with families (either in person or over the phone) and provided community resources for families who had identified resource needs.

Analytic Strategy

First, a correlation matrix was constructed to test for gender and race as potential demographic moderators on PSC and CYRM scores (see table 2.1). Neither gender nor race were correlated with PSC or CYRM scores, thus these variables were not included as covariates in the final models. Two path analysis models were constructed for each measure (the PSC and CYRM). These path analysis models included the pre-treatment PSC and CYRM scores as the predictor and the post-treatment scores as the outcome. Additionally, clinician/school was added as a clustering variable to disattenuate standard errors for nested data (students nested within clinician/schools) within Mplus version 8.0 (Muthén & Muthén, 2017). Finally, qualitative case closure question responses were coded and assessed.

Table 2.1 Correlation Matrix of Gender, Race, and Outcome Variables

	Gender	Race	PSC Post-	CYRM Post-
			Treatment	Treatment
Gender	1.00	-	-	-
Race	0.05	1.00	-	-
PSC Post-	0.06	-0.01	1.00	-
Treatment				
CYRM Post-	-0.02	0.07	-0.44*	1.00
Treatment				

Note: n= 321 as listwise deletion was used for cases missing PSC and/or CYRM data Note: * indicates statistical significance at the 0.05 level

CHAPTER 3

RESULTS

Some families were unable to be contacted to complete the PSC and/or CYRM at case closure due to a change in contact information and/or the family moving. For these 44 families, the last available progress-monitoring data were used in lieu of case closure data. Some families served by the PDRP had incomplete case closure or progressmonitoring data available (e.g., the PSC completed but not the CYRM); thus, the total number of cases used in the final analysis will differ for each analysis based on data that were available for each outcome, respectively.

The average PSC score at intake for students who received mental health services was 28.00, which lies on the clinical cutoff line for the PSC. Post-treatment, the average score dropped to 24.90, indicating a 3.1 point average decrease in PSC scores at case closure. The average CYRM score at intake for students who received mental health services was 30.70. Post-treatment, the average score increased to 31.90, indicating a 1.2 point average increase in CYRM scores at case closure.

The first model tested the change in PSC scores before and after school mental health treatment. The results indicate a significant reduction in PSC scores after treatment, $\beta = 0.51$, 95% CI (0.36, 0.67). This model found an effect size of $R^2 = 0.20$, indicating a moderate effect size using Ferguson's (2009) suggestions for clinical data

effect size interpretation. The second model tested the change in CYRM scores before and after school mental health treatment. The results indicate a significant increase in CYRM scores after treatment, $\beta = 0.62$, 95% CI (0.44, 0.79). This model found an effect size of $R^2 = 0.37$ indicating a moderate to strong effect (Ferguson, 2009; see table 3.1 for a summary of the results). Both models' residuals were examined, and it was determined there were no violations of the assumptions of normality and homogeneity of variance.

Along with PSC and CYRM, additional measures help to illustrate the efficacy of services received by families participating in the PDRP. 97% (n=309) of parents who completed case closure questions indicated that school-based services were easier to access than other services (e.g., community mental health services). 83% (n=260) of parents indicated that they were either extremely satisfied (41%, n=128) or satisfied (42%, n=132) with the services they received from the PDRP clinicians. Finally, 77% (n=240) of parents indicated that they noticed an improvement in their children's behavior at home after receiving services from a PDRP clinician.

Data were also collected to document the efficacy of the PDRP Family Engagement Specialist (FES). A total of 345 families were served by the FES, of which 121 had at least one identified resource need. Among those families, 44% indicated that the resources they received either partially or adequately met their needs. Among all families served by the FES, 80% indicated meeting with the FES reduced stress for their family.

Table	e 3.1	: Path	Anal	ysis	Resu	lts o	f M	lode	ls 1	and	2
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	n	β	CI (95%)	R^2
Model 1 (PSC)	357	0.51	0.36 - 0.67	0.20
Model 2 (CYRM)	314	0.62	0.44 - 0.79	0.37

Note: Sample sizes differ due to data availability

CHAPTER 4 DISCUSSION

The PDRP represents a strong partnership between the BlueCross BlueShield of South Carolina Foundation, the SC Department of Mental Health, the Pee Dee Mental Health Center, SC Children's Trust, and the University of South Carolina School Behavioral Health Team. Through the expansion of the SMH clinician role to provide comprehensive supports across multiple-tiers, youth and families achieved desired outcomes such as significant reductions in psychological symptoms and improvements in youth resiliency.

Specifically, youth who received treatment from a PDRP clinician experienced a moderate decrease (3.1 points on average) in psychological symptoms resulting in the average score for students dropping below the clinical range (from 28 to 24.9). The moderate effect size ($R^2 = 0.20$) is in-line with comparable research on mental health treatment for youth growing up in poverty (e.g., d = 0.25; Farahmand et al., 2012) and youth in rural areas (e.g., $R^2 = 0.13$; Moore et al., 2013). It is important to note though that the association between students receiving treatment and symptom reduction over time is not definitively causal due to the methodological design (i.e., a lack of a control group as this program was not a randomized controlled trial). However, the association between receiving treatment and experiencing a reduction in symptoms is further

contextualized by the 77% (n = 240) of parents who responded to case-closure questions reporting that they noticed a behavior improvement at home after receiving services. Thus, it is reasonable to attribute a majority of the positive changes students experienced to having received mental health treatment from a PDRP clinician.

Students who received treatment from a PDRP clinician also reported significant increase in resilience (1.2 point gain on average) resulting in the average CYRM score for students increasing to 31.90. The moderate to strong effect size found among the current sample ($R^2 = 0.37$) is similar to other resilience focused studies with samples of lower-income and racial minority youth (e.g., d = 0.50; Ijadi-Maghsoodi et al., 2017). Similar to the first model, the second model is also associative, and it cannot be definitively stated that treatment caused the change in resilience scores. However, PDRP clinician's receipt of training specific to improving student and family resilience suggests that treatment from a PDRP clinician likely impacted the gain in resilience scores for students who received treatment.

Parents (97%, n = 309) reported that school-based mental health services were easier to access than traditional community mental health services. Additionally, parents reported a relatively high level of satisfaction with the services their children received (83%, n=260). These findings lend further support that SMH services are significantly easier to access than community mental health services. Related, parent satisfaction with their children's mental health treatment is related to staying in treatment longer and improved youth psychological functioning (Garland et al., 2007). Given the student-level findings and parent satisfaction, SMH services are just as, if not more, efficacious than community-based treatment efforts.

Clinicians demonstrated the sustainability of a one-to-one model (one clinician per school) in underserved schools by achieving 9,500 billable intervention hours between January 2018 and August 2019. Sustainability for expanding the clinician role beyond direct therapeutic services is important as some private and public mental health agencies may be dubious of the utility and efficacy of clinicians participating in nonbillable activities. While PDRP did not formally collect data to test whether students were more likely to access SMH services (compared to community services), PDRP clinician reports indicate that some students would likely not have connected with clinicians if not for referrals by school staff who consulted the PDRP clinician after witnessing student mental distress, sometimes in the form of recurrent behavioral problems. Further, PDRP clinicians reported that inclusion in MTSS team meetings and participating in activities at tiers 1, 2, and 3 helped to build connections with school staff who later requested the PDRP clinician join IEP, 504 behavior plan, and tier 3 meetings for students with mental health concerns. Clinicians reported that building these important relationships with school staff through MTSS activities and teams increased their overall capacity to serve the students in their school.

Through the PDRP, a total of 345 families were served by the PDRP Family Engagement Specialist (FES), of which 121 had at least one identified resource need, the majority of which were related to needing financial support, clothing, and housing. Upon the FES following up with families, 44% indicated that the resources provided either partially or adequately met their needs. While the resources provided by the FES would have ideally been adequate for a greater percentage of families, this component of the PDRP represents an important aspect of addressing a predictor of mental health concerns-

material resource need. While some families did not necessarily have their needs adequately met by the resources provided by the FES, 80% of families still reported that meeting with the FES reduced stress for their family. This is important to note considering Conger et al.'s (2002) family stress model which posits that familial stress moderates the impact of having a material resource need on parenting quality and in turn, youth mental health functioning. This is to say that meeting with the FES could have alleviated some stress from families by families knowing that they had an additional avenue of support if their level of resource need were to change in the future.

Limitations

The PDRP was a program implemented in eight elementary schools, for which the current evaluation tested the impacts of the PDRP on student-level outcomes. Due to a lack of a formal control group and randomization, the reported reductions in psychological symptoms and gains in resilience for students cannot be necessarily attributed to the treatment they received. However, considering the findings are consistent with similar SMH programs, it is likely that at least some portion of the positive changes for youth are related to treatment rather than the passage of time or other factors. Related, data on which specific therapeutic approaches the clinicians used were largely missing (i.e., clinicians rarely reported which evidence-based practices they used), thus the current study cannot account for the efficacy of any specific therapeutic approach. However, both models accounted for differences across clinicians, thus the variance related to use of varying therapeutic approaches was controlled for in the final models.

Another limitation of the evaluation is that the total sample sizes for each analysis varied due to the data that were available. Some families who received services either moved or stopped services for another reason and could not be reached for case closure data. The sample sizes for both models tested in this evaluation were 357 and 314 for models one and two respectively, out of the total 414 families who received services. Thus, the lack of inclusion of data from families' who discontinued services and could not be reached for case closure may have influenced the final findings of the analyses. Considering though that these attrition rates are less than a quarter of the total sample, it is unlikely that inclusion of this data would have dramatically impacted the results of the final analyses.

Implications for Future Research and Practice

Findings from the PDRP suggest that SMH programs for underserved communities focus on expanding the clinician role beyond direct therapeutic delivery. This may be of particular importance for schools serving youth contending with socioeconomic disadvantage and youth in rural areas who are less likely to utilize mental health services (Aisbett et al., 2007; Ghandour et al., 2019). Inclusion of the clinician on MTSS and student support teams can increase their capacity to provide support to students across multiple tiers while aiding in the identification and referral process of students with mental health concerns. Further, SMH clinicians could work with school staff and families collaboratively to identify and troubleshoot barriers to services access. For instance, some parents may not be aware that SMH services can be provided during the normal course of the school day and could be covered by Medicaid, thus eliminating two major barriers to service access, transportation and cost. Future research could

expand on how inclusion of the SMH clinician impacts the number of SMH referrals. Additionally, future research could investigate how expanding the SMH clinician role impacts school climate, particularly regarding student willingness to seek help.

Mental health stigma still represents a major barrier to service access for youth and families where the potential stigma of seeing an unknown mental healthcare specialist may prevent school staff, students, and families from referring or inquiring about the services available within the school building. Expanding the clinician role to provide Tiers 1 and 2 supports can increase the clinician's visibility to school staff, students, and families. Clinicians participating in routine school activities (e.g., bus line duty, parent-teacher nights, school events) can build relationships with students and parents who may be otherwise reticent to talk to a mental health professional about SMH services. Further research could investigate if increased facetime between SMH clinicians and students and families improves the likelihood that students and families would be willing to ask the SMH clinician for support with a mental health concern.

SMH clinicians and youth supporting systems (e.g., MTSS) are well positioned to provide support marginalized youth who are at heightened risks for experiencing ACEs and developing an MBD such as youth growing up in poverty and/or youth of color. For instance, youth growing up in poverty are at a heightened risk for developing an MBD (Cree et al., 2018; Reiss, 2013; Yoshikawa et al., 2012) and are less likely to receive treatment compared to their more affluent peers (Angold et al., 2002; Ghandour et al., 2019). African American and Hispanic American youth are at a heightened risk of experiencing multiple ACEs (Maguire-Jack et al., 2020; Sack & Murphey, 2018) which is related to an increased likelihood of developing an MBD (Chapman et al., 2004; Choi

et al., 2019). SMH clinicians serving students in heightened MBD risk categories could benefit from ACEs and resilience trainings to increase their capacity to teach youth resilience skills to overcome ACEs and other adversities. Future research could benefit from investigating the impact of receiving treatment from a resilience focused clinician on youth in heightened risks groups and the resulting changes in resilience.

Finally, youth in families that struggle with material resource needs are more likely to have greater family stress, worse parenting practices, and in turn, worse mental health outcomes for youth (Conger et al., 2002). The PDRP addressed this by utilizing a family engagement specialist to conduct needs assessments with families and provide community resources to fill potential resource gaps for families. Future programs should consider the importance of utilizing an FES (or similar) role as a family's material resource need may contribute significantly to student and family stress and mental health, impeding the effectiveness of clinical services. Thus, future research with SMH programs servicing lower-income schools should consider measurement strategies around student and parental stress related to material resource need and changes in response to having their needs met.

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