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TREATING TRAUMA WITHIN RURAL SCHOOLS: AN IMPLEMENTATION

SCIENCE PERSPECTIVE

By

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Dissertation

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Treating trauma within rural schools: An implementation science perspective

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High rates of childhood trauma exposure (65-75%) are concerning given the negative outcomes associated with trauma-related symptoms. Numerous evidence-based practices (EBPs) have been developed to treat posttraumatic stress symptoms; however, schools often experience barriers to implementing these interventions with fidelity. Given the scarcity of service options within rural areas, this qualitative study explored factors that might influence the adoption and implementation of trauma-focused interventions within *rural* schools using the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009) and the Implementation Outcomes Framework (IOF; Proctor et al., 2011). A semi-structured protocol was used to interview clinicians working in rural schools ($N = 12$) about their use of trauma-focused interventions. Transcripts were double coded using a deductive content analysis approach and a CFIR- and IOF-based coding manual. Every participant reported adopting a mental health intervention to treat posttraumatic stress symptoms, though only 25% had adopted an EBP to treat trauma-related symptoms. One participant worked in a school that declined an opportunity to adopt trauma-informed care. Thematic analyses revealed that most participants reported the same IOF constructs (i.e., acceptability, appropriateness, feasibility) as both facilitators and barriers to adopting trauma-informed interventions. Implementation constructs across all CFIR domains (i.e., intervention characteristics, outer setting, inner setting, characteristics of individuals, process) were commonly identified as influencing implementation success within rural schools. These results have the capacity to direct the selection of implementation strategies to enhance the adoption and implementation of trauma-focused EBPs within schools, thereby increasing the accessibility of trauma-focused care in rural areas.

    Keywords: Adoption, implementation, trauma, rural, schools, CFIR, IOF

Dedications & Acknowledgments

This work is dedicated to the memory of my cousin, Jacob Romanchuk, who unexpectedly passed away as I began my graduate school journey. The traumatic loss of this beautiful person left inexplainable pain in the grieving hearts of family and friends residing in our rural community, where mental health care was remarkably scarce and difficult to obtain. This personal experience, and the many similar stories borne by individuals living in rural areas, motivated my passion to conduct clinically relevant research that can promote the use of trauma-informed evidence-based practices in accessible service settings, such as schools.

I would like to acknowledge the many individuals who supported the success of this project by providing steadfast encouragement and assistance from beginning to end. First, thank you to my husband, family, and friends who have provided unconditional support for my desire to pursue a career that can improve access to effective mental health care in underserved settings. Additionally, thank you to my graduate school advisors, Drs. Cameo Stanick, Anisa Goforth, and Christine Fiore, who dedicated considerable time and energy toward my training in childhood trauma and implementation science that provided me with the foundational knowledge needed to develop and complete this research project. Finally, I would like to acknowledge the individuals who directly contributed to this research. Thank you to the members of my dissertation committee for donating their time and unique expertise toward this project. Also, I am very appreciative of my great friend and colleague, Kaoru Powell, and an exceptional undergraduate research assistant, Erika Burgess, who spent many hours contributing their knowledge and time to research tasks. Lastly, this project would not have been possible without the school-based clinicians who shared their time and stories with me to advance the availability and quality of trauma-focused care delivered within rural schools.

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Chapter 1: Introduction

Recent estimates suggest that 65-75% of children are exposed to at least one traumatic event before they reach adulthood (Copeland, Keeler, Angold, & Costello, 2007; Finkelhor, Ormrod, & Turner, 2009; Kilpatrick et al., 2003). Such high prevalence of trauma exposure during childhood is alarming, especially when considering the wide spectrum of adversity trauma exposure can inflict on a developing child. Indeed, children who have experienced some form of early life trauma are at risk of facing disrupted and disorganized physical, cognitive, social, and emotional development (Loeb, Stettle, Gavila, Stein, & Chinitz, 2011). These disruptions, which are believed to have a neurological basis, are often associated with the development of posttraumatic stress symptoms (PTSS) that can create significant functional impairments for children across numerous environments, including the school setting (Scheeringa, Zeanah, & Cohen, 2011). Current research has highlighted the connection between trauma exposure, PTSS, and academic failure (Kira, Lewandowski, Somers, Yoon, & Chiodo, 2012; Saigh, Yasik, Oberfield, Halamandaris, & Bremner, 2006). These findings have compelled both mental health and education professionals to 1) place greater importance on recognizing child trauma exposure and related sequelae in schools, and 2) emphasize the need to implement trauma-focused treatments and innovations within education sectors.

Numerous mental health interventions have been developed and proven to effectively reduce symptoms of posttraumatic stress in children, and several of those interventions have been specifically designed to be delivered within a school setting. For example, Cognitive Behavioral Intervention for Trauma in Schools (CBITS), developed through a partnership between schools and clinical researchers, is an evidence-based practice (EBP) designed to be implemented by schools to address posttraumatic stress symptoms in school-aged children

(Jaycox, 2004). Larger school districts with ample resources, or those with grant funding, have demonstrated the capacity to successfully implement these programs and results have shown improved child psychiatric and academic outcomes (Kataoka et al., 2011; Langley, Nadeem, Kataoka, Stein, & Jaycox, 2010). Other schools, however, experience a range of barriers that interfere with their attempts to implement trauma-focused care, especially those serving rural areas (Langley et al., 2010). These barriers could include financial and other resource limitations, inadequate school staff support for the program, difficulty accessing and maintaining training and qualified staff to implement the interventions, and difficulties identifying children in need of supports or engaging parents in intervention efforts (Forman et al., 2009; Spoth, Kavanagh, & Dishion, 2002).

Anecdotal reports from school-based clinicians practicing in Montana, a state in which schools are located in predominately rural and 'frontier' districts (U.S. Census Bureau, 2018), suggested that trauma treatment was not commonly provided within Montana schools. Such reports were concerning as access to mental health services is extremely limited within rural communities despite trauma exposure being equally prevalent across rural and urban areas (McCall-Hosenfeld, Mukherjee, & Lehman, 2014). Therefore, further research was warranted to evaluate whether rural Montana schools are utilizing trauma-focused innovations to treat symptoms of posttraumatic stress.

Implementation science research, a rapidly developing field that focuses on the adoption, spread, and use of EBPs into community care, offers the knowledge and tools to scientifically examine both facilitators and barriers that could impact a school system's ability to implement mental health innovations with fidelity (Rabin & Brownson, 2012). Specifically, the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009), one of

the most comprehensive and empirically supported implementation frameworks available, was selected to identify factors that might influence schools' attempts to implement trauma-focused interventions within their buildings (e.g., characteristics of the intervention, service setting, or individuals implementing the intervention). An additional framework, the Implementation Outcomes Framework (IOF; Proctor et al., 2011), that be used in conjunction with the CFIR to evaluate implementation outcome success (i.e., whether an intervention was adopted for intended use, whether an intervention was implemented with fidelity, or whether the use of an intervention is sustainable within the service setting) was selected to help evaluate factors that might uniquely influence the adoption of trauma-focused interventions within rural school.

Importantly, previous research that has examined barriers to providing trauma treatment within school systems focused only on one trauma-focused intervention (i.e., CBITS), and the results of these studies suggested that the barriers that impede the delivery of trauma-focused care in school systems are similar to barriers that prevent the use of generalized mental health treatments (e.g., Langley et al., 2010, 2013, 2015). Anecdotal reports from school-based clinicians in Montana, however, suggested that unique barriers surround the delivery of trauma treatment that have not yet been identified by the extant literature. Several factors might contribute to such discrepancies between existing research and 'real world' experience, including the fact that the existing literature has only examined barriers that interfere with intervention delivery after schools have made a formal attempt to implement a trauma treatment program. No research to date has examined factors that either promote or prevent schools from initially deciding to adopt trauma-focused treatment programs for intended use. Further, no research to date has examined factors that influence implementation of different forms of trauma treatment (i.e., school-wide prevention programs, group therapy interventions other than CBITS, individual

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treatment interventions). Therefore, the current study aimed to offer unique information about factors that might contribute to a school's decision to either adopt or not adopt trauma-focused interventions and factors that influence the success of implementation endeavors. Ultimately, results from this study could enhance rural schools' capacity to adequately serve children demonstrating symptoms of posttraumatic stress, thereby stimulating the primary goal of school systems: enhancement and support of children's academic development and ability to learn.

Chapter 2: Literature Review

Childhood Trauma Exposure

According to the National Child Traumatic Stress Network (NCTSN), "trauma occurs when a child experiences an intense event that threatens or causes harm to his or her emotional and physical well-being" (NCTSN, 2003, p. 1). Many different forms of trauma exposure exist, such as child maltreatment, domestic violence, medical trauma, natural disasters, community or school violence, and traumatic loss. Importantly, children respond to traumatic experiences in a variety of ways, and nearly all children who experience trauma will demonstrate several impairments in the days and weeks immediately following the trauma exposure (National Institute of Mental Health, 2016). Some of the most common responses that children demonstrate following trauma exposure include intense and ongoing emotional distress, depressive symptoms, anxiety, behavioral changes, difficulties with attention, academic difficulties, nightmares, eating or sleeping difficulties, and physical symptoms such as aches and pains (NCTSN, 2003, 2005).

Many children who experience initial trauma-related impairments will effectively cope and recover without formal psychological intervention (National Institute of Mental Health, 2016), though approximately 20-50% of children exposed to trauma will develop some level of extended difficulties (Copeland et al., 2007). When post-trauma symptoms begin to interfere with children's daily lives and impact their ability to function or interact with others, children are described as experiencing traumatic stress or posttraumatic stress symptoms (PTSS). The impairments associated with PTSS can range from mild to severe, with severe and clinically significant impairments leading to a diagnosis of posttraumatic stress disorder (PTSD). An

estimated 5% of children exposed to trauma will eventually meet full criteria for PTSD (Merikangas et al., 2010).

The *Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition* (DSM-5; American Psychological Association, APA, 2013) outlines the diagnostic criteria for PTSD. First, a child needs to have been exposed to "actual or threatened death, serious injury, or sexual violence" (p. 271). Then, the child needs to demonstrate symptoms in four distinct areas: intrusion symptoms, persistent avoidance of events related to the trauma, negative alterations in cognitions or mood associated with the trauma, and alterations in arousal and reactivity associated with the traumatic event. Examples of intrusion symptoms include frightening or distressing memories of the trauma, distressing dreams related to the trauma, and/or experiencing reenactment of the trauma (e.g., flashbacks). Avoidance symptoms associated with trauma exposure can include attempts to avoid memories, images, thoughts, discussions, people, places, or things that remind the child of the trauma. Additional examples of avoidance symptoms include emotional numbing, social withdrawal, and interpersonal disengagement. Cognitive or mood symptoms associated with trauma exposure might include an inability to remember important aspects of the trauma; negative beliefs about oneself, others, or the world; distorted cognitions about the cause or consequences of the trauma; a persistent and negative emotional state; diminished interest in once pleasurable activities; feelings of detachment from others; or persistent inability to experience positive emotions. Finally, arousal symptoms can include irritable behavior, angry outbursts, self-destructive behavior, hypervigilance, exaggerated startle response, problems with concentration, and sleep disturbances.

While a diagnosis of PTSD is often seen as the most significant marker of impairment in children who have endured a traumatic experience, it is important to recognize that both children

with a PTSD diagnosis and those experiencing PTSS without a formal PTSD diagnosis are likely

to suffer developmental and academic impairments (NCTSN, 2003). These impairments are

described in later sections of this review. However, before examining the impact of trauma

exposure on child development, it is important to provide a brief description of the neurological

impacts of trauma exposure because it will provide a solid framework through which

impairments associated with PTSS and PSTD should be understood.

Effects of Trauma Exposure on Children's Neurological Functioning

Trauma exposure can have significant and negative impacts on children's developing

brains, thereby impairing their overall functioning. Specifically, recurrent trauma exposure

places children at an increased risk of experiencing functional or structural brain deficits by

overexposing them to negative brain stimulation, or limiting the positive stimulation their brains

receive. By eight months of age, the number and density of a child's synaptic connections are at

their greatest (Rakic, 1996). From that point forward, the brain organizes itself and builds

specialized networks based on the internal and external cues the brain receives (Perry & Pate,

1994). Therefore, brain development is largely directed by the environmental experiences of a

child, including the level and types of activities in which the child engages (Perry, Pollard,

Blakely, Baker, & Vigilante, 1995). Children who receive inadequate positive stimulation from

their environment (e.g., prolonged child neglect) may have compromised functioning in specific

brain areas due to underdevelopment, whereas children who are repeatedly exposed to adverse,

negative stimulation from their environment (e.g., chronic child abuse) may experience a range

of brain abnormalities due to overstimulation of specific brain structures or toxic levels of stress

hormones in the brain (Shea, Walsh, MacMillan, & Steiner, 2005; Green, 1993).

When children experience a traumatic event, they generally respond with an initial, sudden sense of panic or overwhelming fear that triggers the 'fight-or-flight' response controlled by the sympathetic division of the autonomic nervous system (Scheeringa et al., 2011). This system suspends executive brain functioning and allows the limbic system (the system that controls fear and anger) to process incoming information instead of higher order brain structures (Medina, 2009). Children who experience chronic trauma will maintain the 'fight-or-flight' mode for extensive periods of time, which could disrupt the development of emotion regulation and adaptive cognitive skills. Further, stimulation of the autonomic nervous system also activates the hypothalamic-pituitary-adrenal (HPA) axis, which coordinates the bodily stress response and generates a "hormonal cascade" (Shea et al., 2005, p. 164) that leads to higher production of adrenaline and cortisol (Medina, 2009). When a child continually experiences stress (e.g., chronic trauma exposure or abuse), these hormone levels can become elevated to the point where they are toxic to the brain, with overexposure damaging and destroying brain cells.

When brain cells are destroyed, the structure and functioning of major brain regions are adversely impacted (Teicher et al., 2003). For example, the hippocampus, a region of the brain that plays an essential role in new learning and memory formation, is often smaller in children who experience more severe PTSS (Carrion & Wong, 2012; Hertel & Johnson, 2013). Researchers have also identified structural differences in the prefrontal cortex (PFC) of children who demonstrate significant trauma symptoms, which are likely associated with impairments in attention, memory, response inhibition, and emotional reasoning (Carrion & Wong, 2012; Dickie, Brunet, Akerib, & Armony, 2008; Shin, Rauch, Pitman, & Roger, 2006). Further, results of brain imaging studies suggest that children who demonstrate PTSS experience functional deficits in brain regions known to play a role in the extinction of conditioned fear responses,

which likely contributes to fear-related, re-experiencing and arousal symptoms following trauma exposure (Carrion, Weems, Richert, Hoffman, & Reiss, 2010; Milad et al., 2007).

Importantly, the neurological impacts of trauma exposure are expansive and diversely impact children. The description provided within this review offers a brief overview with several examples to provide a truncated introduction to understanding the neurological basis of the developmental (e.g., behavioral, interpersonal, and cognitive) impairments associated with traumatic stress. Furthermore, it is important to note that there are vast inconsistencies in the scientific literature regarding the impact of trauma exposure and stress on the developing brain (Shea et al., 2005). Research outcomes range from studies demonstrating significant differences in chemical and structural brain health between trauma-exposed and control groups of children (Carrion et al., 2002; Carrion & Wong, 2012; Cicchetti & Rogosch, 2001; DeBellis et al., 1999; King, Mandansky, King, Fletcher, & Brewer, 2001) to non-significant findings (DeBellis et al., 1994; Kaufman et al., 1997; Kaufman et al., 1998). Such inconsistencies make it difficult for both researchers and clinicians to understand why trauma exposure might lead to negative outcomes. Nonetheless, research has clearly documented an association between trauma exposure and maladaptive brain development, which creates a foundation for understanding how trauma exposure impacts both child development and academic success.

Effects of Trauma Exposure on Children's Development

The developmental effects of childhood trauma exposure are extremely varied and based upon several factors: the age of the child at the time of trauma exposure; the duration, extent, and severity of trauma; the child's adaptive style; and other factors in the child's life such as the amount of social support the child receives (Scannapieco & Connell-Carrick, 2005). The best

way to understand the developmental impacts of childhood trauma is to think of outcomes as they exist on a number of continuums: behavior, interpersonal skill, and cognitive functioning.

Children exhibiting behavioral symptoms associated with trauma exposure may demonstrate behaviors that range from disruptive, externalized behaviors to covert, internalized symptoms. Externalizing behaviors refer to children's ability to verbally and physically act in a manner that is socially acceptable to both peers and authority figures (Hertel & Johnson, 2013). As described in previous sections, trauma exposure causes an increase in stress hormones (i.e., cortisol and adrenaline) that excite the limbic system and may disrupts children's ability to regulate their emotions and behavior. Common symptoms associated with such physiological changes include fear, anxiety, hyperarousal, hypervigilance, inability to calm oneself, overreactions, impulsivity, and poor judgment (Hertel & Johnson, 2013). For example, physical abuse is associated with an increased risk for developing disruptive behavior and conduct disorders (Kaplan et al., 1998; Pelcovitz et al., 1994), as exposure to physical abuse teaches children to accept aggressive behavior as a social norm (Dodge, Bates, & Pettit, 1990; Dodge & Schwartz, 1997). These children are more likely to demonstrate destructive and violent behaviors (i.e., aggressiveness, fighting, meanness, and antisocial behavior), which are associated with more disciplinary problems at school (Eckenrode, Laird, & Doris, 1993; Kaufman & Cicchetti, 1989; Salzinger, Feldman, Hammer, & Rosario, 1993). Children who have experienced sexual abuse or domestic/community violence might also demonstrate increased aggressive behavior, which has been found to be associated with higher rates of delinquency and destructiveness (Dawud-Noursi, Lamb, & Sternberg, 1998; Pat-Horenczyk, Yeh, Cohen, & Schramm, 2014).

Not all children who have been exposed to trauma will externalize their struggles; rather, some children will either internalize emotional disturbance or develop a combination of

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externalized and internalized symptoms (Kilpatrick et al., 2003). Children who are more likely to

internalize difficulties associated with trauma exposure may begin to view the world or

themselves differently, interpret the world as an unsafe environment, and/or develop the belief

that they are unworthy of being kept safe or protected from harm (Lynch & Cicchetti, 1998).

These attitudes may contribute to the development of negative self-perceptions and low self-

esteem (Kazdin, Moster, Colbus, & Bell, 1985; Oates, O'Toole, Lynch, Stern, & Cooney, 1994;

Toth, Manly, & Cicchetti, 1992), which can lead to specific or generalized fears, separation

anxiety, and somatic complaints (Dykman et al., 1997; Vondra, Barnett, & Cicchetti, 1989).

Research has also demonstrated associations between trauma exposure and depressive and

anxiety symptoms (Kilpatrick et al., 2003; Kolko, 1992; Trickett & Putnam, 1993).

The presence of these behavioral difficulties might interfere with children's social

emotional or interpersonal functioning, ranging from children seeking isolation to exhibiting

inappropriate closeness with others. Social emotional functioning refers to children's ability to

manage and regulate emotions, social competence, the quality of peer relationships and

interactions, and self-esteem (Hertel & Johnson, 2013). Children who have suffered some form

of trauma, especially victimization trauma, often exhibit less intimacy, more conflict, and more

negative affect in close relationships than children who have not been abused (Parker & Herrera,

1996). Children who have experienced physical abuse often demonstrate more aggressive

tendencies in their social relationships, especially during play, which can lead to social rejection

from peers (Kaufman & Cicchetti, 1989; Miller, Wasserman, Neugebauer, Gorman-Smith, &

Kamboukos, 1999). Alternatively, children who have experienced sexual abuse may exhibit

excessive and inappropriate sexual behavior (Kendall-Tackett, Williams, & Finkelhor, 1993) and

engage in more sexual play (Einbender & Friedrick, 1989), which is also problematic in

developing peer relationships. Overall, children who have experienced abuse demonstrate deficits in social functioning and are described as more disliked and less popular than non-abused peers (Salzinger et al., 1993), which can present major difficulties for them within school settings.

Effects of Trauma Exposure on Children's Academic Performance

The combination of developmental and psychiatric symptoms associated with trauma exposure could have dramatic consequences for children's cognitive functioning and ability to succeed in an academic setting. Sometimes, children will demonstrate improved academic success following trauma exposure (e.g., striving for perfection in work), though most children will experience disruptions in academic achievement (Hertel & Johnson, 2013). These impairments exist on a spectrum, ranging from minor academic difficulties to highly impaired academic ability. The impact that trauma exerts on academic functioning often depends on the individual child, the form of trauma experienced, and other situational variables (e.g., supports available within the classroom). Some children will become highly disruptive in the classroom, while other children will try very hard to display expected behaviors in an effort to blend into their environment (Hertel & Johnson, 2013). The most concerning symptoms of trauma exposure in the school setting include those that limit children's abilities to learn and advance through expected academic progressions. Importantly, the PTSS discussed in previous sections (i.e., neurological dysfunction, behavioral disruptions, and interpersonal difficulties) often present similarly in the school environment. This section will concentrate on how these symptoms influence children's ability to learn.

Children struggling with trauma exposure often experience intrusive and distressing memories. These memories, when triggered within an academic setting, will likely impact the

child's ability to attend to the school environment and contribute to many of the cognitive difficulties children with PTSS or PTSD experience throughout the school day. Additionally, children who struggle with re-experiencing symptoms (e.g., nightmares) are more likely to be sleep deprived, which contributes to cognitive impairment, diminished concentration and memory, loss of focus or perspective, inattention, confusion, and impaired thinking (Eckenrode et al., 1993; Hertel & Johnson, 2013; Lieberman, Diaz, & van Horn, 2011; Yule, 2011a). These children frequently have difficulty processing verbal, nonverbal, or written instructions, which impairs their ability to attend to, understand, and carry out academic instructions that will help them correctly complete classroom activities, homework assignments, and academic testing (Hertel & Johnson, 2013). In fact, abused and neglected children demonstrating PTSS have shown lower standardized test scores, verbal test scores, comprehension test scores, and mathematic test scores as compared to their non-victimized peers (Eckenrode et al., 1993; Kurtz, Gaudin, Howing, & Wodarski, 1993; Leiter & Johnsen, 1994).

Children exposed to trauma may also experience delayed executive functioning development (Kinniburgh, Blaustein & Spinazzola, 2005), which might prevent them from being able to "practice the higher order skills of executive function that are essential for learning" (Hertel & Johnson, 2013, p. 24). For example, children experiencing PTSS might struggle to establish goals, develop plans, make decisions, anticipate consequences, evaluate outcomes, generate alternatives, and maintain attention (Hertel & Johnson, 2013). These children will likely have difficulty accomplishing even the most basic tasks, which produces great concern for their ability to undertake more significant academic challenges. Further, when children who are impacted by trauma exposure are able to make a decision, their choices are often impulsive and inadequately informed (Hertel & Johnson, 2013). Children who are unable to anticipate

consequences, properly evaluate outcomes, or generate alternatives will struggle to predict the appropriateness of their decisions or correct their behavior in a suitable fashion. These children will struggle to adequately maintain a presence in the classroom that is conducive to learning.

As mentioned earlier, child victimization or other forms of trauma exposure may leave children questioning the safety of the world or their worthiness of being kept safe. Children who develop such maladaptive cognitions may experience difficulty finding a sense of safety within the school environment. These children might demonstrate hypervigilant behavior, including over awareness and oversensitivity to potential danger cues in the environment (Vig, 1996). They might consistently scan their surroundings for threats of potential danger, leaving them unable to focus and concentrate on their schoolwork (Hertel & Johnson, 2013). Such hyperarousal might also lead children to develop inappropriate behaviors, including being overly aggressive with peers, exaggerated startle response, and increased sensitivity to overstimulation within a typical school environment (Vig, 1996). Children with such behaviors could have difficulty developing and maintaining social relationships within the classroom with teachers and peers, which could negatively impact their academic performance. Indeed, children who have a stable connection with their teacher or other school staff are more likely to experience academic success (Split, Hughes, Wu, & Kwok, 2012).

Overall, research supports an association between significant trauma-related symptoms and reduced academic performance: children exposed to trauma are more likely to fail a grade or be referred to special education services (Eckenrode et al., 1993; Grevstad, 2007). Nonetheless, it is important to recognize that the impact of trauma exposure on academic performance varies between studies (Reyome, 1993), with significant differences being found between the type, intensity, or recurrence of trauma that each child has experienced. Childhood neglect, for

example, demonstrates the greatest risk for poor academic performance when compared to other forms of abuse (Eckenrode et al., 1993). The educational impact of traumatic stress also varies depending on individual child factors (e.g., age, gender), individual responses to the traumatic event, and the various symptoms with which the child is struggling (Shaw, Applegate, & Schorr, 1996; Yule, 2001b). Due to these variations, the connection between PTSS and academic performance requires careful attention be given to the specific circumstances of each individual child, the difficulties they may be experiencing, and the best course of response/treatment.

Providing Mental Health Services within School Systems

Estimates suggest that a significant portion of children who experience psychological distress, including PTSS, do not receive treatment to address or alleviate their mental health concerns (Flisher et al., 1997; Kataoka et al., 2003). In fact, less than one-third of children who suffer from a mental disorder will receive therapeutic services through traditional health care or mental health agencies due to a variety of barriers that make clinic-based services difficult for families to access (Burns et al., 1995; Weist & Evans, 2005). Providing mental health services through a school setting can help reduce some of these financial and structural barriers, such as difficulty finding a mental health provider, difficulty making an appointment, lack of transportation, no access to childcare for other children, and/or child refusal to leave the house (Garrison, Roy, & Azar, 1999; Young & Rabiner, 2015). Indeed, approximately 75% of all children who receive mental health services do so in schools, which supports the need for feasible, school-based mental health interventions that can effectively address child psychosocial difficulties and trauma exposure (Farmer, Burns, Phillips, Angold, & Costello, 2003).

The development of Positive Behavioral Interventions and Supports (PBIS), or School-wide Positive Behavioral Supports (SWPBS), vastly improved the manner through which school

systems structure and provide child and family intervention supports (www.pbis.org/research). PBIS is a school-wide system for supporting appropriate child behavior and creating a positive school environment by utilizing proactive strategies to define, teach, and maintain appropriate child behavior. PBIS is not a specific curriculum, intervention, or practice; rather, it is an operational framework for improving child academic and behavioral outcomes by ensuring all children and their families have access to effective instructional and behavioral interventions. Instead of focusing on disciplinary responses to child misbehavior, PBIS encourages positive reinforcement of appropriate child behavior to establish a positive school environment. The PBIS framework provides schools with guiding principles and tools for improving child academic and behavioral success in the school setting, thereby promoting a school climate in which appropriate behavior is standard practice.

PBIS organizes evidence-based behavioral and mental health innovations into a tiered continuum depending upon a child's responsiveness to intervention. At the 'universal' level of the continuum (Tier I), PBIS provides school-/classroom-wide supports to all children. Not all children's problematic behaviors will respond to this level of intervention; however, in a functioning PBIS system, universal level risk screening is used to help identify children with early signs of emotional, behavioral, and/or academic challenges (Fosco, Frank, Stormshak, & Dishion, 2013). For these children, PBIS suggests more intensive behavioral supports be provided at a group level that provides specialized services for children experiencing similar difficulties (e.g., selective trauma intervention; Tier II). If children's problematic behaviors or other mental health symptoms persist despite receiving specialized group care, PBIS requires individualized behavioral or social-emotional supports for those children (Tier III).

For a school to efficiently and effectively address PTSS and associated academic and/or behavioral difficulties within their student population, school-based, trauma-focused care should be provided through a PBIS tiered framework. The three tiers of PBIS ensure all students receive some degree of preventative care, with more intensive and targeted interventions being delivered to children who require higher levels of care (www.pbis.org/school). To facilitate understanding of how trauma interventions could be implemented within a PBIS framework, examples of tiered trauma innovations are provided below. Importantly, numerous trauma-focused programs and innovations have been developed, including several programs with the primary purpose of creating school systems that can be sensitive and responsive to traumatize children (e.g., *Calmer Classrooms,* Downey, 2007; *Helping Traumatized Children Learn,* Cole et al., 2005). Very few of these treatments and school-wide trauma-informed frameworks, however, have been empirically evaluated. Because the use of evidence-based interventions reflects best practice in mental health care, the trauma innovations that are described below are those that have solid research support and are recognized as effective approaches to treating symptoms of posttraumatic stress in children.

Tier I trauma intervention: Attachment, Self-Regulation, and Competency (ARC). ARC is a system-level framework for intervention designed to target child trauma symptoms by addressing how a child's entire system of care (e.g., school system) can become trauma informed (Kinniburgh & Blaustein, 2005). ARC is not a manualized treatment; rather, it is a component-based approach that guides treatment choice while allowing flexibility to individually tailor treatment for children who have experienced complex, interpersonal trauma (Blaustein & Kinniburgh, 2010). Specifically, ARC can provide a framework for enhancing teacher/caregiver skill in responding to traumatized children, and the model provides numerous examples of

activities and strategies that teachers or other school staff can use to respond to traumatic stress symptoms within the classroom or school environment at large. The framework is grounded in four theoretical and empirical literatures (i.e., attachment theory, child development, traumatic stress impact, and factors promoting child resilience) and designed to address three core domains commonly impacted by exposure to chronic traumatic stress: attachment, self-regulation, and developmental competencies.

Schools using ARC as a system level innovation might engage in activities such as teaching school staff to use reflective listening skills, model labeling of emotions, and creating space (e.g., bulletin boards) for emotion-related displays that encourage self-expression. Mental health support staff might need to designate a point-person for children to seek when needing cues and support to use emotion regulation skills, including training staff to tolerate a spectrum of emotional expressions conveyed by children within the school setting and creating forums to support staff in accomplishing that goal. Finally, schools using ARC might reserve class time to teach children to engage in problem solving and planning skills, or train teachers to help children recognize positive aspects of themselves and their achievements. These types of interventions could be both time and resource intensive, which could make them difficulties for schools to implement with fidelity. Examination of schools' ability to utilize this innovation is important, as published literature has shown that ARC can help traumatized children function adaptively and succeed within the school setting.

A growing research base suggests that ARC is associated with trauma symptom reduction, as well as significant improvements in overall mental health functioning, use of adaptive and social skills, and resilience (Trauma Center at Justice Resource Institute, 2007). Though few scientific evaluations have been conducted using ARC as a school-based mental

health intervention for child trauma exposure, ARC has been used to successfully develop a trauma-informed system that can address and reduce trauma-related symptoms in children within residential treatment settings (Hodgdon, Kinniburgh, Gabowitz, Blaustein, & Spinazzola, 2013), juvenile justice programs (Ford & Blaustein, 2013), and child welfare systems (Arvidson et al, 2011; Bartlett et al., 2015). Some promising evidence suggest that ARC can be successfully implemented within preschool and high school settings (Holmes, Levy, Smith, Pinne, & Neese, 2015; Stephens, 2012), including parents and school staff reporting high satisfaction with the intervention. Therefore, the NCTSN identified ARC as a promising intervention for addressing traumatic stress and identifies schools as a potential setting through which ARC can be effectively implemented (NCTSN, 2012).

Tier II trauma innovation: Cognitive Behavioral Intervention for Trauma in Schools (CBITS). CBITS is a targeted, school-based intervention designed to treat symptoms of PTSD in school-aged children who have experienced a traumatic or violent event (Jaycox, 2004). The aims of the intervention include reducing distressing psychological symptoms (e.g., symptoms of anxiety, depression, PTSD), as well as enhancing resilience factors (e.g., peer and parent support, coping strategies, adaptive thought patterns) that will allow the child to function more adaptively at school, at home, and socially. The format of the CBITS group includes 10 weekly group intervention sessions, as well as individual sessions (i.e., Tier III supports) where children work individually with a group facilitator to create a trauma narrative by talking, writing, or drawing pictures about the traumatic event. Group sessions are led by a school-based mental health professional (e.g., school psychologist or social worker) and one other facilitator (e.g., teacher). The intervention content focuses on psychoeducation about trauma (e.g., common child reactions to trauma, a description of trauma treatment); relaxation training; and

psychoeducation about the relationship between thoughts, feelings, and behaviors. Group facilitators then help children identify negative, dysfunctional thoughts tied to extreme emotional responses, especially cognitions related to the traumatic experience. Part of this experience encourages children to select portions of their trauma experience to share with the group, focusing on discussing how the children felt or what they were thinking during the time of the trauma, rather than specific details of the trauma. Children in the audience are coached to be supportive of the group member sharing his or her story. The final treatment components of CBITS focus on teaching children social problem-solving skills to address life problems that have not been addressed within previous group sessions.

Parents and teachers are encouraged to participate in CBITS intervention implementation. Parents who are willing to participate are asked to attend two group meetings focused on helping parents understand and cope with their children's trauma-related symptoms. They are taught to help their children use relaxation skills, to use relaxation skills themselves, and to help their children change maladaptive thoughts and actions. Teachers who are willing to participate are asked to attend one education session designed to teach them about common child reactions to trauma exposure, as well as encourage them to use a trauma-informed lens while working with children in the classroom setting. Research has documented several difficulties that schools experience when attempting to engage parents and teachers in mental health interventions (Spoth et al., 2002), though it is important to note that CBITS does not require nor rely on participation from either of these support systems to successfully implement the treatment.

CBITS has been established as an EBP for treating PTSD in children, which means that CBITS has shown through scientifically sound research to reduce symptoms and improve functioning in children who have experienced trauma (SAMHSA, 2010). Specifically, a

randomized clinical trial (RCT; Stein et al., 2003) and an additional community treatment effectiveness study (Kataoka et al., 2003) showed that children who participated in a CBITS group demonstrated significant decreases in symptoms of PTSD and depression. Kataoka and colleagues (2011) further explored the results of the CBITS RCT conducted by Stein and colleagues (2003) and found that children who received the CBITS intervention early in the school year were more likely to receive a passing grade (C or higher) in a language arts class than children who received CBITS later in the academic year. Results also showed similar trends for math grades, though these findings were not statistically significant. The results of these research studies offer evidence that child participation in CBITS could result in better academic performance, as well as improved mental health outcomes, which make it a desirable innovation that augment schools' main objective of providing quality academic instruction.

       Tier III trauma innovation: Trauma-Focused Cognitive Behavior Therapy (TF-CBT). TF-CBT is a short-term trauma-focused treatment that includes cognitive behavioral, exposure, and parenting therapy components (Cohen, Mannarino & Deblinger, 2006; de Arellano et al., 2014; Fitzgerald & Cohen, 2012). Cognitive behavioral techniques are used to help children and families make meaning of and contextualize the traumatic experience. Gradual exposure techniques are used to help the child overcome automatic responses to trauma-related triggers, memories, thoughts, and feelings. Finally, parents are included whenever possible to improve parental understanding of and response to the child's experience of the traumatic event.

       There are nine core components of TF-CBT, which are referred to as the PRACTICE components (Cohen et al., 2006). These modules are provided individually to children and parents in a parallel fashion, with conjoint parent-child sessions occurring near the end of treatment. The PRACTICE elements include: psychoeducation (i.e., providing information about

trauma, trauma reactions, and effective parental responses to child-focused trauma difficulties),

relaxation skills training, affective modulation skills training (i.e., identifying, expressing, and

regulating positive and negative emotions), cognitive coping skills training, construction of a

trauma narrative (e.g., details, thoughts, feelings, and physiological reactions surrounding the

trauma), in-vivo mastery of trauma reminders (i.e., exposure therapy targeting generalized fear

related to the trauma), and conjoint child-parent sessions (i.e., teaching parents to encourage,

hear and praise children for talking openly about their trauma). The final PRACTICE element

includes enhancing child safety, which includes working with families to develop safety plans

that both maintain child safety and promote typical child development. If acute safety concerns

are present, safety planning is provided earlier in the treatment process.

Outcome studies of TF-CBT have provided significant evidence for the efficacy of using

this treatment with children who have experienced a vast range of traumas (de Arellano et al.,

2014). TF-CBT has been used in randomized control trials (RCTs) to successfully treat

symptoms of traumatic stress in children who were exposed to child maltreatment (Fraser et al.,

2013), sexual abuse (Cohen & Mannarino, 1996; Cohen, Deblinger, Mannarino, & Steer, 2004;

Cohen & Mannarino, 1998), intimate-partner violence (Cohen, Mannarino, & Iyengar, 2011),

war and sexual exploitation (O'Callaghan et al., 2013), natural disasters (Cohen et al., 2011), and

mixed trauma exposure (Scheeringa, Weems, Cohen, Amaya-Jackson, & Guthrie, 2011). An

analysis of the efficacy of TF-CBT across this broad range of traumatic events reveals

consistently high support for the improvement of trauma-related symptoms in comparison to

waitlist control groups (de Arellano et al., 2014), as well as significant reductions in depressive

symptoms and behavior problems (Cohen & Mannarino, 1998; Cohen et al., 2004; Deblinger,

Lippmann, & Steer, 1996; O'Callaghan et al., 2013). More current research has begun to

examine the effectiveness of TF-CBT in community settings, and the findings are promising. For example, a recent randomized effectiveness study conducted by Jensen and colleagues (2014) compared TF-CBT with therapy as usual for children who demonstrated symptoms of PTSD. The results of this study showed that children assigned to the TF-CBT condition demonstrated significantly greater improvements in functional impairments, decreased PTSS symptoms, and decreased generalized anxiety symptoms as compared to children in the treatment as usual group.

Despite such promising results, it is important to consider factors that might interfere with schools' attempts to implement TF-CBT. For example, to utilized TF-CBT, schools must have a licensed or supervised mental health professional on staff who has specialized clinical training in the intervention model. Mental health clinicians who wish to receive training in implementing the intervention can complete an online course (tfcbt2.musc.edu), though they will likely require some level of supervision while they are learning to utilize the intervention techniques, which can be difficult to access within rural areas. These factors, as well as additional barriers surrounding individualized psychological treatment provided within schools (e.g., obtaining parental consent), could make it difficult for schools to effectively implement TF-CBT to address symptoms of trauma exposure within the student body.

The descriptions of trauma-focused innovations provide within this section offer an introductory view of how school systems might implement trauma-focused interventions within each tier of a functioning PBIS system to remediate symptoms of child traumatic stress and related sequelae. Furthermore, the evidence base supporting the effectiveness and efficacy of the innovations discussed encourages the idea that schools could implement high-quality treatments, thereby playing an integral role in enhancing children's developmental and academic success. Unfortunately, as briefly described, schools are often unable to implement EBPs with fidelity,

which could reduce the effectiveness of the intervention. Research has assessed and identified barriers that schools often face when attempting to deliver mental health care, which will promote research that can begin to understand factors and implementation strategies that could promote successful EBP delivery in schools.

Barriers to Implementing Trauma Innovations within School Systems

There have been widespread efforts to disseminate trauma-focused frameworks (e.g., ARC) and EBPs (e.g., CBITS, TF-CBT), including efforts to implement these innovations through school systems (Cohen, Mannarino, Murray, & Igelman, 2006). As previously discussed, schools provide naturalistic settings that have the capacity to increase access to mental health services for children and families in need of care. In fact, Jaycox and colleagues (2010) conducted a research study to compare child outcomes after completing either 1) TF-CBT in a community clinic, or 2) CBITS in a school setting. Reduction in traumatic stress symptoms were similar across groups for children who completed treatment, though results showed that only 12% of children assigned to receive TF-CBT in a community clinic completed treatment versus 93% of children who were assigned to receive CBITS in a school setting. This study clearly suggests that there is a greater capacity for children and families to engage in and complete treatment when it is offered within a school setting.

A variety of barriers, however, often prevent schools from successfully implementing mental health innovations with fidelity (Dishion & Kavanagh, 2000). Some of the most common barriers that schools face when attempting to implement empirically-based mental health programs include limited financial resources available to sustain the model, inadequate administrative or teacher support for the program, difficulty accessing and maintaining training and consultation to help school staff utilize the innovation, and difficulties managing staff

turnover and additional changes within the school system (Forman et al., 2009; Spoth et al., 2002). Further, once schools make the decision to adopt and begin implementing an innovation, they often have difficulty identifying youth and families who could benefit from participating in the program, or engaging parents in the program once their children are recognized as needing additional supports (Dishion & Kavanagh, 2000; Spoth et al., 2002).

A handful of studies have examined these barriers as they relate to implementing trauma-focused innovations, specifically CBITS, within public school systems. Financial support and other resource availability (e.g., time, space, personnel) appear to have a significant impact on a school's ability to implement CBITS. For example, Langley and colleagues (2010) found that schools with grant funding are often able to successfully implement CBITS. In fact, every school that was able to successfully implement CBITS in the study conducted by Langley and colleagues (2010) reported having grant funding specifically designated for CBITS implementation. Nonetheless, some schools that participated in the study reported that they had received grant funding to offer CBITS to their students and were unable to successfully implement the program, which suggests that additional barriers outside of monetary resources can impede program implementation.

Interviews conducted with school-based mental health clinicians suggest that non-financial resources barriers to implementing CBITS might include competing priorities for a clinician's time and attention within the school day, difficulties finding times within the school day to run groups when children are available, difficulty convincing teachers to excuse children from class to attend treatment groups, and difficulty accessing space within the school to hold group sessions (Langley et al., 2010). Importantly, although these barriers were identified in a study examining CBITS, it is unclear if there are unique aspects of these logistical barriers that

differentially influence trauma-focused treatment, as compared to the implementation of other school-based, mental health interventions. For example, some clinicians could be more restrictive in the time of day that they are willing to facilitate trauma treatment because they are concerned that children will become emotionally dysregulated when discussing trauma exposure and then be unable to return to class once therapy is over. These types of questions have not been evaluated using scientific research; therefore, future research should concentrate on examining whether there are aspects of resource-related barriers that distinctly impact the implementation of trauma-focused interventions.

Beyond resource availability, the results of several research studies suggest that administrative and teacher support for conducting CBITS is imperative for successful implementation (Langley et al., 2010, 2013, 2015). This is not surprising, as the field of implementation science has recognized that implementation of new innovations requires support from key stakeholders before adoption and effective implementation efforts are possible (Damschroder et al., 2009, Domitrovich et al., 2008; Mendel, Meredith, Schoenbaum, Sherbournce, & Wells, 2008). Most research that examines school staff perspectives of trauma-focused interventions reports that administrators, school-based clinicians, and teachers acknowledge the importance and need for offering trauma-focused care within the school system (Baweja et al., 2016; Langley et al., 2010). However, these studies also recognize that most administrators and teachers do not understand the unique impacts of PTSS on intellectual and academic functioning, or how trauma-focused care can improve academic success (Baweja et al., 2016). No scientific research to date has examined the level to which school-based mental health staff understand the connection between trauma exposure, PTSS, and academic failure, which is a major limitation of current research. Further, the studies previously listed assessed the

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perspectives of staff within school systems that had already made the decision to implement CBITS, which suggests those staff are more likely to have positive perceptions of implementing trauma-focused programs within academic settings. No research has examined the perspectives of stakeholders (e.g., administrators, school-based clinicians, teachers) who do not support schools implementing trauma-focused innovations. Such information could enhance efforts to increase mental health and trauma supports offered to children within education sectors.

One of the most notable and controversial barriers that influences successful trauma treatment implementation within school systems includes difficulties identifying children who have been exposed to trauma, are experiencing PTSS or PTSD, and need psychological supports (Forman et al., 2009; Jaycox, Kataoka, Stein, Langley, & Wong, 2012; Spoth et al., 2002). Selection of children who could benefit from trauma treatment often includes use of parent-, teacher-, or self-report measures; and trauma program developers (e.g., the developers of CBITS, Jaycox, 2004) recommend that schools conducted these trauma screeners school-wide. While some research suggests that teachers and other school staff find universal trauma screeners helpful because it allows the school to more successfully identify children both exposed to trauma and struggling with symptoms of traumatic stress (Baweja et al., 2016), other research suggests that universal trauma screening might be daunting for schools due to concerns of revealing violence or abuse that are occurring in children's homes and require mandated reports to child welfare and protection agencies (Blodgett, 2012).

Importantly, while the prevalence of concerns surrounding universal trauma screening has not been evaluated using scientific methods, anecdotal reports from school staff serving Montana schools suggest that these concerns impact the type of information school staff are willing to request from children and families. Additional comments made by school-based

clinicians within Montana suggest that clinicians are hesitant to conduct trauma-related assessments because they fear the experience of completing a trauma assessment will either be re-traumatizing for children or uncomfortable for parents. Research data, however, suggests that asking children about trauma does not increase their level of distress (Griffen, Resick, Waldrop, & Mechanic, 2003), and asking parents about their children's trauma exposure is a pleasant or somewhat pleasant experience for the clear majority of parents (Dean, Stein, Jaycox, Kataoka, & Wong, 2004). In fact, less than 2% of parents in the study conducted by Dean and colleagues (2004) reported that being asked about their children's trauma exposure was an unpleasant experience. These discrepancies between research findings and 'real-world' clinician reports warrant further scientific exploration of these themes.

Even after schools identify children and families in need of trauma-focused care, it can be difficult for schools to engage parents in intervention efforts (Langley et al., 2010). Recommendations have been published to promote parent engagement in school-based mental health interventions (Hornby, 2011); however, research suggests that schools continue to struggle to 1) acquire parental consent to conduct trauma screeners and treatment within the school setting, and/or 2) engage parents in parent-focused or parent-child combined therapy sessions once consent has been obtained (Langley et al., 2010). As previously discussed, research that has examined parent perceptions of universal trauma screeners suggests that parents feel comfortable reporting on their children's trauma exposure and symptoms. Therefore, it is unknown why so many parents do not return consent forms approving their children's participation in trauma screeners. It could be related to the way trauma assessment and intervention is described to parents, as some studies suggest that using words like 'trauma' is more difficult for parents to understand and discuss than words like 'stress' (Langley et al.,

2013). However, this hypothesis has not been examined using scientific methods and warrants further evaluation.

Finally, in addition to internal school supports, factors outside the immediate school environment often impact the implementation of school-based mental health interventions. For example, Langley and colleagues (2010) found that a primary difference between schools who were or were not able to successfully implement CBITS focused on the level of external supports school-based clinicians received. Clinicians who successfully facilitated CBITS groups reported that they either had supervision or consultation support, or a network of other professionals who were also implementing CBITS groups either within their own schools or the surrounding region. The type of supervision or consultation that school-based clinicians found most helpful varied among study participants (e.g., telephone versus in-person supervision, weekly versus as-needed supervision), but all clinicians reported that having access to external supervision and supports significantly promoted their ability to implement the CBITS intervention.

While the studies discussed within this section provide good insight into general barriers that prevent schools from successfully implementing CBITS, it is important to note that these barriers were identified in schools that had already made the decision to implement the CBITS intervention. Little is known about why some schools either completely avoid or actively decide not to offer trauma-focused care within their schools; and the details that prompted the development of the current study originated from anecdotal information gathered from a small number of school-based clinicians serving Montana, rather than valid scientific methods. Finally, each of the studies examined focus only on implementation associated with CBITS, a Tier II trauma intervention that was specifically designed to be implemented with school systems. Therefore, nothing is known about barriers that schools experience when attempting to

implement other tiered trauma innovations, including either universal or individualized trauma supports. This is concerning, especially because services at these levels could offer either school-wide preventative intervention or necessary individualized treatment for children severely struggling with interfering symptoms of traumatic stress. Consequently, research is needed that will examine barriers of implementing trauma interventions across a multi-tiered intervention of supports in schools that both have and have not formally decided to adopt trauma-focused innovations.

Barriers to Implementing Trauma Innovations within Rural Settings

Because Montana is a rural state, it is important to consider implementation barriers that research has identified as uniquely present within rural settings. For example, the rates of mental illness and trauma exposure in rural settings are equal to or greater than rates in urban areas, though the availability of resources to children and families residing in rural areas is significantly limited (Kingery, Mirzaee, Pruitt, & Hurley, 1991; Murry, Heflinger, Suiter, & Brody, 2011). In fact, there are significant shortages of clinicians who work with children in rural communities (Thomas, Ellis, Konrad, Lozer, & Morrissey, 2009), and the availability of specialized trauma treatment for children in rural areas is even more restricted (Gamm, Stone, & Pittman, 2010). These considerations make the possibility of increasing access to mental health services with rural communities by providing treatment through school systems appealing.

It is important to recognize that many schools within rural areas have limited resources, such as limited financial supports and few clinicians who are trained in evidence-based mental health interventions (Shealy, Davidson, Jone, Lopez, & de Arellano, 2015). Given the lack of resources available to many rural school districts, schools in rural areas often focus the resources they do have available on meeting the academic needs of children. This academic focus reduces

the attention schools can devote toward the psychological and behavioral needs that children present within the school setting. However, if children's mental health needs go unmet, their ability to perform well academically is restricted, which could exacerbate the academic, mental health, and/or behavior struggles that children with trauma exposure might experience. Then, if personnel or funding resources are exhausted by educational or crisis-oriented needs within the school, school-based clinicians will have even less capacity to attend training in evidence-based mental health interventions, implement mental health interventions within the school day, or problem-solve common barriers to delivering mental health interventions within academic settings. These circular patterns can create chronic and system-wide problems that could interfere with schools' ability to address the needs of trauma-exposed children.

Lastly, one of the greatest barriers to providing mental health supports within rural communities includes the potential of increased stigma associated with accessing mental health care (Boydell et al., 2006). Anonymity is especially restricted within rural settings, which makes it difficult for individuals to privately seek mental health care. School-based services have the potential to overcome these barriers because children will be receiving care within a natural setting where they spend most of their day, though confidentially of service receipt is also difficult to maintain within school settings because children are frequently asked why they leave classes by both teachers and peers. Such factors could reduce school's ability and willingness to implement trauma-focused program, and it could interfere with children or families' willingness to engage in available treatment.

The results of these studies suggest that unique barriers need to be considered when implementing trauma interventions with rural school systems, above and beyond those identified within previous sections of this review. This should include examining factors that might be

preventing rural schools from initially adopting trauma-focused innovations, as well as those factors that prevent successful program implementation within rural settings. Implementation science research, a relatively new and rapidly developing field, offers the knowledge and tools required to conduct a structured and rigorous evaluation to accomplish such goals.

Implementation Science Frameworks

Implementation science focuses on the spread, adoption, and use of EBPs to treat psychological disorders in community settings (Rabin & Brownson, 2012). This type of research informs and encourages the uptake of laboratory-based ideas and practices into applied clinical work, thereby improving access to mental health treatments that actually work. One of the goals of implementation science includes evaluating the success of organization's attempts to implement innovations, which includes the implementation of evidence-based mental health interventions within school settings.

Numerous implementation theories have been developed to promote effective implementation (e.g., Domitrovich et al., 2008; Mendel et al., 2008). These theories demonstrate considerable concept overlap, though they often utilize differing terminologies and definitions. Damschroder and colleagues (2009) recognized this pattern, including concerns that such complications would interfere with the development and progression of implementation science research. Therefore, they examined published theories related to the translation of research findings into practice within the healthcare sector, identified overlapping constructs and themes, and developed the Consolidated Framework for Implementation Research (CFIR). The CFIR is now recognized as a leading implementation framework that is one of the most comprehensive and applicable theories within implementation science literature (Lewis et al., 2015).

The CFIR contains five separate implementation domains, which are defined as concepts that are believed to either positively or negatively influence implementation (Damschroder et al., 2009). These domains include characteristics of the intervention, characteristics of the outer setting, characteristics of the inner setting, characteristics of the individual, and aspects of the implementation process (see Table 1 and Figure 1). Each domain includes a number of implementation constructs, which are defined as specific factors that have been identified as impacting implementation efforts. Various construct within the CFIR domains could impact the delivery of trauma-focused interventions within academic settings. For example, characteristics of the intervention (e.g., the quality, complexity, adaptability, and cost of the intervention) could greatly impact whether schools are able to access or willing to implement the innovation. Programs that are too costly or do not provide some degree of relative advantage over existing methods of meetings children's needs will not be appealing to school systems. Further, characteristics of the outer setting (e.g., peer pressure from external agencies or the community for a school to provide a particular service) or inner school setting (e.g., the size or culture of the school, a need for change to alleviate an intolerable environment within the school, or the fit between the intervention and the school norms) could greatly impact whether schools formally decide to offer trauma-focused supports. Lastly, characteristics of school staff (e.g., staff knowledge or beliefs about trauma-focused care, staff belief in their ability to offer trauma-focused care) could also impact whether school-based mental health clinicians are willing or able to facilitate trauma-focused innovations within rural Montana schools.
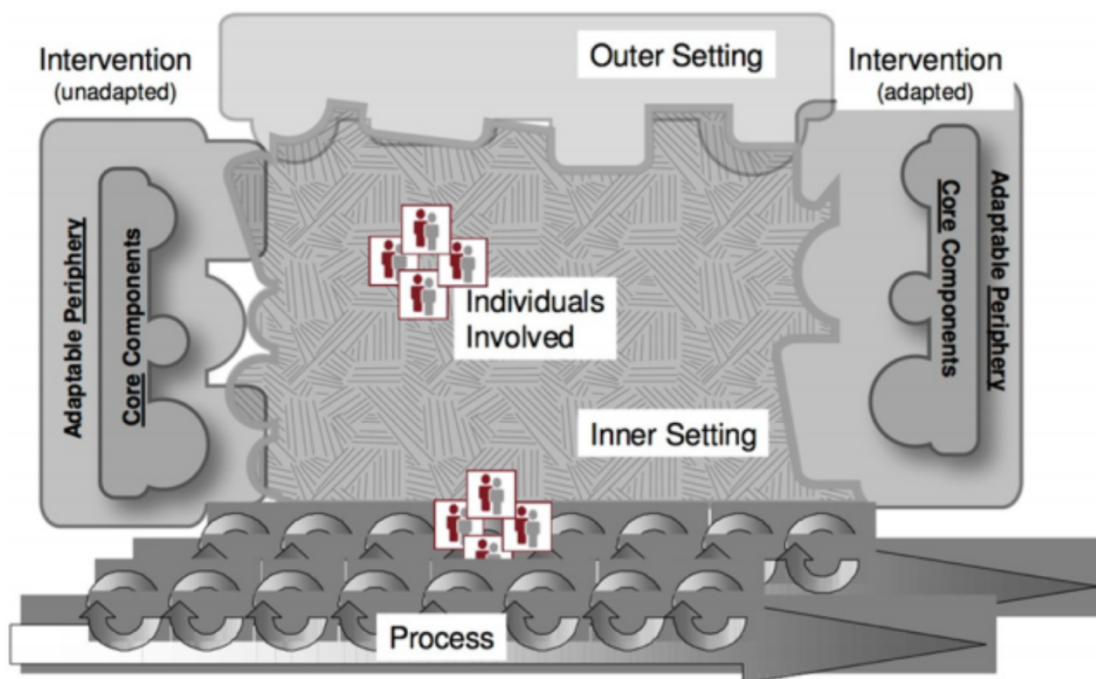
Figure 1. Major domains of the Consolidated Framework for Implementation Research (CFIR). © 2009 Damschroder et al., licensee BioMed Central Ltd. This is from an open access article distributed under the term of the Creative Attribution License (http://creativecommons.org/licenses/by/2.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

The CFIR also contains constructs related to the implementation process, which would heavily impact the delivery of trauma-focused care within schools. For example, successful program implementations often require some degree of pre-implementation planning (e.g., budgeting, breaking an implementation down into manageable parts), engagement of key stakeholders (e.g., school-based clinicians, administrators, teachers), and identification of champions (i.e., individuals who dedicate themselves to supporting an implementation) to lead both formal and informal implementation efforts (Damschroder et al., 2009). Implementation efforts should then be executed according to the plan, monitored and assessed over time, and evaluated once implementation is complete. The current study used these CFIR process constructs to examine clinician's descriptions of how trauma-focused innovations are

implemented within the schools, including either the absence or presence of key implementation process steps.

Importantly, use of the CFIR can help guide implementation efforts and/or evaluate the success of innovation implementation (Damschroder et al., 2009), which has led to the framework being used in several qualitative studies to evaluate program implementation. In fact, the CFIR team has provided recommendations for using the CFIR within qualitative research, as well as a detailed qualitative coding manual that is available to the public (http://www.cfirguide.org/index.html). Notably, no research to date has utilized the CFIR to examine barriers to implementing mental health interventions within rural school systems. Therefore, the current study initiated research that uses the CFIR to evaluate schools' willingness or attempts to implement trauma-focused innovations, including identification of barriers that prevented schools from implementing these innovations with fidelity in academic settings.

While the CFIR provides an excellent structure for examining implementation factors, it does not provide clear definitions of implementation 'outcome' constructs. Implementation outcomes have been defined as "the effects of deliberate and purposive actions to implement new treatments, practices, and services" (Proctor et al., 2011, p. 65). These are important elements to consider when evaluating implementation efforts because they serve as necessary preconditions for achieving desired changes within service systems (e.g., client-centered or service outcomes). Therefore, Proctor and colleagues (2011) developed the Implementation Outcomes Framework (IOF), which identifies and describes outcomes of implementation. The IOF has been identified as a secondary implementation framework that can be additive to the CFIR to evaluate outcomes associated with implementation efforts (Lewis et al., 2015). The implementation outcomes recognized within the IOF include acceptability, adoption, appropriateness, costs, feasibility,

fidelity, penetration, and sustainability (see Table 2). These are all important outcomes associated with implementation of EBPs because they provide identifiable measures of implementation success. However, the current study focused on evaluating a subset of these implementation outcomes to assess adoption of trauma-focused innovations within school settings. Adoption is defined as "the intention, initial decision, or action to try or employ an innovation or evidence-based practice" (Proctor et al., 2011, p. 69), which relates to schools' intentions or decisions to implementation tiered trauma-focused care.

Chor and colleagues (2015) identified acceptability, appropriateness, and feasibility as key implementation outcomes that predict innovation adoption. Acceptability refers to "the perception among implementation stakeholders that a given treatment, service, practice, or innovation is agreeable, palatable, or satisfactory" (Proctor et al., 2011, p. 67). When applied to trauma treatment, acceptability could refer to the degree to which stakeholders (e.g., administrators, school-based clinicians, teachers, parents) perceive a given intervention as an agreeable approach to treating symptoms of traumatic stress. This is a separate implementation outcome than *appropriateness*, which is defined as "the perceived fit, relevance, or compatibility of the innovation or EBP for a given practice setting, provider, or consumer; and/or perceived fit of the innovation to address a particular issue or problem" (Proctor et al., 2011, p. 69). Importantly, while acceptability and appropriateness are commonly used interchangeably and confused within scientific literature, the IOF articulates a distinct separation between acceptability and appropriateness. Appropriateness refers to the fit between an intervention and a presenting problem, whereas acceptability refers to the appeal of the intervention and its characteristics. For example, a specific treatment could be considered a good fit for a particular condition (i.e., high appropriateness), but features of the treatment (e.g., rigid protocol) might

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make the treatment unappealing or unacceptable to the provider. For trauma-focused innovations delivered in a school setting, appropriateness might refer to the fit between the treatment and the needs of school-based clinicians and/or students, the relevance of the treatment for addressing traumatic stress, and/or the compatibility between the innovation and school setting.

Feasibility, the final implementation outcome identified by Chor and colleagues (2015) as predictive of innovation adoption, is defined as "the extent to which a new treatment, or an innovation, can be successfully used or carried out within a given agency or setting" (Proctor et al., 2011, p. 69). When reviewing the application of trauma treatments within schools, feasibility could refer to the degree to which a school is able to successfully implement an identified trauma program. For example, this might include evaluating whether a school has the personnel power or motivation to implement ARC, the funding to implement CBITS, or a clinician with the expertise required to implement TF-CBT. Importantly, though feasibility is related to appropriateness, they are distinguished in the IOF. Appropriateness refers to the fit or compatibility between an intervention and the setting in which it is being applied, whereas feasibility refers to the ability of the setting to implement the intervention. Therefore, feasibility specifically examines the organization's ability to meet the resource and training requirements of implementing the intervention.

In summary, the CFIR and IOF were chosen to evaluate whether Montana schools are implementing trauma-focused interventions and factors that either promoted or hindered implementation efforts (or non-efforts) because they represent the most comprehensive and applicable implementation frameworks developed through scientific research, and they offered a good fit with the goals of the current project. Specifically, the CFIR was used to evaluate characteristics of trauma-focused innovations or school systems that impacted implementation

success. The CFIR was also used to examine aspects of the implementation process that might have facilitated or impeded schools' active attempts to deliver trauma-focused care within an academic setting. The IOF was used to develop a better understanding of why rural Montana schools were willing/unwilling or able/unable to formally adopt and implement trauma-focused innovations.

Current Study

The purpose of the current study was to examine the efforts of rural schools in Montana to adopt and implement trauma-focused innovations. Published literature proposes that barriers to treating trauma within school systems are similar to those found in the broader implementation literature (Langley et al., 2010), suggesting that barriers to treating trauma within schools are potentially the same as barriers to implementing other forms of school-based mental health programs (e.g., anxiety treatment program). However, anecdotal accounts from school-based mental health providers serving Montana schools suggest that additional barriers surround the delivery of trauma-focused innovations within rural schools, especially within schools that have not made a formal decision to adopt or implement trauma programs. Therefore, the CFIR and IOF were used to examine trauma-focused innovation adoption and implementation efforts. Special focus was given to assessing the implementation outcomes have been identified as most predictive of an agency's decision to adopt an innovation (i.e., acceptability, appropriateness, and feasibility), though interviews were designed to evaluate a broad range of implementation constructs from the CFIR and IOF frameworks to provide a more detailed understanding of factors that are currently impeding or facilitating the delivery of trauma treatment within rural, Montana schools.

Chapter 3: Method

The current project included two separate phases (see Figure 2). Phase 1 focused on the development of a semi-structured interview protocol to interview school-based clinicians about their views and use of trauma-focused innovations, focusing on asking questions related to implementation constructs that might influence 1) their decisions to adopt trauma-focused innovations, and 2) their actual attempts, if any, to implementation those programs within schools. During Phase 2, mental health clinicians serving Montana schools were interviewed via telephone, and the interview transcripts were coded using a CFIR- and IOF-based coding manual.

Phase 1	Phase 2	Data Analysis
• Develop interview protocol • Vet protocol through expert panel and clinician panel	• Conduct qualitative interviews with school-based mental health clinicians	• Code qualitative interview transcripts using the CFIR and IOF coding manual
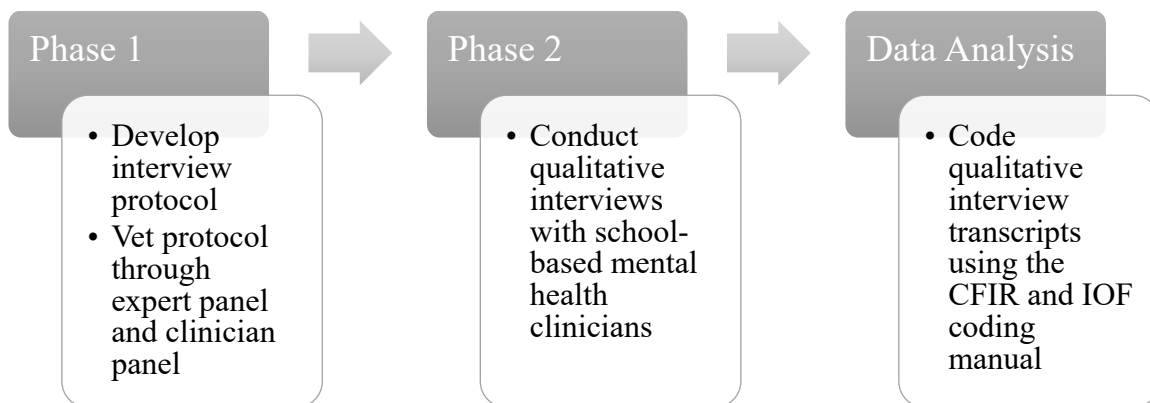
Figure 2. Flowchart illustrating the process of the current study.

Phase 1: Initial Measure Development

As the principal investigator (PI), I developed a semi-structured interview protocol to evaluate the adoption and implementation of trauma-focused innovations within rural school systems. Given the unknown status of whether Montana schools are routinely offering trauma-focused supports to children and families in need, the interview protocol was designed using a flowchart-like structure that could be used to offer distinct questions to mental health clinicians who either were (Section 1) or were not (Section 2) providing trauma-focused services within

their school. Further, given the variety of school settings and clinicians proposed to be interviewed, targeted probes were included throughout the interview to promote the likelihood that questions were appropriate to context and relevant information was obtained.

I referenced published research that has examined the adoption and implementation of innovations within various service settings to identify implementation constructs that would be important to evaluate through the qualitative interviews. Given one of the main goals of the current study was to evaluate factors that influence innovation adoption, I focused primarily on questions that would assess constructs known to predict innovation adoption. Wisdom and colleagues (2014) provided an overview of implementation constructs that strongly influence innovation adoption, including identification of the mechanisms by which these specific implementation constructs might either facilitate or impede adoption. Many of the implementation constructs they identified and were deemed important to evaluate within the current study are included within the CFIR framework (e.g., *cosmopolitanism, networks & communication, leadership engagement, available resources, knowledge & beliefs, individual stage of change*). Therefore, I used language from the CFIR to structure interview questions to promote the likelihood that interview responses would be relevant to the implementation constructs of interest. I also referenced a study conducted by Cook and colleagues (2012) to inform the content and wording of interview questions related to factors that influence both adoption and more generalized implementation processes, as Cook and colleagues developed a survey and a semi-structured interview guide to assess factors that might influence the implementation of treatments for PTSD within the Department of Veteran Affairs. The measures created within that study are available within the public domain, which promoted my ability to utilize these measures whenever appropriate to inform the interview protocol development.

As described within the literature review, the IOF constructs of *acceptability*, *appropriateness*, and *feasibility* are of particular interest in the current study given their ability to predict whether an innovation will be successfully adopted for sustainable practice. Wording for the interview questions related to *acceptability*, *appropriateness*, and *feasibility* was heavily influenced by the work of Weiner and colleagues (2017), who published implementation measures designed to evaluate each of these implementation outcomes. Weiner and colleagues used a domain delineation process during the development of these measurement tools to verify the substantive and discriminant validity of descriptors (i.e., measure items) used to evaluate each distinct implementation outcome. For example, some of the descriptors that demonstrated strong factor loadings and inter-item correlation to *acceptability* included "This EBT meets my approval" and "This EBT is appealing." These descriptors were used to construct an interview question intended to specifically measure acceptability of implementing trauma-focused care with school systems: "Do you approve of implementing trauma-focused interventions within your school (e.g., TF-CBT, CBITS, ARC)? Why or why not?" A targeted follow-up probe was also included to be used as necessary: "Is providing trauma-focused services appealing to you?" Similar processes were used to develop questions to evaluate clinicians' perceptions of the appropriateness and feasibility of implementing trauma-focused services within school systems. I expected that use of wording from Weiner and colleagues implementation outcome measures might increase the likelihood that interview responses would be relevant to the IOF constructs of interest.

I then referenced additional literature to fill in any perceived gaps in the semi-structured interview protocol, including the need to evaluate how working within a rural school system might uniquely impact the adoption and implementation of trauma-focused services. Baweja and

colleagues (2016) conducted a study that examined facilitators and challenges of delivering trauma-focused treatment with school systems by interviewing teachers involved in CBITS implementation. The interview protocol utilized within that study was not accessible to help inform development of the interview protocol, although I reviewed example interview questions and additional content published within the article and included those within the semi-structured interview protocol for the current study, as appropriate. For example, questions published within Baweja and colleagues (2016) article focused on assessing the benefits, disadvantages, and challenges of implementing the CBITS program within specific school systems. These questions were slightly adapted and included within the semi-structure interview protocol to help evaluate the benefits, disadvantages, and challenges associated with attempting to deliver trauma-focused supports within rural Montana schools.

Expert panel review. The interview protocol was vetted through an expert panel of doctoral-level mental health professionals, including two clinical psychologists, two school psychologists, and a school counselor. Members of the expert panel were asked to provide feedback about interview question content and structure, giving specific attention to the appropriateness of the question content and whether they would feel comfortable answering the interview questions as a school-based clinician who is being interviewed about their use of trauma-focused innovations. I collected feedback from the expert panel via email and adaptations to the interview protocol were made as necessary. Member checking, or respondent validation, procedures were utilized to verify the trustworthiness of the measure adaptions (Birt, Scott, Cavers, Campbell, & Walter, 2016). Specifically, the adapted interview protocol was sent back to the expert panel after all adaptions were made so that each expert could review and confirm the finalized version of the protocol.

Clinician panel review. After the interview protocol was approved by the expert panel, it was vetted through a panel of three school-based mental health clinicians with diverse training backgrounds (i.e., doctoral degree in school psychology, master's degree in social work, and master's degree in counselor education) who serve Montana public schools. These clinicians were also asked to provide feedback about interview question content and structure, including feedback about the appropriateness of the question content and whether they would feel comfortable answering the interview questions as a school-based clinician who was participating in a telephone interview. I collected feedback from the clinician panel via email and made adaptions to the interview protocol as necessary. Member checking procedures were again used to ensure adaptions were consistent with the feedback received, including all three clinicians approving the final version of the interview protocol.

Phase 2: Interviews of School-Based Mental Health Clinicians

Participants. Licensed (or supervised) school-based, mental health clinicians (age 18 years and above) were recruited for participation in the study ($N = 12$). The sample included five school psychologists, five school counselors, and two Comprehensive School and Community Treatment (CSCT) providers. CSCT is a school-based program provided by an external agency designed to provide mental health and behavioral supports for children with serious emotional disturbance (SED), including the delivery of individual and group therapy sessions, family therapy and supports, in class supports, and advocacy for students in the program. The age of clinicians in the overall sample ranged from 26 to 61 years ($M = 35.33$, $SD = 9.42$), and the group identified as 66.67% female, 91.67% White, and 8.3% Hispanic or Latino.

The clinicians represented diverse training backgrounds and levels of licensure, with all clinician's holding at least a master's level degree. All five school psychologists were trained as

a Specialist in School Psychology (SSP) and held Montana Class 6 Educator licenses in School Psychology. One of the school counselors had received a master's degree in counselor education and was licensed as a Licensed Clinical Professional Counselor (LCPC). Another other school counselor had received a master's degree in health and human development and was licensed as a LCPC and as a Licensed Marriage and Family Therapist (LMFT). The final three school counselors had received master's degrees in school counseling. One of these school counselors was licensed as a LCPC, while the remaining two school counselors identified as providing mental health supports within the school system that did not require they obtain a license. One of the CSCT providers had received a master's degree in counselor education and was in the process of completing requirements to obtain a LCPC license. The other CSCT provider had received a master's degree in social work and was in the process of complete requirements to obtain a Licensed Clinical Social Worker (LCSW) license. Both CSCT providers were receiving supervision from practitioners holding LCPC or LCSW licenses.

Every participant in the sample had current and/or previous experience providing mental health services within rural schools. The U.S. Census Bureau (2018) defines rural as "any population, housing, or territory not in an urban area" (i.e., less than 50,000 people). According to this definition, 11 out of 12 of the clinicians interviewed were currently serving public schools located within rural areas across the state of Montana (i.e., western, central, eastern, and northern regions of the state). The populations of the cities in which the schools were located ranged from 779 to 34,602 people (U.S. Census Bureau, 2017). One clinician was serving a school located in an urban city with a population of approximately 73,000 people, though this clinician had previously worked within a rural school district and was able to provide feedback related to benefits and challenges associated with providing school-based mental health care within a rural

community. The clinicians had been serving as mental health providers in schools between 1 to 23.41 years ($M = 6.49$, $SD = 6.75$). Full demographics information for clinicians is provided in Table 3.

Participant recruitment. Purposeful sampling techniques (Palinkas et al., 2015) were used throughout participant recruitment efforts in attempt to recruit clinicians from diverse training backgrounds (e.g., school or clinical psychology, counseling, or social work), to maximize the views and knowledge collected through interviews, as well as to gather feedback from all types of clinicians who could reasonably be expected to provide trauma-focused intervention within rural schools. Additionally, clinicians from various geographical locations across the state of Montana (e.g., western, central, eastern, and northern Montana) were recruited to increase the scope of perspectives included within the qualitative data, as clinicians from different geographical locations likely have differing views or might have dissimilar experiences when attempting to implement trauma-focused care within their local schools. Snowball sampling techniques (Trotter, 2012) were used to aid in recruitment efforts, including asking clinicians who participated in the study if they would be willing to provide the names and contact information for other school-based clinicians who might also be interested in participating in the study.

A recruitment email, including the link to an online survey to gather informed consent and demographics data, was sent to faculty within the psychology, counselor education, and social work departments at the University of Montana. These faculty forwarded the email to practicum students and graduates of the programs within their respective departments. Simultaneously, a recruitment email was sent to supervisors who work with CSCT programs across the state of Montana. After these recruitment methodologies were used to recruit as many

participants as possible ($N = 7$), I contacted schools in areas of Montana that were not well represented within the study sample and requested contact information for their school clinicians. I then contacted those clinicians by phone and/or email for study recruitment ($N = 1$). The remainder of the clinicians recruited to participate in the current study ($N = 4$) were recruited using snowball sampling. Their names were provided by another participant who had completed a telephone interview, and I contacted them via phone and/or email to inquire about their willingness to participate in the study.

Hard guidelines for determining non-probabilistic sample sizes, which include purposive samples, do not exist. In fact, sample size suggestions for qualitative research typically rely on the concept of saturation, described as the point at which including new research participants in data collection does not add new information or themes to the qualitative data (Guest, Bunce, & Johnson, 2006). Interestingly, while saturation has become the gold standard upon which purposive sample sizes are determined, the behavioral health literature on which these standards are based provides little guidance in how to determine whether saturation has been achieved. Therefore, research conducted by Guest and colleagues (2006) was used to inform sample size, which suggests that qualitative data saturation can be reached after 12 interviews when there is some degree of structure to the interview protocol (i.e., all participants are asked the same questions) and there is some degree of homogeneity to the participant sample (which is usually achieved in the use of purposeful and snowball sampling techniques).

Participant inclusion criteria were established to ensure that clinicians who participated in the study possessed the training and credentials needed to provide mental health services within public schools. Clinicians who do not hold their own license, but are supervised by a licensed mental health professional were included in the study to capture the viewpoints of clinicians who

are either in training or have recently completed training, as these clinicians might have unique views that could contribute novel information to the study. Further, school counselors who had a master's degree in a mental health field, but who were not licensed mental health professionals, were also included in the study if they reported providing some form of psychological interventions to children with a school system. This inclusion criteria was established to enhance the ability to recruit participants from geographical regions of Montana (e.g., eastern Montana) where some schools do not typically employee licensed mental health providers outside of a school psychologist who is required to split their time between multiple schools districts. Participants were excluded from the study only if they reported that they did not provide any form of mental health or behavioral treatment within the school ($N = 2$).

Measures. Participants completed an online survey to collect demographic data (see Appendix A), including age, gender, and ethnicity. They were also asked to identify which school(s) they served, their professional title in the school, the population(s) with which they worked (e.g., pre-kindergarten, elementary, middle school, or high school), and the number of years they had served as a mental health clinician within a school setting. These data were collected to inform the purposeful sampling process. Lastly, participants were asked to describe their education (e.g., degree and area of study), as well as any specific mental health intervention training they have received (especially training in trauma-focused care). Participants who were selected to participate in the study then completed a telephone interview using the proofed semi-structured interview protocol developed in Phase 1 of the current study (see Appendix B).

Procedure. After participants completed the online survey, which included the provision of informed consent and demographics questions, I contacted them by phone and/or email to ask if they were still willing to participate in the study. If they agreed to participate, participants were

offered the opportunity to schedule a telephone interview at a date and time that was convenient for their schedule. At the beginning of the telephone interview, participants were re-administered informed consent outlining the process, risks, and potential benefits of the study. Participants were verbally notified that their participation in the study was voluntary and that all responses would be anonymous. Participants were also asked to provide a statement of consent for their interviews to be audio-recorded.

After participants provided verbal consent to participate in the study, I completed an interview with the participant using the semi-structured interview protocol. All participants were asked identical questions in the same order, though I used the targeted probe questions as necessary if a participant's response to the initial question did not cover specific topics of interest. An individual interview data collection procedure (i.e., researcher and one participant at a time) was selected for the current study because individualized interviews better suited the goals of the study to explore the views, experiences, beliefs, and motivations of individual clinicians related to implementation of trauma-focused care in a school setting. Additionally, individual interviews are believed to provide 'deeper,' rather than collective, perspectives of factors that influence trauma-focused innovation adoption and implementation (Gill, Stewart, Treasure, & Chadwick, 2008). Finally, individual interviews better protected the anonymity of participants who clinically serve schools in easily identifiable regions.

I conducted the interviews in a private office with each participant to enhance confidentiality of information shared. All interviews were audiotaped using a digital audio recording device and saved within an online data storage system (i.e., UM Box) that is HIPPA compliant. To protect participant confidentiality, each participant was assigned an identification number once they complete the informed consent form. Only the research team had access to the

file connecting the number with the participant's identity, and the file was kept encrypted on a password protected computer within my locked office. All audio recordings were labeled with the identification number only, not with names. A research assistant working on the project transcribed the interview audio recordings, and no identifiable information was included in the transcribed documents. All recordings will be destroyed at the end of the study. The research assistant who complete the transcribing did so in a private room using headphone to ensure that only she accessed the recorded material. Clinicians who completed telephone interviews were given a $20 Amazon gift card as a thank you for participating in the research study. This process was approved by the Institutional Review Board at the University of Montana.

Data Analytic Strategy

Frequency and descriptive (e.g., mean, standard deviation) statistics were generated to summarize demographic information. Qualitative data collected via interviews with school-based mental health clinicians was transcribed verbatim and coded using NVivo 10 qualitative data analytic software. Qualitative content analysis was selected as the coding approach to be used in the current study, which is a form of qualitative data analysis that allows for the systematic classification of written material to promote subjective interpretation of the content via identifying themes and patterns as they emerge in the data (Hsieh & Shannon, 2005). A deductive approach to qualitative content analysis, which includes the use of preconceived codes derived from a relevant theory, was deemed the most appropriate data analytic approach because use of CFIR and IOF construct codes promoted the valid and reliable coding of data (Cho & Lee, 2014).

An adapted version of the publicly available CFIR codebook, which was established for use in separate study (Halko, Dorsey, Stanick, & Damschroder, 2018), was used to code the

interview transcripts from the current study because the adapted codebook provided definitions and coding criteria for both the CFIR and IOF implementation constructs (e.g., *acceptability*, *appropriateness*, *feasibility*; See Appendix C). Importantly, a primary aim of the current study was to increase awareness of the types of trauma-focused supports that are being offered to children and families within Montana public schools. Because this information could not be appropriately or reliably coded using the CFIR and IOF frameworks, the research team opted to create a novel *interventions used* code to capture data describing the various interventions school-based mental health clinicians declared using to support students experiencing symptoms of posttraumatic stress.

      Trustworthiness of the data. Various triangulation procedures were used in attempt to reduce bias in the coding process and increase the trustworthiness of research findings (Lincoln & Guba, 1985; Golafshani, 2003). Triangulation of sources was used to improve the credibility of the research findings, including gathering information from various types of school-based mental health clinicians with different training/experience and from diverse geographical regions. Additionally, analyst triangulation, or the use of multiple researchers to review findings, was used throughout the coding process to serve as a check of selective perception of qualitative data interpretation. A coding team of me, as the PI, and an additional graduate research assistant (trained by me) both independently coded of all interview transcripts. The coding team then assembled to complete the consensus coding process, which was used to promoted increased confidence in interrater agreement (Bradley, Curry, & Devers, 2007). Coding disagreements were discussed by the team, who then made a consensus decisions regarding which final codes would be assigned to all coded material.

Saturation. As interviews were being coded, the data were simultaneously being assessed for saturation. Data saturation is defined as the point in data collection where no additional themes are emerging within newly collected data (Glaser & Strauss, 1967; Guest et al., 2006). After five interviews were coded, 38 out of a possible 45 distinct CFIR and IOF constructs had been identified within the data. Two novel constructs were coded within the sixth transcript, one novel construct was coded within the seventh transcript, and one novel construct was coded within the tenth transcript. This equaled a total of 42 unique implementation constructs being identified within the first ten transcripts. Each of the four novel constructs identified between transcripts 6-10 were coded between 1-7 times across the overall sample, representing less than 1% of the total codes for the project. No new IOF or CFIR constructs were identified within the eleventh or twelfth transcripts. According to the processes outlined by Guest and colleagues (2006), such coding results represented a satisfactory level of data saturation and no further interviews were conducted.

Researchers' backgrounds. One research assistant and I, who are both graduate students in the clinical psychology program at a university in the Rocky Mountain region, independently coded the qualitative interviews. We are both members of university research laboratories that conduct research focused on child and family psychology and child trauma, and we have in depth training in implementation science and the delivery of trauma-focused mental health interventions across diverse contexts including within schools. This background allowed us to understand school-based clinicians' references to trauma-related topics within the interview transcripts, including information pertaining to symptoms of traumatic stress and related sequelae and trauma-focused treatment elements. Our training backgrounds also provided a

foundation through which we could identify, understand, and code information relevant to implementation science.

The graduate research assistant and I have also received advanced training in the completion of qualitative data analysis. Specifically, I have completed two webinar trainings in the use of NVivo software to code and analyze qualitative data. I have completed seven different qualitative research projects over five years of graduate study while working under the supervision of a licensed psychologist. The graduate research assistant has completed two different qualitative research projects over four years of graduate study while working under the supervision of a licensed psychologist. I provided the graduate research assistant with a description of the research study, including the reasons why qualitative data were collected and how it would be used. I trained the graduate research assistant to use the coding manual, including a discussion of the coding definitions, coding inclusion criteria, and coding exclusion criteria. Transparency and awareness of research aims were provided, as that information was important to ensure the primary goals of the project were understood and could be used to inform the approach to coding. Importantly, an integrative team (e.g., clinical psychologists, school psychologists, school counselors) was used to define project goals and discuss coding procedures to reduce research bias by facilitating the development of both complementary and divergent understanding of the research project.

Chapter 4: Results

Phase 1: Initial Measure Development

There were two sections of the interview protocol (see Appendix B). The first section was developed for school-based clinicians who were attempting to provide trauma-focused services for children and families in need. The second section of the interview protocol was developed for school-based clinicians who were not offering trauma-focused services.

Expert panel review. Four of the five expert panel members reviewed the original interview protocol, and three experts offered recommendations to edit the language to be more accessible for school-based clinicians (e.g., use of the word *intervention* versus *innovation*). One member of the expert panel provided recommendations for enhancing the use of open-ended questions and motivational interviewing language to increase the likelihood that clinicians would feel more comfortable answering the questions. For example, the expert suggested changing the wording of a questions from, "What would it take to push you toward being willing to…" to, "What would motivate you to be willing to…" The fourth expert who reviewed the interview protocol did not suggest any edits, and the fifth expert was not available to review the interview protocol.

Clinician panel review. All three clinician panel members reviewed the protocol and recommended slight wording edits to make the questions more acceptable to clinicians working within schools. For example, one clinician panel member suggested changing the question, "How can you assist in addressing child trauma in schools?" to, "What is your role in addressing child trauma?" Two clinicians provided recommendations to insert examples throughout the interview to promote the likelihood that interview participants would fully grasp the intent of the question, including recommendations to add examples of posttraumatic stress symptoms that

children might display in schools and examples of trauma-focused interventions that could be used in schools. Examples of posttraumatic stress symptoms were not added to the interview protocol because one of the goals of the interview was to better understand what interview participants know about posttraumatic stress. The names of three trauma-focused interventions that could be used in schools were added as examples to the interview protocol (i.e., ARC, CBITS, TF-CBT); however, descriptions of these treatment approaches were not provided to avoid giving interview participants examples that might alter their ability to answer questions about trauma-focused treatments and how those treatments could be implemented within a school setting. The final version of the interview included two sections: Section 1 contained 24 questions for the clinicians who were working in schools that offer trauma-focused services, and Section 2 included 18 questions for the clinicians who were working in schools and were not offering trauma-focused services.

Phase 2: Interviews of School-Based Mental Health Clinicians

All 12 school-based clinicians who completed telephone interviews (100%) were working at schools that were attempting to provide intervention supports to treat symptoms of posttraumatic stress. The innovations that the participants reported using will be identified within the *interventions used* section below. Only one of the participants was also working at a school that was not offering trauma-focused supports, and this participant completed both sections of the interview protocol. Considerable efforts were made to recruit additional school-based clinicians working in schools that were not offering trauma-focused services, but such recruitment efforts were not successful. Therefore, 12 participants responded to questions about their attempts to deliver trauma-related interventions, and one participant responded to questions about a school's formal decision to not adopt or implement trauma-related services.

Overall, participants provided more comments that reflected circumstances or factors that promote adoption and implementation efforts (960 references) than those that might hinder or impede implementation efforts (523 references). This pattern held true for eight of the 12 participants (66.67%), with only four participants (33.33%) reporting that they experienced more implementation barriers than facilitators while attempting to adopt and implement interventions to treat symptoms of posttraumatic stress. A handful of comments provided by participants were coded within a neutral category (42 references), as those comments did not clearly relate to stimuli that would either facilitate or impede the adoption and implementation processes.

The data that were gathered and coded through the qualitative interviews will be presented using the IOF and CFIR frameworks. First, the results of the IOF outcomes, specifically *acceptability*, *appropriateness*, and *feasibility*, will be present as they relate to adoption of trauma-focused innovations. The other IOF outcomes were not well represented within the interview transcripts and will not be discussed. The remaining results will be organized in accordance with the implementation constructs most commonly referenced within the CFIR domains: *intervention characteristics*, *outer setting*, *inner setting*, *characteristics of individuals*, and *process*. Previous research has identified 60% as an appropriate cutoff to declare consensus in research data given the supermajority benchmarks from the U.S. senate (Powell et al., 2015); therefore, CFIR constructs identified by at least 60% of participants will be discussed as implementation determinants that were mentioned by the majority of participants.

Interventions used. All 12 of the participants interviewed endorsed providing some type of mental health service to children within their school, including children who demonstrate symptoms of posttraumatic stress. However, the quality of interventions provided, as defined by

the evidence base supporting the effectiveness or efficacy of the interventions, varied significantly amongst participants.

Three of the 12 participants interviewed (25%) reported having some level of training in a trauma-focused EBP (i.e., *Bounce Back*, Langley et al., 2015; CBITS, Jaycox, 2004; *Cognitive Processing Therapy*, Resick, Monson, & Chard, 2016; TF-CBT, Cohen et al., 2006), whereas six participants (50%; including the three trained in EBPs) described receiving training in a intervention that could be used to treat trauma-related symptoms and has some level of research or evidence base (i.e., *Second Step*, Committee for Children, 2011; *Question, Persuade, Refer* [QPR], Quinnett, 1995; *Signs of Suicide Prevention Program* [SOS], Screening for Mental Health, 2016). Importantly, only one participant described using a trauma-focused EBP (i.e., CBITS) to provide Tier II group intervention within a rural school. Two other participants described using research-supported interventions (i.e., QPR and SOS) that can be used to treat symptoms associated with posttraumatic stress (e.g., suicidal ideations or behaviors). While these interventions are not specifically "trauma-focused" EBPs, they were included as acceptable responses to discuss in the current study given only one participant in the entire sample was implementing a trauma-focused EBP. Two participants (16.67%) described using a research-based assessment tool within their work with children who were demonstrating symptoms that could be related to trauma exposure (e.g., suicidal ideations or behaviors), including use of the *Adverse Childhood Experiences Questionnaire* (ACEs Questionnaire; Felitti et al., 1998) and the *Columbia-Suicide Severity Rating Scale* (Posner et al., 2008).

Nine of the participants (75%) described using elements of a generalized EBP to provide individual, group, and school-wide mental health services. For example, participants described using cognitive behavior therapy (CBT) techniques (e.g., progressive muscle relaxation,

diaphragmatic breathing, cognitive distraction) to enhance children's ability to regulate intense emotions so that they could adaptively function within their school environment. One participant commented, "A lot of things I like to do with kiddos is going through relaxation stuff, so learning how to breathe properly and…ways to count to kind of stop, think…and some problem-solving skills." Only three of the nine participants who endorsed using a generalized EBP described applying or adapting the techniques to specifically address trauma-related symptoms. For example, one participant stated, "When they're having a flashback, [I teach them] deep breathing, maybe identifying what their different senses are, to find different things in the room that have [a specific] color…those grounding skills to bring them back into the room." Due to participants' limited knowledge and use of trauma-focused EBPs, the term "trauma-informed" will be used as appropriate moving forward to reference the mental health treatments and/or treatment elements that school-based clinicians in the current study were using to treat symptoms of posttraumatic stress. The term "trauma-focused" will only be used when participants were specifically asked about their opinions and/or beliefs related to trauma-focused EBPs.

The remaining two participants (16.67%) provided broader descriptions of the interventions they deliver within their school systems to traumatized children, and it could not be determined whether the interventions they used have an evidence base. For example, one participant said, "We have a group that I meet with…it's kind of looking at high risk factors, one of those risk factors is trauma. We meet once a week for school success strategies and kind of just support for each other."

Acceptability (referenced 70 times). All 12 participants (100%) made at least one comment that reflected they approve of providing school-based, trauma-informed services to children and families. For example, one participant stated, "I would say it's like the crux of my

goal. Supporting children who are impacted by trauma…is central to my work and the work of mental health practitioners in schools." Another participant shared, "I absolutely approve of it. I just feel there is so much research out there that speaks that it's so beneficial for kids that have [trauma] experience [to get treatment] through us."

However, only eight of the 12 participants (66.67%) provided more positive than negative comments about the appeal of offering trauma-informed services within schools. Stated another way, four out of 12 participants (33.33%) described acceptability primarily as an adoption or implementation barrier. Comments from six participants (50%) specifically identified mental health stigma, including stigma specific to discussing trauma within a public school setting, as an acceptability barrier that impeded their attempts to implement school-based, trauma-informed innovations. For example, a school counselor serving a rural school in eastern Montana said, "I think stigma is one of the big things about, you know, seeing a counselor and seeking out help in rural Montana in particular…it's called tough up and you know, deal." Four of the participants who mentioned stigma as an implementation barrier perceived that the high levels of stigma they faced within their schools are unique to a rural setting. These school-based clinicians served schools across western, central, and eastern regions of Montana. One participant stated, "Our rural environment…is like a 'don't ask, don't tell'…it's seen as a strength to hold that in."

The one participant who was working in a school that made an active decision to not provide trauma-informed services acknowledged community perception as the primary reason the school elected to not adopt a trauma-informed innovation. The participant said, "It's such a tiny community…everybody knows everything…and so I think people that are in the position of

making those system-wide changes are listening more to community members and not wanting to upset people that might be contributing money to their school."

Appropriateness (referenced 115 times). Participants were specifically asked about whether or not they believed it was *fitting* or *suitable* to implement trauma-informed services within their schools, and 100% of participants provided at least one statement that suggested they believe it is appropriate to offer trauma-informed services within schools. The participants often perceived the needs and resources of the children and families they served as a primary reason why it is appropriate to offer trauma-informed services within schools, as evidenced by 100% of participants providing a statement that was double coded as both *appropriateness* and *patient needs and resources*. For example, when asked about why their school decided to start offering trauma-informed supports, one participant said, "I think they could tell that there was a need for it in the school for kids to work on some of those skills and kind of receive interventions that they need in order to succeed academically." Several other participants (83.33%) also commented about how the relationship between trauma-exposure and academic difficulties contributed to perceived appropriateness of implementing trauma-informed innovations within a school setting, as another participant shared, "It's important to meet the social emotional needs of children and if they can go to school and feel supported and learn strategies, it's going to increase their learning readiness."

Overall, 11 out of 12 participants (91.67%) viewed appropriateness as a facilitator for the adoption of trauma-informed innovations with school systems. The one participant who primarily described implementing trauma-informed services within schools as inappropriate focused on the poor fit between providing trauma-informed treatment and her role as a school psychologist. For example, she said, "Anything related to therapy or intervening on

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PTSD…that's just not a role that most school psychs are able to take on." This and other quotes provided by this participant suggest that her perception of the appropriateness of providing trauma-informed services within schools is heavily influenced by the fact that her role as a school psychologist more prominently focuses on completing special education evaluations than on the appropriateness of treating trauma within the school system at large. However, such information could be an important factor to consider when evaluating why some school psychologist are unable to routinely provide trauma treatment. It is possible that providing intervention services may not be appropriate to the role school psychologists commonly serve within their school system.

Feasibility (referenced 38 times). Nine out of 12 participants (75%) commented on how the perceived feasibility of implementing trauma-informed innovations within their schools impacted the school's innovation adoption decisions, and all nine of these participants reported that either they or their school administrators did not believe trauma-focused EBPs could be implemented with fidelity within their current school structure. For example, when one of the school psychologists was asked about the feasibility of implementing a trauma-focused EBP she said, "Me alone, no. I think we would need more support and more resources than we have to really take on what that would require." When asked the same question, another school psychologist reported, "I see a need for sure for sure. But is it something I see myself doing in the near future, no…my time as a [school psychologist] is eaten away by all of the other tasks that I do in a day." A more detailed descriptions of how competing responsibilities or a lack of resources impede trauma-informed innovation implementation will be respectively discussed in the *relative priority* and *available resources* sections.

One participant (8.33%), a CSCT provider working within the school as an outside agency, described viewing the feasibility of implementing trauma-informed innovations within the school differently for herself as an employee of an outside agency versus a clinician who works directly for the school. She stated, "I think you'd have to get other therapists or something into the school because I don't think the school counselors could take on, you know, [implementing a trauma-informed innovation], because their kids are already super stressful." Alternatively, when asked about her ability to implement trauma-informed innovations as a CSCT clinician she stated, "The way [CSCT] is set up is that every single kid [on your caseload] is expected to get an individual session a week and this will be a scheduled session, so it's not really an issue." This contrasting perspective suggests that clinicians who work directly for the school (e.g., school counselors, school psychologists) have many different roles and responsibilities within the school that significantly influence their ability to reserve time to offer ongoing intervention services, which may limit the ability of school-employed clinicians to adopt the routine practice of implementing trauma-informed treatment. In fact, eight participants (66.67%) reported that they most often refer children who need intensive or consistent trauma-informed services to a CSCT. The CSCT clinician stated, "CSCT…is basically [the school] saying we recognize there are kids that have severe needs…and we want to work with an outside group to help these kids so that we can help our teachers."

Intervention characteristics. In general, few comments were made throughout the interviews about how the characteristics of specific trauma-informed innovations impacted clinicians' abilities to successfully adopt and/or implement those innovations within their schools. One intervention characteristic, *evidence strength and quality*, was identified by 50% of the sample and will be discussed. Though 50% does not meet the 60% majority criteria that was

be used to determine which constructs would be reviewed in the results section, *evidence strength and quality* will be discussed because it informs one of the primary goals of the current study: to understand the adoption of trauma-focused *EBPs* within rural schools.

Evidence strength and quality (referenced 10 times). Six participants (50%) reported that they or someone else in a decision-making role considered whether an innovation had an evidence base when agencies were making initial innovation adoption decisions, and five of those participants (41.67%) stated that an innovation needed to have a strong evidence base in order for their school to adopt the innovation. One participant said, "The school…really likes to integrate evidence-based practices and so they focus mostly on what there was more research available for and…what's easiest to track data on."

Outer setting. The majority of participants frequently spoke about how factors associated with the outer setting (e.g., surrounding community, community agencies, and government agencies) impacted their adoption and implementation of trauma-informed innovations. The following *outer setting* constructs will be discussed: 1) *patient needs and resources, 2) cosmopolitanism*, and 3) *external policies and incentives*.

Patient needs and resources (referenced 159 times). The most commonly referenced implementation construct within the interview transcripts was *patient needs and resources*. This construct was mentioned by 100% of participants, and all 12 participants saw their and their schools' ability to recognize the needs of the children and families being served as an implementation facilitator. The school counselor who used CBITS to provide trauma-focused, Tier II services was asked about her decision to adopt CBITS, and she stated, "It was just the sheer prevalence of trauma and PTSD, like symptoms that they were experiencing." Another participant who described his school district as being in the planning phases of adopting a

trauma-informed innovation stated, "It's got to meet the needs of the school district…we have a

very high prevalence rate. Giving all kids an ACEs survey, a lot of them are going to be to the

point where they are at risk. We've got a unique population here in [city name], so we might not

meet the national prevalence rate. We might be a bit higher here."

One of the participants had been working as a school counselor on a tribal nation for

several years and had served as a champion for adopting a trauma-informed approach to working

with children within his school. He described his awareness of and focus on the needs and

resources of the school population as the primary factor influencing the school's adoption of a

suicide prevention program (i.e., QPR). For example, when describing why his school decided to

offer trauma-informed care, he said, "We don't have to…try to identify people that are affected

by trauma. We certainly incorporate data and hard science into this, but in [city name] 100% of

our kids have been affected by trauma." He then described several factors that contributed to the

school's adoption of a suicide-prevention program as the basis of mental health services

provided within the school. He clearly pointed, however, to the needs of the children as the

leading priority when he stated, "It's because lives quite literally depend on it…people are

killing themselves…and that alone makes us more responsive…and trying to foster a culture of

compassion within our school is critical."

Though all 12 participants (100%) perceived themselves or their schools as being able to

identify trauma-related needs within their student body most of the time, 10 participants

(83.33%) did make at least one comment that reflected a barrier in adequately identifying

children's trauma-related needs. These barriers included school systems 1) not recognizing the

sheer prevalence of trauma exposure in their student body, 2) not fully appreciating how

posttraumatic stress can hinder a children's academic performance, and 3) not accurately

identifying a child's academic or behavioral problems as due to trauma exposure (i.e., inaccurately identifying the problem or diagnosis). The one participant who was working in a school that intentionally decided to not offer trauma-informed services described the school as not recognizing the fact that some of the children within their school had been exposed to trauma and were displaying posttraumatic stress symptoms. That school psychologist stated, "I think the biggest thing is just lack of awareness…they feel like [trauma exposure] is not something that's happening in their school."

Cosmopolitanism (referenced 92 times). While discussing the process of adopting and attempting to implement a trauma-informed innovation, eleven out of 12 participants (91.67%) described *cosmopolitanism* (i.e., the degree to which the school is networked with external organizations) as a major determinant in whether they were able to adopt and implement a trauma-informed innovation. Nine participants (75%) perceived their connections with external agencies as something that facilitated their implementation efforts. Several participants (75%) described outside agencies as an important sources of consultation to promote implementation efforts, including schools collaborating with trauma experts to inform execution of implementation over time. For example, one school counselor described, "Our school district works with [consultant name]. We are able to consult with her on an as needed basis, so I rely heavily on our relationship with [consultant name]…I use her on a regular basis…she's fantastic." Other participants described use of more informal consultation teams, including establishing connections with other school-based mental health professionals in surrounding areas, maintaining relationships with graduate school supervisors or cohorts, or working with private practice providers within their communities.

The relationships between schools and CSCT were classified under the *cosmopolitanism* construct, as CSCT are external agencies networking with schools to provide mental health (including trauma-informed) services. School counselors or school psychologists who had CSCT agencies working within their schools clearly perceived these agencies as a strong resource that facilitated the availability of trauma-informed services within their school. One school psychologist described this pattern when she said, "Most of the time we are referring to our [CSCT] department as far as long term provision of services. They're providing a lot of [the trauma-informed] services." Similarly, both CSCT clinicians who were interviewed saw their relationships with the school as an important implementation facilitator. One CSCT clinician stated, "We're an outside agency and it's really helpful when we have teachers that can work with us and staff that can work with us and feeling supported in that. When something happens…we get an email or a phone call…and that makes it so much easier because that's helping us coordinate with the school." This type of reciprocal appreciation between agencies appears to increase children's access to trauma-informed care.

Further, working in a rural setting was consistently identified as a barrier to establishing helpful cosmopolitanism relationships. Eight participants (66.67%) described the limited access to external services or supports as a determinant that significantly impeded their ability to offer the level of quality mental health and trauma-informed services they believed their children needed, including difficulties referring children and families to additional services or accessing professionals who specialized in the provision of trauma-informed care. One school counselor serving central Montana stated, "Within rural schools it was really difficult to refer out. There's a limit to what one can accomplish within the school setting. There were times when referrals needed to be made…and there's just limited resources in rural Montana." Another participant

serving a school in western Montana stated, "There is not a good emphasis placed on having people in our community who specialize in trauma and trauma practices being used for consultation or supervision."

The school who actively decided to not offer trauma-informed services to children and families declined an opportunity to partner with an external agency that offered to deliver mental health and trauma-informed services in the school at no cost to the school. The school psychologist who described this situation reported that the administrator at that school told the external agencies that the school had "no mental health issues" and "wouldn't need a therapist to work up there." This dismissed opportunity offers evidence that cosmopolitanism relationships, which are generally seen as something that promote implementation, are not solely capable of facilitating new innovation adoption.

External policies and incentives (referenced 22 times). Eight out of 12 participants (66.67%) identified external policies and incentives (e.g., federal or state funding, district policies) as impacting their adoption and implementation of trauma-informed innovations, with five of those participants describing external policies and incentives as implementation facilitators. The most commonly referenced facilitator within this implementation construct included the reception of grant funding. Participants from four different schools (50%) reported that their schools currently receive grant funding specifically designated to promote the adoption and delivery of trauma-informed mental health care (including suicide prevention) within their schools. Such external resources promoted the availability to training, expert consultants, enhanced external and internal networking, and opportunities to implement novel innovations (e.g., mindfulness practices adapted to fit within a school day routine) to address trauma-related sequela. When asked about general factors that motivated a school to begin implementing

trauma-informed supports, one school psychologist stated, "The grant…they were looking into…how do we better serve our students within the mental health field. They brought in a trauma specialist to provide some training." Another school counselor stated, "We have a case manager through [grant name], which is a grant to address suicide and mental illness…so we meet weekly and talk about how we can [provide] better support. Having people that meet and talk regularly is helping."

Other participants (25%) described external policies and incentives as primarily creating barriers to successfully implementing trauma-informed services within their schools. These participants referenced governmental funding allocations (e.g., Medicaid cuts), billing requirements (e.g., CSCT can only serve children with a serious emotional disturbance diagnosis), and district policies as preventing them from having the available resources (e.g., time, funding) to adequately implement trauma-informed innovations. One school counselor said, "Under the federal government there is no funding. The funding is not there. I think it's unbelievable in this day and age that we don't have any funding to help us with mental health and trauma-informed service." Another participant, a school psychologist who described a strong desire to provide trauma-informed treatment to children within the schools, stated, "[Providing trauma treatment] is something that I would like to do more of, but I don't get much time to do that. Just kind of where our district forces our hand and what they want us doing." He then described that the district for which he works requires that he allocate all of his time to completing special education evaluations, despite his frequent attempts to advocate for more flexibility within his schedule to provide a variety of mental health services.

Inner setting. Most of the participants provided numerous comments about how the setting within their schools either facilitated or impeded their desire to adopt and/or attempts to

implement trauma-informed services. The inner setting implementation constructs that were

discussed by 60% or more participants and will be discussed include 1) *readiness for*

implementation subconstructs, 2) *implementation climate* subconstructs, 3) *networks and*

communication, and 4) *structural characteristics*.

     Readiness for implementation. *Readiness for implementation* refers to immediate

indicators that the school and/or clinicians working within the schools are committed to their

decision to implement trauma-informed services. The subconstructs of *readiness for*

implementation that will be discussed include a) *access to knowledge and information*, b)

available resources, and c) *leadership engagement*.

     Access to knowledge and information (referenced 128 times). All 12 of the participants

(100%) identified their ability to obtain information or training about trauma, posttraumatic

stress, and trauma-informed interventions as important to their ability to successfully implement

trauma-informed services within their schools. Only seven of these participants (58.33%)

believed that their access to information through supervision and/or consultation facilitated their

implementation efforts, and three of those participants reference grant funding and resources as

the primary means through which they were able to access trauma-specific consultation. Two of

the four participants who described satisfactory access to information and consultation without

receiving grant funding were CSCT treatment providers, who referenced their employment with

an outside community mental health agency as an important connection through which they

received ongoing consultation and supervision that was specific to trauma. One CSCT provider

stated, "I have individual and group supervision weekly, and so getting a chance to talk to a

supervisor or maybe another colleague about a specific case or something, especially when I'm

not sure where to go with it, is great because they might have ideas…and that helps me improve the quality because then I can come back and say, 'Wow, that's actually perfect.'"

The other two participants who were satisfied with their ability to access trauma-specific information and consultation without grant support referenced their own desire and motivation to seek out independent consultation opportunities as the primary means through which they received support. The school counselor who was implementing CBITS in central Montana discussed her ability to connect with a university system and the National Child Traumatic Stress Network (NCTSN) as important connections to support her implementation efforts. The other school counselor, who was providing services in eastern Montana, stated that she primarily accessed information by networking with other providers in her school (i.e., a school psychologist and CSCT).

Nine of the participants (75%) reported that they did not have access to trainings about trauma, and five of these participants stated that living in a rural area was a primary factor that impeded their ability to access the trauma-specific trainings that they felt they needed to offer high quality trauma-informed supports within their schools. One participant described the rural barriers when she said, "I actually find that being in a rural community really limits what I'm able to do and the way I'm able to grow as a mental health professional. I feel like if I lived by [a larger city name] or even maybe another state where [trauma trainings] are more prevalent and available, it'd be much easier to attend some of these more advanced trainings." Similar themes were present across quotes provided by the participants who reported limited access to trainings in rural areas. Importantly, all nine participants (i.e., school psychologists, school counselors, and CSCT providers) wished that they could access more trauma-specific training and believed that such training could improve their implementation efforts. For example, one participant

stated, "If we had appropriate training, I think we would do a better job of responding…I think people just feel really unprepared."

The three participants (25%) who reported satisfaction with their ability to access trauma-specific trainings referenced connections with external agencies and/or funding mechanisms that made training opportunities more available and easier for them to access. For example, two participants (16.67%) identified grant funding and resources made trauma-specific trainings available. Another participant described accessing training through an annual convention that she prioritized attending every year. Finally, she, along with two other participants, noted that they work for a cooperative education agency (or school co-operative) that was responsive to training requests and attempted to hire outside trainers to provide seminars for school-based clinicians on an ongoing basis. When one participant was asked about her access to trauma-specific trainings, she said, "I could most likely get ahold of the cooperative that I work for. They're really great about offering trainings."

Available resources (referenced 69 times). Each of the 12 participants (100%) described the availability of resources (e.g., time, number of staff, funding) as dramatically impacting the feasibility of implementing trauma-informed supports within their schools. Indeed, 10 participants (83.33%) reported that the availability of resources primarily impeded their ability to successfully implement trauma-informed innovations. The most common implementation barrier within the *available resources* construct included lack of time to engage in implementation efforts, which was endorsed by nine of the 12 participants (75%). Most of these participants described having too many tasks or responsibilities to complete and not enough time to complete them. For example, one school psychologist who was asked whether it was fitting or suitable to implement trauma-informed innovations with her school stated, "I think so, depending on the

amount of time that they take. That tends to be the kink up in schools is they want the interventions and they want things to be happening, but they don't necessarily want to allocate a lot of time to it." Another school counselor stated, "The availability of time prevents me from implementing any trauma-informed care other than initial interventions."

Another limited resource identified by four of the participants (33.33%) included not having the personnel within schools to fulfill the requirements of implementing trauma-informed innovations, and two participants identified this barrier as especially salient in rural school settings. A similar lack of personnel pattern was also evidence amongst the school psychologists—three of the five school psychologists described themselves as providing services to multiple school districts, which made it very difficult for them to successfully implement trauma-informed supports in any of their schools. For example, one school psychologists said, "In our cooperative we have 14 school districts and there's two school psychologists, so we're both at seven different schools. So just between the travel and the schools, it doesn't leave a lot of time to be in the schools working." Other participanta described limitations in accessing implementation support from other school personnel, as those staff members also had overloaded work scheduled. One school psychologist said, "I think for us specifically, it's just having people there in schools, they're already, like their music teacher is their math teacher and also the person that's taking care of them and driving the bus. So, they already are stretched really, really thin…even finding space in the day can be difficult."

The two school counselors (16.67%) who described having ample resources to facilitate implementation of trauma-informed services described working in schools that had established unique atmospheres that prioritized the delivery of trauma-informed care. The majority of details about these schools will be discussed in the *relative priority* section; however, it is notable to

mention that the culture established within these schools appeared to contribute to the counselors' abilities to access whatever resources they needed to provide trauma-informed care. For example, the school counselor who worked within a school on a tribal nation and described his school as functioning on a foundation of trauma-informed care stated, "It's just how we roll, so it like fuels us and our money and budget and all that stuff go to this path we've begun. So, we don't have to delegate or cut costs to try to ramp up our trauma-informed initiation. That's what our whole school, we are a trauma-informed institution, so that's just how it is."

Leadership engagement (referenced 39 times). All 12 participants (100%) commented on how the engagement of their school leadership (e.g., school principals, other school administrators, school boards, district leaders) impacted the adoption and implementation of trauma-informed supports. Nine participants (75%) identified leadership engagement as something that propelled the adoption of trauma-informed innovations and continues to facilitate ongoing implementation efforts. They described beneficial leadership engagement as including leaders being proactive about supporting the adoption of trauma-informed innovations (e.g., championing the adoption), leaders being supportive of clinicians' desires and requests to adopt and deliver trauma-informed services, and leaders assisting with accessing resources (e.g., time, training, funding) to make implementation efforts possible. For example, a school psychologist who worked in several different schools described one of her administrators as being very active in promoting implementation efforts when she said, "In one school I know the administrator is super supportive of [trauma-informed services] and super receptive, and they worked really hard with mental health teams and with students and parents to try to coordinate services." Another participant, a school counselor who had just recently transitioned to working in a new school, described the principal in her school as providing passive support. She stated, "I'm coming in

and wanting to change all this stuff…put supports in place for kids that need it and making sure there's some trauma-informed groups or supports…if I didn't have him that supported me and was willing to try new things, then we'd be at a dead end."

The three participants (25%) who described their school leadership as creating barriers to implementing trauma-informed supports provided a range of comments that described the types of interfering actions administrators took to derail innovation adoption and/or implementation. For example, one school psychologist spoke about difficulties of identifying children to participate in trauma-informed services because the school administrator would not approve mental health screenings. She stated, "Our district and the special education department does not do screening for mental health. It's been discussed at length and our director is not on board with that idea, so we don't do it." Another school psychologist described allocation of funds as the primary modality through which administrators make trauma-informed service delivery difficult. That participant said, "I see that administrators want you to look at mental health and consider it, but they don't necessarily set aside funding specifically for that." Finally, another participant described her administrator's lack of commitment to offering trauma-informed supports as a significant barrier when she said, "The administrator is really good…about identifying the needs, so she'll talk to me about that…but it typically doesn't go further than [a discussion]."

The school psychologist in a school that was not providing trauma-informed supports identified leadership engagement as one of the leading factors that impeded the school's adoption of trauma-informed services, even though there was available funding. The school psychologist described the school leadership as being unwilling to acknowledge a need for trauma-informed supports within their schools, stating, "[The administrators] in some of my schools, one in particular, just want to focus on talking about all the good things that are going

on in the school and they don't want to talk about mental health." She then described the administrative team declining to move forward with adopting mental health and trauma-informed supports, despite there being an easily accessible opportunity to do so. She said, "We're trying to get a therapist up there just to serve like two times a week; and the administrator told that funding source, because it wasn't going to cost the school any money, that they had no mental health issues so they wouldn't need a therapist to work up there. Even though they absolutely have mental health issues." She identified this pattern of not recognizing children's mental health needs as "one pretty good example of that rural school mentality."

Implementation climate. *Implementation climate* is a term used to describe the school's or school personnel's capacity for change and willingness to embrace implementation efforts. The *implementation climate* subconstructs that will be discussed include a) *relative priority*, b) *compatibility*, and c) *tension for change*.

Relative priority (referenced 63 times). All 12 participants (100%) referenced the relative priority placed on addressing mental health and trauma-related difficulties within a school setting; however, only five of those participants (41.67%) reported that they were able to prioritize the delivery of trauma-informed innovations to the point where they could implement those services on a routine basis. Of these participants, one was a CSCT provider and one was a school counselor who both defined their primary roles in the school as providing trauma-informed care. The other three participants who reported prioritizing the delivery of trauma-informed services were school counselors who described their primary job responsibility as responding to crises within the school (e.g., addressing behavioral or aggressive outbursts within the classroom, responding to suicide ideation or threats, working one-on-one with children who reported experiencing an emotional crisis), and these participants reported that the majority of

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children who most often experience a crisis at school were children who had some form of trauma exposure. For example, one of the school counselors stated, "If it takes precedence, then it's going to be our number one goal to help. And in a lot of those situations, the supports that I do are trauma-focused supports."

The remaining five participants (41.67%) were all school psychologists, who each stated that they were required to prioritize the completion of special education evaluations above the delivery of trauma-informed services. One school psychologist stated, "My schedule is really inconsistent in how many evals you have is always changing and that really is the first thing, like your main priority." The other school psychologists provided similar quotes. Four out of the five school psychologists directly stated that they would like to provide more trauma-informed interventions but did not perceive that as a possibility in the near future because the district required that they prioritize the completion of special education evaluations. For example, one school psychologist stated, "I'm just super, super limited by my evaluation meetings or by actually doing evaluations, or the fact that I am in charge of assessments in our school. I'm always being pulled in a lot of directions, and I find I often drop the ball on some of the bigger things that I…wish I could be doing."

Compatibility (referenced 65 times). Eleven participants (91.67%) provided a comment that was relevant to how providing trauma-informed services fit into the workflow of their professional responsibilities, or how well providing such service fit with their professional values. Only eight participants (66.67%) provided at least one comment that suggested providing trauma-informed care fit with their values as a mental health provider, though it is important to note that none of the participants stated that providing trauma-informed care was incompatible with their values as a clinician. The comments provided suggest that some participants saw

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providing trauma-informed care as integral to their values as a school-based clinician (e.g., "I would definitely say as a school psychologist that does counseling, it fits me perfectly"), whereas other participants communicated that providing trauma-informed supports was a task they completed simply because it was required within their job (e.g., "I guess…just did it as a matter of course as being a therapist").

Eight participants (66.67%) described their numerous job-related responsibilities or daily workflow as negatively influencing their ability to deliver trauma-informed care. The majority of these comments were captured within the *available resources* code, as they most commonly pertained to time restraints that prevent clinicians from implementing trauma-informed supports. However, it is also important to recognize how clinicians perceive the routine of a typical school day as impeding the delivery of trauma-informed supports. For example, three participants (25%), including both of the CSCT providers, described barriers related to the amount of time they were able to take children out of class to participate in therapy, difficulties associated with how often children were having to miss important classes, and concerns about children needing to return to class after completing elements of trauma-informed psychotherapy. One CSCT provider said, "Just having to send them back to class…doing any trauma work then having to have them go back to class…some CSCT therapists can only pull their kids for 30 minutes and then send them back to class. That's not a great amount of time to do real work on [trauma]." A different participant described these barriers as improving after teachers receiving grant-related training about the impact that trauma can have on academic success, though another participant who was involved with grant-related trainings commented on how difficult it was to engage teachers and all key stakeholders in ongoing trainings and consultation given their busy schedules.

The one participant who was serving a school that did not offer trauma-informed supports identified compatibility as a significant barrier to adopting trauma-informed services within that school, as she described addressing symptoms of trauma within the school as incompatible with the values of the school administration team and community at large. She said, "I think a lot of it is…that it just doesn't fit within the culture of their community."

Tension for change (referenced 34 times). Eight of the participants (66.67%) commented on how the climate within their school impacted implementation of trauma-informed services, and all eight of these clinicians described the undeniable mental health needs within their student body as motivating the school to adopt and provide trauma-informed care. Indeed, only one of the 34 comments provided by these clinicians described a school system being content with their current level of trauma-informed services, and this solo comment was describing the school that was not offering trauma-informed supports as being unwilling to recognize the need for trauma-informed interventions within their school or move toward adoption of such supports.

All other comments revolved around the identification of an extremely high need for trauma-informed services within rural schools that was going unmet, including a primary focus on the inordinate suicide rate in Montana. For example, when one school psychologist was asked about why her school adopted a trauma-informed, suicide innovation (i.e., SOS), she stated, "It was the result of our influx of suicidal behaviors." Other participants provided very similar responses, including quotes that reflected the disruption trauma-related symptoms were creating within the classroom and the inability of school systems to ignore the needs of those students. One school counselor said, "It was so, what I want to say, in your face kind of escalated, we were able to make [changes] happen fairly quickly."

The school counselor working on a tribal nation provided a description of how a strong tension for change motivated him and the school to restructure their mental health and trauma-informed support system and create a vastly different approach to education. When asked about factors that influenced this decision, he said, "The big thing was there was profound need for young people to have a different level and different style of support here in the [city name] school system." He provided several other comments that reflect how the school's previous approach to education was so intolerable and unsuccessful with their population of students that it could not be sustained. He said, "A lot of the trauma responses that people exhibit here have a lot to do with violence and you know it's a very violent community, violent culture…people lack a lot of skills to deal with adversity or a conflict without resorting to violence." After describing the restructuring efforts using "everything Carl Rogers ever said about mental health fused with contemporary trauma-informed research," he said, "We have 100 of the most at risk students arguably anywhere, and there is no violence. And it's because of all our preventative efforts to have a healthy school climate." He then concluded with, "If you're going to be employed at [school name] that means you have embraced this approach and you recognize the importance of that and recognize the urgency and how critical it is. And we will not go in any other direction because this is needed."

Networks and communication (referenced 46 times). Each of the 12 participants (100%) provided information about the networks and communication within their school environments, and nine of these participants (75%) reported that their connections and communication with co-workers facilitated their ability to implement trauma-informed services within their schools. The majority of comments within this implementation construct focused on the value of working as a larger team and setting aside reserved time for meetings to accomplish all of the requirements

and tasks that are involved with implementing trauma-informed services. For example, one clinician stated, "We meet weekly and talk about how we can better support, and I think that just through starting the conversation and having people that meet and talk regularly is helping."

Other participants (50%) spoke very specifically about how opportunities to seek out consultation from personnel in the school system promoted their ability to respond to or support children in need of trauma-informed care. One school counselor stated, "I relied heavily on the school psych. I laugh and say we should share an office because I feel I'm in his office a lot, but I tend to talk through things and run situations by our school psych before we, as a team, do anything." A school psychologists in a separate school district referenced a supportive team as unique to a rural schools setting when she said, "I think the benefits of [working in a rural school] are that all hands are on deck. I can go to a school psych, I can go to a special education teacher and would feel support and vice versa."

Only one participant (8.33%), the school counselor who worked in the school system that underwent a major overhaul to create a trauma-informed, student-centered environment, noted the importance of using an internal professional network to protect against vicarious trauma (i.e., secondary traumatic stress). This clinician provided two important quotes that highlight the necessity of such support. He first stated, "It takes a lot of work and a lot of heartache to be able to work in this capacity in a place like [city name]." He then described, "We've got to assess for secondary vicarious trauma and we've got to make sure our needs as the staff at the professional level are being met as best we can. We support the heck out of each other because if any of us were left to our own devices we would flounder. But because we all buy in, because we all believe, and we all see the results, we all support each other." The other 11 participants spoke about feeling supported by their co-workers in that they could share intervention ideas and

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problem solve difficulties together, but it is notable that 91.67% of the participants did not comment on creating a sense of safety and support within their professional networks to promote their own emotional health and wellness as providers who deliver trauma-informed services to high needs children and families.

Two of the participants (25%) who perceived their connection and communication with co-workers as an implementation barrier were school psychologists. One of these participants said, "[There is] not much collaboration." He described spending the majority of his time completing special education evaluations and stated that he did not have enough time to work with teachers or other personnel within the school (e.g., teachers, other mental health staff, CSCT providers). The other school psychologists stated, "I think it's really rare that like a general educator would know even what's being worked on in the mental health setting. I don't think teachers have any idea even what's being done in the room or what for. I don't really know that they really are informed."

Structural characteristics (referenced 41 times). The *structural characteristics* construct was referenced by 10 of the 12 participants (83.33%), who primarily identified working in a rural environment as impacting the adoption and implementation of trauma-informed services. Nine participants (75%) perceived working within a rural setting as a barrier to adopting and implementing trauma-informed innovations, and all nine of those participants described mental health stigma as impeding trauma-informed innovation delivery. A school counselor working in a rural area in eastern Montana described how stigma associated with trauma-specific mental health care impacts her ability to deliver trauma-informed care with her school. She stated, "Well, it's…the whole idea of we're going to bring our dirty laundry to school…they don't want to do that. So, I think that it's a barrier, a challenge, because they don't want any of that stuff

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coming out, you know? And so rather than face it…they would rather bury it. I think that happens a lot here." She then added, "And I think in other rural communities too, it's just not cool to be talking about what's happening or what has happened in your life."

Additional themes arouse within the *structural characteristics* construct that described how a rural setting can create unique barriers for implementing trauma-informed supports. Specifically, clinicians described difficulties 1) developing relationships with external agencies who could provide consultation supports and referral outlets, 2) accessing needed trainings, 3) difficulties recruiting an adequate number of school personnel (particularly those who have previous trauma training) to serve within the school, and 4) difficulty accessing the most up-to-date resources that could promote schools' ability to address posttraumatic stress within their student population. Two participants also commented on transportation barriers that are often present within rural communities.

Six participants (50%) made a least one comment about the benefits and facilitators associated with providing trauma-informed services within a rural school. These comments typically focused on the "care taking" nature of rural communities and the fact that "everybody kind of knows everything about everybody," which promotes clinicians' abilities to identify and engage children who have been exposed to some form of traumatic event. For example, a school psychologist serving a rural school in western Montana stated, "When something big does happen…generally school finds out very fast and so I think we're in a position to be able to find those things out quickly and to address them with students."

Characteristics of individuals. The demographic information collected about the participants is discussed within the methods section and displayed in Table 3. Several of the demographic variables that describe the participant sample (e.g., training background, degree,

professional title, years of service, additional training acquired) surely influenced the data that was collected and the qualitative results of the current project. In addition to those personal descriptors, the CFIR identifies and describes characteristics of individuals involved in an implementation project that will likely influence the success of adoption and implementation efforts. The *characteristics of individuals* constructs that will be discussed include 1) *knowledge and beliefs*, 2) *self-efficacy*, 3) *individual stage of change*, and 4) *other personal attributes*.

  Knowledge and beliefs (referenced 117 times). All 12 of the participants (100%) commented on how their knowledge and beliefs about trauma exposure, PTSS, and trauma-informed interventions impact their ability to adopt and/or implement trauma-informed innovations within their schools. Every participant reported receiving at least some degree of instruction about childhood trauma within their graduation programs, but only one clinician (8.3%) described the level of training in trauma and trauma-informed care that she received during graduate school as sufficient to prepare her for implementing trauma-informed supports within school systems. The other 11 participants (91.67%) stated that they either acquired or would need to acquire continuing education training to feel well trained as a trauma-informed mental health provider. For example, one school counselor stated, "My master's program was very limited, and I had to continue to get training in that area."

  Despite most participants reporting negative perceptions about the quantity and/or quality of trauma-specific training they received during graduate school, 100% of the participants held some degree of accurate knowledge about typical symptoms of posttraumatic stress, including the fact that childhood trauma exposure is highly prevalent (though only 33.33% of clinicians provided an accurate numerical estimate). All participants (100%) were able to describe several symptoms of posttraumatic stress and how those symptoms can impact children's functioning at

school and academic success. For example, when asked about how trauma exposure impacts children's behavioral or academic performance, one CSCT provider stated, "The biggest thing that we see with the kids that we work with is the anxiety piece. Academic stuff starts suffering because the kid can't make it to school, or the kid is in school and having flashbacks or is so anxious that they can't make it to class."

Alternatively, only two participants (16.67%) were able to identify an EBP designed to treat posttraumatic stress symptoms in children (i.e., CBITS, Bounce Back, and TF-CBT). An additional participant (8.3%) was able to identify an EBP to treat posttraumatic stress symptoms in adults (CPT), and three others (25%) were able to identify a research-supported treatment designed to either treat symptoms related to trauma or address suicidality in children (Second Step, QPR, SOS). The remaining six clinicians (50%) were not able to name a treatment designed to address trauma exposure. All 12 participants (100%) reported that they would be interested in receiving additional training about how to intervene and treat posttraumatic stress in children, especially intervention strategies that could be feasibly used within a school setting.

Self-efficacy (referenced 23 times). Nine participants (75%) commented about their own comfort level or confidence in providing trauma-informed services, and all nine of these participants indicated that they doubted their ability to effectively implement trauma-informed care. All five of the school psychologists (100%) consistently reported that they do not feel properly trained to treat trauma within a school settings. One school psychologist said, "I think a lot of school psychologists in particular that work in a school setting, the majority of them probably aren't really confident in their skills in intervening on trauma." This school psychologist then stated that she believed that perceived lack of confidence was likely unique or specific to implementing trauma-informed interventions.

Two of the school counselors (16.67%) who described themselves as having poor confidence in their ability to deliver trauma-informed services described themselves as being trained as academic school counselors and not as mental health providers licensed to provide psychotherapy. For example, one of these school counselors said, "I think that the quality of training is like, for me anyway as a school counselor…I don't feel comfortable, confident…I don't feel like the training is enough to provide the kind of care for these high needs students." She later expanded on this thought when speaking about the difference between treating trauma and other mental health diagnoses, and stated, "[I'm] maybe a little more experienced with anxiety and depression, but still…not having enough actual training and experience in clinical counseling to feel confident about helping students change the way they think and feel and act." Importantly, both of these school counselors expressed motivation to help the children they served to the best of their abilities, recognized their ethical responsibly to refer children who needed ongoing psychotherapy to a licensed mental health professional, and acknowledged that there are trauma-informed services they can provide their students outside of traditional psychotherapy. One of the school counselors emphasized these points: "If I can help them in one-on-one therapy, I would definitely do it. But I also have to understand that I am not a licensed therapist or clinician and if I feel that they need to be referred to an outside therapist or counselor, that is my priority."

The final two participants (16.67%; a CSCT therapist and a school counselor) who offered comments that indicated reduced self-efficacy in implementing trauma-informed services indicated a desire for additional training because they wanted to be "better" at providing trauma treatment. The CSCT therapist believed that if she learned some trauma-focused EBPs (i.e., TF-CBT and CPT), she could feel more effective when providing care to children struggling with

symptoms of posttraumatic stress. The school counselor, on the other hand, described feeling overwhelmed by the trauma-related needs within her school, which sparked a desire for additional knowledge in trauma-informed interventions.

Individual stage of change (referenced 22 times). Eleven participants (91.67%) made at least one comment that described themselves as motivated and/or enthusiastic about seeking professional development opportunities that could enhance their knowledge and skill as a trauma-informed mental health provider. These comments were typically related to a strong desire to receive additional training in trauma-informed interventions, including 91.67% of participants either requesting or volunteering to attend additional training that offered some amount of trauma-informed instruction. One participant said, "Anytime something is offered, I seek it out because I just feel like I can always do better." Another clinician stated, "I still will continue to seek out trainings, and I do my own training because I…get overwhelmed by how much trauma there is…and [want to] help in the best way possible."

Other personal attributes (referenced 26 times). Eight participants (66.67%) described themselves as possessing some personal characteristic that likely facilitates their ability to implement trauma-informed services within their school. The characteristics most frequently described related to the level at which clinicians cared about the children they served and valued working in a helping profession. For example, one participant stated, "I think that my values and goals are to support kids and to support them in the best way possible." Another participant offered a similar response that was very specific to providing trauma-informed care. She said, "That is my goal: to implement trauma-focused services. It is a value and priority that I see." This school counselor, who was working to implement the CBITS program within a rural school system in central Montana, then provided additional details about how her personal

characteristics allowed her to work through the numerous barriers of implementing trauma-informed services with a school. She stated, "There were obstacles that you just push through. And if you want something to happen badly enough, you make it happen."

Six participants (50%) commented on the personal characteristics of other school staff members who worked with the clinicians to successfully implement trauma-informed services on a larger scale. For example, one participant shared, "The staff is willing to work kind of beyond their scheduled time and outside of their time that is available for meetings to really help…integrate [trauma-informed interventions] into their classrooms and into the school community and culture." The other comments provided by participants similarly praised entire teams of school staff working outside their required professional responsibilities to make trauma-informed care available to children, and four participants (33.33%) identified this pattern as a leading benefit of working within a rural school system that they perceived as having "more of a tendency to take care of each other."

Process. Most of the implementation constructs within the CFIR process domain (i.e., *planning*, *executing*, and *reflecting and evaluating*) were not well represented within the interview transcripts; therefore, they will not be individually discussed. However, it is important to notice the absence of these constructs within the coding results, as this likely indicates a general lack of attention to the processes known to enhance successful implementation. For example, *planning* was only mentioned by four clinicians (33.33%), and only two clinicians (16.67%) described creation of a formalized approach to implementation prior to initiating implementation efforts. Both of these clinicians were working in schools that had acquire grant funding, and the planning was primarily conducted by individuals paid to manage the grant. Attention to how an implementation effort was being executed was only mentioned by three

clinicians (25%), and only one clinician (8.33%) described any form of evaluation that was conducted to inform the status, process, or outcomes of an implementation attempts.

Engaging. Two of the *engaging* subconstructs were well represented in the data. The *engaging* construct, which primarily describes a schools' attempts to attract or involve the appropriate people in implementation efforts, contains a number subconstructs because many different types of individuals generally need to contribute to a successful implementation project. The majority of *engaging* subconstructs (i.e., opinion leaders, formally appointed internal implementation leaders, champions, and external change agents) were not well represented within the interview transcripts and will not be individually discussed. The two engaging constructs that were commonly mentioned focused on the schools' attempts to engage children, families, and key school personnel (i.e., key stakeholders); therefore, the *engaging* subconstructs of 1) *innovation participants* and 2) *key stakeholders* will be discussed.

Innovation participants (referenced 139 times). The *engaging* subconstruct of *innovation participants* was the second most commonly referenced code throughout the interview transcripts, and all 12 participants (100%) referenced this subconstruct. Eight participants (66.67%) had positive perceptions about their or their schools' ability to identify and successfully engage children and families in need of trauma-informed services.

The most common method through which participants described identifying children who could benefit from receiving trauma-informed services included someone within the school (i.e., most commonly teachers) identifying emotional or behavioral symptoms that were interfering with the child's ability to function or succeed at school. This identification or engagement strategy was directly referenced by eight participants (66.67%), though all participants (100%) made some sort of indirect reference to identifying and engaging children in mental health and

trauma-informed services if problematic symptoms were displayed within the school setting. One participant described how this process unfolds with her school; "Usually [trauma exposure] will lead to behaviors in the classroom or like just issues following directions and keeping up with their peers…then teachers will refer."

As discussed within the *knowledge and beliefs* section, all participants (100%) were able to identify several behavioral or external indicators that a child may be struggling with posttraumatic stress. Only three participants (25%) mentioned that some children may be experiencing posttraumatic stress and not display externalizing symptoms, and these participants described this lack of observable symptoms as a significant barrier to identifying or engaging children who could benefit from trauma-informed care. Nonetheless, they were able to identify additional warning signs that they monitor to evaluate all children's functioning and potential needs, such as sudden changes in a child's academic performance or unexpected academic challenges given a child's cognitive or achievement test scores.

Other participants (50%) described identifying and engaging children and families in trauma-informed services through self, caregiver, or external agency referrals. One school psychologist reported that she and the school had developed a relationship with external agencies in their rural community to help them identify children in need of trauma-informed services. She described a community-established "child protective team" including community police officers, medical doctors, school personnel, and Child and Family Services Division (CFSD) caseworkers, who would gather on a regularly scheduled basis to "round robin" discuss "what's going on with kids." This clinician said, "It just really provides a way for all of us to say here's what we're seeing, whose kids we're worried about, here's the kids maybe we should be worried about."

Finally, only six participants (50%) described using formalized screening or assessment tools to identify and engage children who could benefit from trauma-informed services, though these screeners were only used after a child had been referred for testing due to some other academic or behavioral concern. No participants reported using universal screeners. In fact, two participants (16.67%) clearly stated that their administration was not supportive of universal screening for mental health difficulties, including trauma exposure. The most commonly used tool to identify trauma-exposure after children had been referred for educational testing was the *ACEs Questionnaire*. One participant reported using the *Columbia-Suicide Severity Rating Scale*, but most participants who reported using a formalized measure to evaluate for trauma exposure or posttraumatic stress symptoms could not provide the name of the screening tool or measure they used.

One of the anecdotal reports from school-based clinicians that contributed to the development of the current study focused on the idea that school-based mental health clinicians often avoid assessing for trauma, either out of concern for having to make mandated reports of child victimization or because they believe the language would either upset or re-traumatic children or families. Participants were specifically asked about whether they perceive unique barriers to assessing for trauma within schools and/or identifying children to participate in trauma-informed services, and no participants verbalized concern about potentially having to make a mandated report. Three participants (25%) did reference concern about scaring parents or re-traumatizing children if they used trauma-related language or evaluated for trauma exposure during their interactions with children or families. For example, one school counselor said, "I don't use [trauma] language very often with parents. I feel like…that would maybe scare parents off a little bit." Another CSCT provider said, "The biggest thing here as a clinician is avoiding

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re-traumatization," which this clinician described as sometimes preventing her from asking about or speaking to children and families about trauma.

Though all of the participants mentioned at least one barrier they had experienced while attempting to initially engage children and families in trauma-informed supports or maintain their engagement in those supports over time, only three of the 12 participants (25%) reported having more difficulty with engagement than success. The most common barrier these participants experienced included difficulty getting children or caregivers to consent for school-based treatment services, including children being "embarrassed" about going to see a counselor or a caregiver who "doesn't really want their child receiving one-on-one attention, having those intense conversations, or sharing things about their history with an adult at the school." No participant provided examples of successful engagement strategies that they use with children and families who are ambivalent or resistant about participating in trauma-informed services, though it is notable that the majority of participants (58.33%) described children and caregivers as being willing to openly to discuss or consent for their child receiving trauma-informed services within the school. In fact, participants were asked about differences between engaging children and families in trauma-informed services versus other forms of mental health care, and one school counselor said, "It's easier with trauma-focused because if they know that there has been trauma, they're more willing to get help."

Key stakeholders (referenced 26 times). Eleven participants (91.67%) referenced formal attempts to engage other school personnel in their efforts to implement trauma-informed services within their school, and seven participants (58.33%) perceived their attempts as successful and promoting the implementation process. The most common method of engaging key stakeholders included asking school personnel (e.g., other mental health professionals, teachers, support staff)

to volunteer their time and efforts to learn and use trauma-informed intervention principles. One school psychologist said, "A lot of [trainings] are voluntarily…if specific staff are interested in it, they can continue to pursue those trainings. It's not mandatory for all staff." It appeared that most of the employees who volunteer their time were able to do so within their work schedule, though two participants (16.67%) described key stakeholders putting in volunteer hours on top of their regularly scheduled work day. Most of the participants who described the key stakeholders who volunteered their time also provided comments about how those stakeholders' personal attributes positively contributed to implementation success. For example, one school counselor said, "I don't think [the trauma-informed training] has ever been mandated. I think that word gets out that it's good stuff and good information…and I think it's just people go because they want to help the kids better…we want to be better at what we do."

Other methods of engaging key stakeholders in implementation efforts included mandating the school personnel to participate in trauma-informed trainings (including trainings pertaining to suicide), using specific trauma-informed principles within their work, or approaching their interactions with children from a trauma-sensitive framework. Four participants (33.33%) described the districts or schools for which they worked as mandating participation in the implementation process, and this mandated participation ranged from school personnel needing to attend one trauma-informed training to school personnel needing to structure their conceptualization and approach to education through a trauma-sensitive lens. The more intensive approach (i.e., mandating school personnel approach education through a trauma-informed lens) was described by the school counselor who worked on a tribal nation and contributed to an entire overhaul of his school system to adopt a trauma-informed system of education. This school counselor described, "Every employee here at [school name] is also

required to obey these [trauma-informed] principles that work, but naturally they are believers as well."

Two of the participants who perceived stakeholder engagement as a barrier to implementation efforts primarily commented on the fact that they, as a school psychologist and a school counselor, were not involved in the decision making, planning, and/or attempts to implement the trauma-informed services that were being implementation within their schools. Both of these participants described advocating for themselves to be involved in the planning process given their specialized knowledge in mental health and/or childhood trauma, and the administrators who were leading the implementation proceeded by consulting with outside agencies instead of utilizing the internal team. The school psychologist said, "I'm not really viewed as a mental health expert in the eyes of a lot of our administrators or school board…it's been a lot of advocacy of what a school psych is, like, 'Hey, these are the things that I can bring…I'm interested in being part of these things.' But it just doesn't ever really come to fruition where I'm really brought to the table. Nor are some of our school counselors."

The final two participants who had difficulty with key stakeholder engagement described issues recruiting teachers to support trauma-informed implementation efforts. One school psychologists described the teachers as not being aware of what the mental health teams are doing within the school. Another school psychologist described asking for teachers to teach specific trauma- and suicide-related lessons within their classes, and none of the teachers would volunteer. That clinician said, "It was kind of a mess actually as far as school personnel…I think people just feel really unprepared. It's not something that we're teaching teachers to do."

No participants described any specific strategies that worked well to engage resistant stakeholders, other than administration mandating participation in specific portions of the

implementation in order for staff to maintain their employment with the school. No participants

commented on the long-term success of strategies that involved mandated participation, though

several participants who identified seeking volunteers as a primarily engagement strategies

provided comments that suggested these employees were able to maintain their motivation to

promote the implementation of trauma-informed supports over time.

Chapter 5: Discussion

The purpose of this project was to qualitatively investigate trauma-focused mental health care that is (or is not) being provided within rural schools across the state of Montana. Because only one participant described implementing a trauma-focused EBP (i.e., CBITS), the term "trauma-informed" was used to reference the broad range of research-supported interventions or treatment elements that participants described using to treat symptoms of posttraumatic stress. School psychologists, school counselors, and CSCT clinicians who serve these schools identified a broad range of CFIR and IOF constructs that they believe impact their ability to adopt and implement trauma-informed innovations. Overall results indicate that two-thirds of participants perceive their school environments as mostly favorable for the adoption and implementation of trauma-informed care; however, participants also identified numerous barriers that they perceive as hindering their attempts to adopt and implement trauma-informed interventions. Examining these specific implementation determinants in greater detail could potentially help other schools successfully plan for and execute the delivery of trauma-informed services within rural areas.

Trauma Interventions in Schools: The Science-to-Practice Continuum

Landsverk and colleagues (2012) describe a science-to-practice continuum that is useful for conceptualizing implementation science research, which will be used to organize the discussion section to offer a realistic representation of how the implementation determinants identified within the current study could impact actual practice. Figure 3 outlines the stages in this science-to-practice continuum, including recognition that efficacy and effectiveness studies generally precede implementation science research. Efficacy and effectiveness studies have been, and continue to be, conducted for interventions designed to treat symptoms of posttraumatic stress in children. Such studies have allowed for the identification of several trauma-focused

EBPs known to successfully reduce psychological and behavior difficulties associated with

trauma exposure (Cohen et al., 2006; Kinniburgh & Blaustein, 2005; Jaycox, 2004).
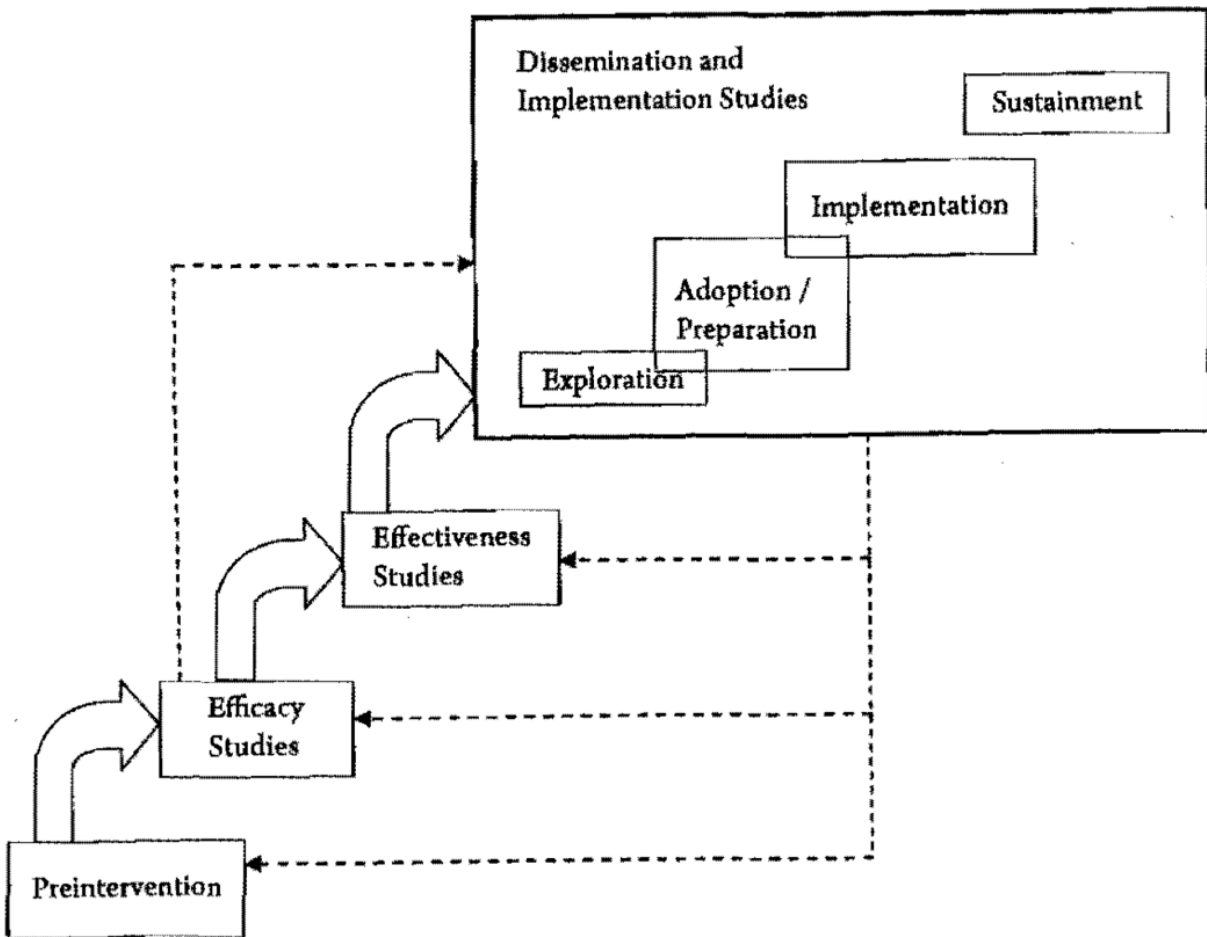
Figure 3. Stages of research in the science-to-practice continuum. *Source* Chapter 11:
Implementation and Dissemination of Prevention Programs (2009) in National Research Council
and Institute of Medicine (2009, p. 326).

The science-to-practice continuum then moves to identify distinct, though somewhat

overlapping, phases that typically exist within an implementation project: *exploration*, *adoption*

or preparation, *implementation*, and *sustainment*. The current project specifically evaluated

constructs known to impact the *adoption* and *implementation* phases of the dissemination and

implementation process; therefore, the discussion will primarily focus on factors that impact

those project phases. The *exploration* phase will also be discussed in detail, as Greenhalgh and

colleagues (2004) recognize this phase of implementation as a *pre-adoption* phase that impacts the formal adoption process. The *sustainment phase* will be only briefly mentioned as an area of future research, as sustainability was rarely referenced in the interview transcripts and very few participants described implementation constructs known to impact sustainment of best practice.

Exploration phase. The first phase of an implementation project includes the *exploration* phase, which generally begins when an agency expresses interest in making a new innovation available to their consumers (Landsverk et al., 2012). Participants in the current study appeared to spend limited time in the exploration phase, as very few participants described taking a purposeful or planful approach to investigating what trauma-informed innovations they might adopt and implement within their schools. Nonetheless, participants did discuss various CFIR constructs that have been identified within previous literature to influence pre-adoption.

A school would most likely enter the *exploration* phase if they recognize that the children they serve are experiencing symptoms of posttraumatic stress that are interfering with their academic success (Garland et al., 2010). The one school in the current study that was not providing any trauma-informed supports was led by an administrator who was unaware or unwilling to recognize the mental health needs of the children served by the school, which led to this administrator reporting that her students had "no mental health issues." At that point, the administrator actively halted the school's ability to move through the *exploration* phase and adoption of a trauma-informed innovation was never considered.

Every other school that participants were serving had adopted some form of trauma-informed supports, and the school-based clinicians serving these schools perceived themselves as entering the exploration phase because they recognized the trauma-specific needs of children and wanted to provide school-based treatment to address those needs. Every participant was able to

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describe symptoms of posttraumatic stress that might negatively impact academic functioning, and these participants acknowledged the high prevalence of childhood trauma exposure within their school. In fact, a handful of participants described a research-supported finding that trauma exposure is equally or more likely to occur in rural communities compared to urban areas (Flannery, Wester, & Singer, 2004; Kingery et al., 1991). Of note, participants frequently described suicidal ideations and behaviors as synonymous with posttraumatic stress symptoms. While such findings highlight the need for more direct training in posttraumatic stress and trauma-focused EBPs (discussed later in this section), participants' ability to recognize that the suicide rate in Montana is far above the national average and use that information to motivate their formal exploration of suicide prevention programs should be seen as a great strength (Center for Disease Control and Prevention, 2017). In fact, the clinicians who were able to identify either trauma-focused EBPs and/or trauma-informed interventions (e.g., QPR, SOS) were often described as implementation *champions* who spearheaded intervention exploration efforts. As one participant described, these clinicians were "tasked with the research portion of [exploration]" and sorted through "many, many interventions that principals had heard about or other counselors had heard about" to select a trauma-informed, suicide-prevention program that could address the needs of their school.

The CFIR construct *tension for change* appeared to have a major influence on whether participants progressed from recognizing a need for trauma-informed care to actively advocating for the adoption of new interventions through innovation exploration. One participant reported that "a really high need" was so "in your face kind of escalated" that the school felt compelled to explore options to "provide more support and services for [traumatized children]." Similar statements were provided by two-thirds of participants, especially those who were working in

school districts that observed an "influx of suicidality." These participants recognized how providing trauma-informed care could create a more supportive and safer environment within the school, as one participants said, "If [schools] were talking more about trauma and more about ACEs and their impacts, [the providers] would be able to prevent of a lot of suicidality."

The only comment across all transcripts that identified *tension for change* as an implementation barrier (i.e., *lack of* tension for change) was a comment about the school that was not offering trauma-informed care because the administrator believed that there was no need. These results suggest that a school who 1) recognizes children's trauma-related mental health needs and 2) perceives the services being offered by the school as inadequate might be most likely to explore new innovations, which is consistent with previous research findings (Garland et al., 2010).

Comments that were coded under *tension for change* were commonly double coded with either *external policies and incentives* or *cosmopolitanism*, which suggests that these implementation constructs might interact to uniquely influence the pre-adoption phase. For example, several participants reported that a strong tension for change within their school system (e.g., high rates of suicide and limited access to mental health care) prompted the successful receipt of grant funding, which allowed for cosmopolitanism relationships (i.e., external expert consultation) that could facilitate the exploration of new trauma-informed interventions that might best meet the needs of schools. Further, some participants reported that they adopted a particular intervention (e.g., CBITS) to address a gap in trauma-informed care because they partnered with an external consultant who specialized in training for and/or delivery of that specific intervention (i.e., the school was not able to choose from a menu of interventions).

Many of the participants who were working in schools that were not receiving grant funding reported that it was difficult for them to establish relationships with external agencies that could provide specialized trauma-focused consultation. In these situations, the *characteristics of individuals,* such as the knowledge and beliefs held by individuals within the agency (including school-based clinicians), likely impacted what innovations the school explored (Wisdom et al., 2014). All participants described offering some type of school-based, mental health service to children who had been exposed to trauma and were struggling with posttraumatic stress. However, only a quarter of participants were able to identify an EBP specifically designed to treat symptoms of posttraumatic stress. The fact that participants were mostly unaware of what trauma-focused EBPs are available likely made it difficult for them or their schools to adequately explore all the potential innovations they could have considered adopting. Importantly, almost all participants in the current study described themselves as highly motivated to seek out professional training opportunities so that they could "help in the best way possible," which has been identified as positively influencing the pre-adoption phase (Wisdom et al., 2014). Such results suggests that increasing the accessibility of trainings that identify and described trauma-specific EBPs could enhance innovation adoption in rural states like Montana.

In addition to increasing school-based clinicians' knowledge of trauma-focused EBPs, Wisdom and colleagues (2014) described the *personal attributes* of individuals who work within an agency (e.g., personal attitudes and belief in quality improvement) as capable of influencing movement toward innovation adoption. Two-thirds of participants described themselves or other key personnel as valuing their professional ability to provide quality care to children struggling with posttraumatic stress, including volunteering to attend additional trainings and engaging in work tasks beyond their typical job duties. For example, the school counselor working in a

school on a tribal nation described his strong desire to "make some young people in the world feel okay" as motivating him to spend extra hours outside of work exploring trauma-informed, suicide prevention frameworks that the school could adopt to help them restructure their approach to education and better serve their community.

Alternatively, the school administrator who declined an opportunity to bring free, trauma-informed services into a rural school in eastern Montana was described as possessing personal attributes that halted the *exploration* process. Indeed, an administrator who "really just wants to focus on talking about all of the good things that are going on in the school" will likely remain unable to recognize the mental health and trauma-specific needs of the children within her school. This wholly positive approach will likely prevent her and the school from considering the adoption of a trauma-informed innovation in the future unless something significant modifies the administrator's or another decision-maker's perspective. The school psychologist serving that school reported that "it would have to be something big like…a lawsuit" to motivate the school administration to reconsider allowing an external therapist to serve the school.

Adoption phase. A school would enter the *adoption* or *preparation* phase of implementation once they select a specific trauma-informed innovation to be formally implemented within their building (Landsverk et al., 2012). Participants in the current study described a broad range of innovation adoption success (i.e., non-adoption, partial adoption, full adoption), and they identified several IOF and CFIR constructs that they believed influenced their adoption attempts. Importantly, the majority of participants who identified themselves as having adopted a trauma-informed intervention were delivering informal and relatively unstructured trauma-informed supports. Only three participants stated that they or their school had adopted a research-supported intervention that could be used to treat posttraumatic stress or

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other trauma-related sequela (i.e., CBITS, QPR, SOS). Therefore, the term *adoption* will be used in a flexible manner to indicate a school's decision to offer any form of trauma-informed intervention that could be used and/or adapted to treat symptoms of posttraumatic stress (e.g., CBT techniques, mindfulness practices, trauma-specific support groups). This flexible approach was used to make best use of the data collected and offer interpretations that can initiate the scientific exploration of factors that influence a rural school system's decision to adopt or not adopt trauma-informed innovations.

One of the primary goals of the current study was to better understand factors that influence non-adoption of trauma-informed innovations by interviewing school-based clinicians working in schools that had made an active decision to not adopt or implement any trauma-informed services. Unfortunately, recruitment difficulties led to only one interview being completed with a clinician who was serving a school that was not offering trauma-informed supports. The information provided by that participant is informative and helpful, though there is no way to evaluate common themes within that data because it represents only one clinician's views and experience. It is important to recognize that I, as the PI, attempted to contact several clinicians ($N = 8$) by both phone and email who were working in schools that were reportedly not providing trauma-informed care, and all of these recruitment attempts were unsuccessful (i.e., no return communication or clinicians declined to participate in the study). Therefore, the themes discussed throughout this section reflect data primarily provided by clinicians serving schools that were implementing at least minimal levels of trauma-informed services.

Chor and colleagues (2015) identified *acceptability*, *appropriateness*, and *feasibility* as implementation outcomes that best predict innovation adoption. Cumulative results indicate that the majority of participants believe that it is acceptable to implement trauma-informed

innovations within rural schools, which suggests that *acceptability* was most often viewed as an implementation outcome that facilitates a school's adoption of trauma-informed innovations. Most of the participants who approved of implementing trauma-informed innovations within schools reported that they believed it was their primary role as a school-based clinician to support *all* mental health needs of children, including treatment of posttraumatic stress symptoms. Such statements reflect a relationships between *acceptability* and the characteristics of clinicians who participated in the study. Indeed, many of the statements coded under the CFIR *other personal attributes* code were also coded as an acceptability facilitator.

It should be recognized, however, that half of participants reported that high levels of mental health stigma within the rural communities they served negatively impacted their attempts to deliver trauma-informed care. This implementation barrier, which has also been documented in previous literature (Boydell et al,. 2006), contributed to one quarter of participants reporting that they avoid assessing for or speaking to children and families about trauma due to concern of "scaring parents" or "retraumatizing" children. In fact, the school psychologist working in a school that did not offer any trauma-informed innovations identified stigma within the larger community as one of the leading reason why the school administrator was not willing to provide trauma-informed care within that school. As discussed in the introduction, research clearly demonstrates that asking children and caregivers about trauma does not increase their distress or discomfort, and most caregivers describe being asked about their children's trauma exposure as a positive or somewhat positive experience (Griffen et al., 2003; Dean et al., 2004). Therefore, it will be important for rural schools who would like to adopt trauma-informed innovations to evaluate for the presence mental health and trauma-specific

stigma within their schools and communities and provide psychoeducation as necessary to negate these false beliefs.

In conjunction with high acceptability ratings, the majority of participants believed that it is *appropriate* to implement trauma-informed services within their school. These participants primarily described the connection between trauma-exposure and academic difficulties as evidence to support the appropriateness of school-based trauma treatment. Indeed, almost every participant who was delivering trauma-informed services with their school stated that those services were suitable to a school context and necessary to support academic success. Interestingly, while working in a rural school was perceived as negatively impacting the acceptability of providing trauma-informed care due to increased stigma, several participants perceived working in a rural environment as promoting the appropriateness of implementing trauma-informed interventions within the community school because it could increase a child's access to trauma-informed care. One participant stated, "There's less access to care outside of the school [in rural communities], and so being able to provide that in a school where we...have access to children for more hours of the day [is a benefit]." Given the connection between these results and previous literature, it is recommended that school-based clinicians who want to promote the adoption of trauma-informed innovations within their school use strength-based, neutral language when discussing trauma exposure and provide psychoeducation about how trauma-focused EBPs can support a primary aim of schools: to promote children's ability to learn and acquire a quality education (Baweja et al., 2016).

Participants were also asked several questions to evaluate whether they believed it was *feasible* to implement trauma-focused EBPs within theirs schools, and no participants who provided comments related to feasibility believed that it was feasible to implement a trauma-

focused EBP with fidelity within their current school system. The comments offered by these participants concentrated on how a limited amount of time and other resources makes it difficult to implement trauma-focused services, which suggest that feasibility-related adoption barriers are closely connected to school-based clinicians' perceptions about whether their school is able to allocate adequate resources toward the delivery of mental health services. Given the fact that rural school are often under-resourced and federal funding is difficult to obtain, it will likely be difficult to modify school-based clinicians' perceptions about the feasibility of implementing trauma-focused EBPs without the school receiving some degree of external funding or formalized support (Shealy et al., 2015).

Only one participant, the school counselor working in a school on a tribal nation, believed that it was fully feasible for him to implement a research-supported innovation that could be used to treat symptoms of trauma exposure (i.e., QPR); though, he reported that he needed to be able to adapt the intervention to fit the unique needs his students. He described the school's approach to education (i.e., prioritizing emotional and mental health) as a lead reason why he was able to implement an adapted version of QPR, which suggests that the overarching internal culture of the school played a large role in why it was feasible for him to implement QPR. In fact, when asked about how providing trauma-informed services fit within the culture of his school, he stated, "I guess I would almost reframe that question to make it more applicable to us. I would ask more or less, 'How does our academic initiative fit with our trauma-informed foundation?'" This reframe captures the essence of the school restructuring their priorities and designing a school system in which it is not only feasible to implement a trauma-informed innovation, but the trauma-informed innovation paves the route for completing academic instruction with greater success.

In addition to implementation outcomes (i.e., *acceptability*, *appropriateness*, and *feasibility*), several CFIR constructs have been recognized within previous research as capable of impacting the adoption of trauma-informed innovations within schools. For example, Damanpour and Schneider (2009) described *innovation characteristics* as the most prominent implementation constructs that influence innovation adoption. One half of participants in the current study indicated that they or their school administration prioritizes adopting mental health innovations that have some level of research support, which would create a solid foundation to support the successful adoption of trauma-focused EBPs within these Montana schools (Wisdom et al., 2014). Indeed, four of the six participants who referenced the important of *evidence strength and quality* were clinicians who had formally adopted trauma-informed interventions with some degree of research support (i.e., CBITS, QPR, Second Step, SOS). This popular appreciation for evidence-based interventions, paired with the high levels of participant motivation to seek out training opportunities discussed within the *exploration* phase, provides additional evidence that increasing access to trainings about trauma-focused EBPs within rural areas might promote the number of Montana schools that adopt and move forward with implementing a trauma-focused EBP.

Leadership engagement was also commonly identified by participants as an implementation construct that promoted the adoption of trauma-informed interventions within their schools, which is consistent with previous research findings (Langley et al., 2010; Forman et al., 2009). Participants described several examples of leadership styles that have been linked with successful adoption outcomes, such as school administrators acting as champions of innovation adoption and involving key stakeholders in the decision-making processes (Wisdom et al., 2014). Examples of how school administrators promoted the adoption of a trauma-

informed programs included leadership dedicating financial and other resources toward the

adoption of trauma-informed services, advocating for the importance and acceptance of program

adoption, and being willing to make schedule accommodations so that school-based clinicians

and other school personnel could fully engage in adoption efforts. As one participant stated, "I

really put a lot of time and effort into [adopting SOS]…I had uninterrupted support from my

administration, both financially and…giving me the space and time to take care of those things."

A few participants provided examples of top-down leadership (e.g., mandating

employees to engage in implementation efforts), which most often contributes to difficulties with

innovation adoption (Wisdom et al., 2014). One of the most profound examples top-down

leadership occurred within a school district that had secured grant funding to implement mental

health and trauma-informed services due to a rapid increase in completed suicides among their

student body. The school psychologist and other school counselors who serve the district

advocated for themselves to be involved in the *exploration* and *adoption* of a trauma-focused

EBP, as they were in a position to provide mental health and trauma-specific expertise to inform

the adoption decision and implementation plan. Despite requesting multiple times to be included

in the decision-making processes, the administrators hired external personnel (who did not have

mental health training) to lead planning efforts. This leadership behavior had a negative impact

on innovation adoption, including key stakeholders (e.g., the school psychologist, school

counselors, and CSCT team) feeling reluctant to fully accept the adoption decisions that were

made and enthusiastically engage in implementation efforts. Given the positive descriptions

provided about the school psychologist and other school counselors who worked in this district

(e.g., high motivation to enact change and provide quality care to the children and families they

serve), it is likely that the leadership approach was a major factor that derailed what could have been a successful implementation project.

Finally, *cosmopolitanism* was commonly perceived as an implementation construct that strongly impacted innovation adoption. Most participants believed that receiving consultation and support from outside agencies positively influenced their ability to adopt a trauma-informed innovation, which is consistent with previous research (Wisdom et al., 2014). One of the best examples of cosmopolitanism included the relationships between rural school systems and CSCT. Both school-employed clinicians and CSCT providers referenced their relationships with each other as something that vastly promoted the acceptability, appropriateness, and feasibility of implementing trauma-informed innovations within schools, thereby enhancing trauma-informed innovation adoption. For example, one of the school psychologist who worked in a school system that was in the beginning phases of adopting a trauma-informed intervention stated, "We also have the CSCT teams within our school…they bring a lot of trauma-informed care [into our schools]." Alternatively, a CSCT provided stated, "The school counselors acknowledged the need for kids that have diagnoses or trauma to get services…I feel supported by them in that they will give us referrals…we work with them and I think by them working so well with us they're showing that they understand that these kids need services."

Outside of CSCT connections, there was considerable inconsistency about whether participants were satisfied with their ability to access trauma-specific consultation from external agencies. About one half of participants reported that they worked closely with an external consultant to adopt and deliver trauma-informed services, while the other half of participants reported that working in a rural area severely limited their ability to access trauma specialists who could provide ongoing consultation and support. Interestingly, all participants who reported

feelings satisfied with their ability to consult with external agencies described working with agencies from remote locations. For example, one participant described working with the National Child Traumatic Stress Network (NCTSN) to successfully adopt and deliver CBITS within a rural school, while another participant described partnering with universities in the state of Montana to adopt, adapt, and deliver trauma-informed services within his school. These examples, along with findings from previous research, suggest that providing schools with information about who they might be able to consult with about adopting a trauma-focused EBP, including how they could remotely work with those consultants, might increase the adoption of trauma-focused EBPs within rural schools (Greenhalgh et al., 2004).

Implementation phase. The third phase of the science-to-practice continuum includes the actual implementation of an innovation, which focuses on examining factors that impact the implementation process and identifying strategies for improving fidelity of program implementation (Landsverk et al., 2012). The implementation outcomes and constructs that were discussed within the *exploration* and *adoption* phases will continue to impact the success of a school's attempt to implement a trauma-informed innovation and will not be re-discussed within this section. Instead, attention will be given to the remaining implementation constructs that were most commonly identified within the interview transcripts and how those constructs might impact the actual implementation of trauma-informed services.

The size and structure of an organization has been identified as playing a key role in the feasibility and success of implementation efforts (Wisdom et al., 2014). One of the primary goals of the current project was to evaluate how the features of a rural environment impact a school's ability to implement trauma-informed innovations. The majority of participants perceived working in a rural settings as a barrier to successfully implementing trauma-informed care, and

mental health stigma was the most commonly referenced determinant that participants perceived as impeding the delivery and use of trauma-focused EBPs (e.g., difficulties associated with stigma at the administration, community, and innovation participant levels). One school psychologist, who recognized that stigma has historically inhibited the use of mental health care, reported that she has noticed a reduction in trauma-related stigma following the school's efforts to publicly discuss trauma and suicide. While this participant stated that stigma still makes it difficult to engage some children and families in trauma-informed care, it is likely that the school's use of a research-supported suicide awareness program (SOS) did reduce stigma surrounding suicide and trauma exposure (Aseltine, James, Schilling, & Glanovsky, 2007). Such results highlight the importance of mental health providers, especially those who serve rural communities, continuing to openly discuss and provide psychoeducation about mental health and trauma-specific topics to normalize these difficulties and actively contest negative stereotypes that promote the maintenance of stigma.

Another commonly identified implementation barrier included the lack of resources that rural schools can allocate toward the delivery of trauma-informed care, which aligns with the results of previous research (Forman et al., 2009; Langley et al., 2010, 2013, 2015; Shealy et al., 2015; Spoth et al., 2002). Most of the participants described having too little time to adequately deliver trauma-informed innovation on a routine basis, given the numerous role they fill within the school. For example, one school counselor stated, "There's too many other things, fires to put out, and things to do." Participants perceived these time barriers as especially significant within rural schools because there are often a limited number of personnel who can absorb various tasks associated with the implementation process. Indeed, one third of participants described having too few employees within their school as a major barrier to successfully delivering trauma-

informed services, especially given the extremely small prevalence of individuals who reside in rural areas that have specialized training in understanding and treating posttraumatic stress.

The limited availability of resources allocated to implementing trauma-informed services within rural schools also speaks to the relatively low priority placed on implementing trauma-informed innovations within rural schools. Less than one half of participants believed that they could prioritize providing trauma-informed innovations within their daily routine, including both CSCT providers whose primary role is to provide intervention services and all five school psychologists. These findings are consistent with previous research that suggests school staff often have difficulty implementing trauma-focused EBPs because it is challenging for them to manage all the competing priorities for their time and attention (Langley et al., 2010, 2013, 2015). Interestingly, almost all participants described a strong desire to provide more trauma-informed care within their daily schedules; however, their attempts to advocate for such schedule changes were unsuccessful. These results suggest that school-based clinicians who aim to promote the implementation of trauma-informed care should focus on teaching school administration how providing quality mental health care within schools can improve academic outcomes, which might increase the priority of and resources allocated toward implementing trauma-focused EBPs.

The quality of the *networks and communication* within a school is another important predictor of whether the school's attempts to implementation a trauma-informed innovation will be successful (Bateman, Wilson, & Bingham, 2001). Three-quarters of participants described their relationships with colleagues as something they believed facilitated their implementation efforts, especially when implementation teams scheduled regular meetings to consult with each other and problem-solve implementation barriers. Only one quarter of the participants described

the networks and communication within their school as creating implementation barriers, though the degree to which noncollaborative internal networks deterred implementation success appears significant. Specifically, both of the participants who identified networks and communication as an implementation barriers were among the few clinicians who were minimally involved in the delivery of trauma-informed supports within their school. These results, along with findings from previous research, suggests that special care should be given to the establishment of collaborative and supportive relationships among coworkers when embarking on an implementation endeavor (Greenhalgh et al., 2004; Valente, 1996).

In addition to collaborating with team members to access ongoing consultation, two-thirds of participants reported that the quality of communication between school-based clinicians and other school personnel enhanced the school's ability to engage children in mental health intervention programs. In fact, the most common method of identifying children who could benefit from receiving trauma-informed supports included teachers or other school personnel referring children who display emotional or behavioral symptoms in the classroom to school-based clinicians for assessment or individualized mental health care. One school psychologist stated, "Typically…a teacher comes to me, says that there's a student that she or he is concerned about, and we talk about strategies the classroom teacher is using. I try to provide other suggestions, and then if we need to provide more support then I would go in and observe." It is encouraging that the majority of school-based clinicians in the current sample were able to develop collaborative internetwork relationships to promote children's engagement in trauma-informed care, as previous research has identified difficulties engaging children and families in school-based mental health programs as a significant implementation barrier (Boydell et al., 2006; Dishion & Kavanagh, 2000; Spoth et al., 2002). Nonetheless, several participants did

report difficulties convincing teachers to let children out of class to attend trauma-informed treatment, which is consistent with previous research findings that suggests providing teachers and other school support staff with psychoeducation about how trauma-informed care can enhance academic success could facilitate the implementation of trauma-focused EBPs within rural schools (Langley et al., 2010, 2013, 2015).

Finally, while participants generally reported success in engaging children in trauma-informed care, it is important to note that every participant described at least one barrier that prevented them from recognizing and serving all children who could benefit from trauma-informed supports. Only one half of participants described using trauma screeners or assessment measures on an individualized basis to identify if a child is experiencing posttraumatic stress symptoms, and no participants reported using universal screeners. This finding is consistent with previous research, which states that schools are often resistant to using universal trauma screening tools (Blodgett, 2012). The only reason participants provided for not conducting universal trauma screening was that administrators, who do not have mental health training, were opposed to the idea. Over one half of participants acknowledged that there are "kids that are being missed" due to "a lack of symptoms or maybe lack of behavior," which supports a need to use universal screeners as recommended by several trauma-focused EBP manuals (e.g., CBITS). Indeed, one participants said, "If there was a way to screen to see which kids needed the most help, that would help identify them." This statement, along with similar quotes from other participants, suggests that providing administrators with psychoeducation about the importance of universal trauma screening could promote schools' abilities to identify *all* children who could benefit from receiving trauma-focused services at school.

Sustainment phase. The last stage of a successful implementation project includes *sustainment*, which focuses on maintaining delivery of an innovation over time (Landsverk et al., 2012). Hunter and colleagues (2015) suggests that the CFIR constructs best known to predict sustainment include *external policies and incentives* (e.g., funding stability and political support for the program), *compatibility* (e.g., staff perceptions of how well the innovation fits within the overall mission of the organization), and *intervention characteristics* (e.g., complexity). The results of the current study cannot be used to evaluate the majority of these implementation constructs as they related to sustainment. The schools who were working under a grant to implement trauma-informed supports did not indicate the length of their grant funding and/or plans to acquire a stable source of funding. Further, very few participants identified using a structured innovation to provide trauma-informed services, which makes it difficult to evaluate participants' perceptions of innovation complexity.

The majority of participants did, however, report significant discordance between their typical workflow and the delivery of a structured trauma-focused intervention. Most of the comments that were coded under *compatibility* suggested that participants believed they had limited time within their schedule to deliver intervention supports, limited ability to take children out of class to engage them in treatment, and limited alignment between community values and delivery of trauma supports within schools. These results, which are connected with the availability of resources and relative priority barriers discussed within the *implementation* phase, suggest that schools might need to restructure school-based clinicians' schedules to make the implementation of trauma-focused EBPs a sustainable practice within a rural school setting.

Implementation Determinant Summary

      Implementation facilitators. The overall results suggest that two-thirds of participants perceived their implementation climates (external and internal) as possessing mostly facilitators that they believed promoted the delivery of trauma-informed innovations. The most commonly referenced facilitators of innovation adoption (including exploration or pre-adoption) that are contained within the IOF include *acceptability* and *appropriateness*. The CFIR constructs that most participants identified as facilitators of both adoption and implementation include *patient needs and resources*, *cosmopolitanism*, *networks and communication*, *tension for change*, *leadership engagement*, *access to knowledge and information*, *knowledge and beliefs*, *individual stage of change*, *other personal attributes*, *engaging innovation participants*, and *engaging key stakeholders*. Table 4 displays the percentages of participants who identified each of these IOF and CFIR constructs as implementation facilitators.

      Implementation barriers. The remaining one-third of participants perceived their implementation climates (external and internal) as possessing mostly barriers that they believed impeded the implementation of trauma-informed services. The most commonly identified IOF implementation outcome that impeded adoption was *feasibility*. The CFIR constructs that most participants identified as barriers of both adoption and implementation include *external policies and incentives*, *structural characteristics*, *compatibility*, *relative priority*, *available resources*, and *self-efficacy*. Table 4 displays the percentages of participants who identified each of the IOF and CFIR constructs as implementation barriers.

Implications for Clinical Practice and Research

      Future directions for clinical practice. Identifying facilitators and barriers through qualitative research is an important first step in understanding the adoption and implementation

of trauma-focused services within rural schools. However, actionable research has the best capability of influencing the science-to-practice continuum and prompting behavior change that will increase accessibility of school-based, trauma-focused care. Therefore, it is important to recognize how additional areas of implementation science research can promote the utility of the results of the current project.

Implementation science measures. Formal measurement tools can be used across implementation phases to evaluate a wide-range of CFIR- and IOF- related constructs, which could promote the planning, execution, and evaluation of implementing trauma-focused EBPs within rural schools. Lewis and colleagues (2015) have completed a systematic literature review to identify implementation science measurement tools that are connected to CFIR and IOF constructs (Lewis et al., 2018), and they are in the process of using a newly developed rating system (i.e., Psychometric and Pragmatic Evidence Rating Scale [PAPERS]; Stanick et al., under review) to evaluate the psychometric and pragmatic qualities of these implementation science measures. The initial results of their research are published online within the Society for Implementation Research Collaborative (SIRC) Instrument Repository, which provides the names of implementation science measures and their respective PAPERS ratings for all CFIR and IOF domains (http://societyforimplementationresearchcollaboration.org).

Ideally, individuals involved in the adoption and implementation of a trauma-focused innovation within a school system could use this repository to identify psychometrically strong and pragmatic measurement tools that can be used to promote their implementation endeavors. For example, a school could use measures during the *exploration* phase as they are attempting to identify which trauma-focused EBPs they want to implement within their school. Given the connection between specific IOF implementation outcomes (i.e., *acceptability*, *appropriateness*,

and *feasibility*) and successful innovation adoption, it could be helpful for schools to evaluate

these implementation outcomes prior to formally adopting a specific innovation. For example, a

school might provide key personnel with a description of a trauma-focused EBP (e.g., ARC,

CBITS, or TF-CBT) and ask those personnel to complete the *Acceptability of Intervention*

Measure, Intervention Appropriateness Measure, and *Feasibility of Intervention Measure*

(Weiner et al., 2017)*.* These measures have demonstrated good psychometric and pragmatic

properties (e.g., each measure includes only four questions) and are available within the public

domain. Pending the measurement outcomes, the school could then make an informed decision

about whether they will adopt the intervention proposed or explore alternative options.

      After a school adopts a specific intervention, they could use implementation science

measures to evaluate their internal climate prior to initiating the implementation of the new

innovation. For example, a school might select a readiness for implementation measure, which

could be easily identified by using the SIRC Instrument Repository, to evaluate whether they are

ready to implement an intervention program. An example of a readiness for implementation

measure includes the Texas Christian University Organizational Readiness for Change tool

(TCU-ORC; Institute of Behavioral Research, 2003), which is a 115-item instrument that

measures an organization's overall readiness for quality improvement projects (e.g.,

implementing a new trauma-focused innovation within a school system). Importantly, while the

entire TCU-ORC could be difficult for schools to administer given the length of the scale, the

subscales of the TCU-ORC can be selectively chosen based on the assessment needs of the

service setting and used in isolation. For example, a school could use subscales of the ORC to

identify barriers or challenges (e.g., program, training, staffing, or equipment needs) that might

impede their attempts to implement a trauma-focused innovation. The school could then develop

an implementation plan that includes implementation strategies (see the following

Implementation Science Strategies section) to address or circumvent any identified barriers,

which would promote the likelihood of successful implementation and movement toward

sustainable practice.

It would then be best practice for a school to use implementation science measures as

they progress through the *implementation* phase to evaluate how an implementation plan is being

executed. For example, some EBPs come with fidelity measures (e.g., TF-CBT Brief Practice

Fidelity Checklist; Deblinger, Cohen, Mannarino, Murray, & Epstein, 2008) that can be used

during the implementation phase to gauge whether individuals who are implementing the

innovation are delivering the innovation as prescribed in the intervention protocol or as it was

intended by program developers. In addition to evaluating execution via traditional fidelity

measures, it could be helpful for a school to complete a more thorough assessment of specific

implementation constructs if they are experiencing an identifiable problem within the

implementation process. For example, if individuals working to implement a new innovation are

having difficulty communicating or collaborating with one another, the school might consider

using an implementation measure known to evaluate the quality of networks and communication

to problem-solve networking barriers. The *Team Effectiveness Audit Tool* (Bateman et al., 2001)

is a psychometrically strong, 44-item measure that can be used to evaluate team effectiveness by

examining six characteristics of teamwork. The school could take the results of that measure and

select an implementation strategy (see the following *Implementation Science Strategies* section)

to address whatever barriers are preventing successful team collaboration.

Lastly, once a school reaches the *sustainment* phase of implementation, they could use a

sustainability measure to evaluate variables that promote an organization's ability to maintain

delivery of the trauma-focused innovation over time. The *School-Wide Universal Behavior Sustainability Index-School Teams* (SUBSIST; McIntosh et al., 2011), which is included within the SIRC Instrument Repository, is a psychometrically strong, 39-item measure that could be given to school personnel who are involved in implementation a specific trauma-focused innovation to inform the likelihood the school will be able to sustain delivery of the trauma-focused innovation over time. Pending the results of the measure, the school could select implementation strategies (see the following *Implementation Science Strategies* section) to address any sustainability barriers that might be identified.

  Implementation science strategies. School-based clinicians who identify significant implementation barriers, such as those identified by participants in the current study, will likely need concrete recommendations to adequately modify their implementation practices to stimulate implementation efforts. Powell and colleagues (2015) used their work on the Expert Recommendations for Implementing Change (ERIC) project to compile a list of implementation strategies that can be used to promote the implementation of innovations within community practice. Their final compilation included 73 discrete implementation strategies, which were each given feasibility and importance rating to help practitioners select strategies that might best support their implementation efforts within a specific implementation context (Waltz et al., 2015). A full list of these implementation strategies, including examples of strategies, can be found in Powell and colleagues (2015) open access article published in the *Implementation Science* online journal (https://doi.org/10.1186/s13012-015-0209-1). Some of the most highly rated implementation strategies that could be applicable to a rural environment and used in the *exploration* phase include *conduct a local needs assessment*, *conduct local consensus discussion*, and *inform local opinion leaders*. Once a rural school enters the *adoption* phase, they might *use*

advisory boards and workgroups, *promote adaptability*, and *develop educational materials* to enhance their implementation efforts. Then, prior to beginning the implementation, a school could consider *preparing champions* and *developing a formal implementation blueprint* to promote the likelihood that key stakeholders will adopt and properly execute the intervention. Finally, once the implementation begins, the school might *organize clinician implementation team meetings*, *conduct ongoing training*, *provide ongoing consultation*, and *audit and provide feedback* regarding the progress and/or success of the implementation.

Powell and colleagues (2015) are now collaborating with the team who developed the CFIR (Damschroder et al., 2009) to make implementation strategy research even more accessible and actionable for implementation practitioners (e.g., a school team who is attempting to implement a new innovation). These researchers have created the CFIR-ERIC Matching Tool v1.0 (available at https://cfirguide.org/choosing-strategies/), which allows individuals who are attempting to implement a new innovation to identify research-based implementation strategies to address the specific implementation barriers.

The CFIR-ERIC Matching Tool v1.0 could drastically enhance the ability for personnel within rural schools, who likely have limited knowledge of implementation mechanisms and limited resources to contract with an implementation consultant, to effectively execute an implementation project. For example, if a school were to administer the ORC and identify that key stakeholders within the school (e.g., school-based clinicians, teachers, paraprofessionals) are not fully supportive of implementing a trauma-focused innovation because they do not perceive the innovation as important or fitting within their current workload, the implementation team could select *relative priority* and *compatibility* as implementation barriers within the CFIR-ERIC Matching Tool v1.0 to identify targeted implementation strategies (e.g., *conduct a local*

consensus discussion, *promote adaptability*, and *identify and prepare champions*). The school personnel could then read about these implementation strategies in Powell and colleagues (2015) paper and use the strategies to promote their attempts to delivery trauma-focused care.

Future directions for research. Additional research should be conducted to better understand the adoption and implementation of trauma-focused supports within rural schools. Given the current study is possibly the first to use the CFIR and IOF frameworks to qualitatively examine the adoption and implementation of trauma-informed innovations within rural school systems, additional research using a similar design could help confirm and/or modify the factors that were identified in the current study as promoting or impeding the adoption and delivery of trauma-informed innovations. The qualitative data collected for the current study represents a satisfactory level of saturation; though, it is unknown whether collecting data from different types of school-based mental health clinicians who serve different forms of educational establishments in different geographical regions would significantly change the qualitative results. Further, given recruitment difficulties limited the number of interviews that could be completed with school-based clinicians serving rural schools that are not offering trauma-focused services, it is especially important that future research attempt to examine factors that contribute to non-adoption of school-based, trauma-focused innovations within rural areas.

It could also be beneficial to conduct an in-depth evaluation of the constructs that allowed the clinician serving a rural school located on a tribal nation to successfully implement an adapted version of QPR. The clinician provided several examples of how he championed the exploration and adoption phases to enhance successful implementation efforts, including recognizing the needs of the children and families the school serves (e.g., highlighting the tension for change); actively challenging stigma associated with trauma, suicide, and generalized

mental health; creating and maintaining outside relationships with university personnel to support training and implementation efforts; and working collaboratively with the entire school team to transition their educational model to prioritize the mental and behavioral health of children to enhance academic success. These activities not only enhanced the acceptability, appropriateness, and feasibility of adopting and implementing QPR within the school, but they promoted access to the financial and personnel resources that will be necessary to sustainably deliver QPR over time.

As discussed in the *Implications for Clinical Practice* section, actionable research that examines the use of formal measurement tools to facilitate the planning, execution, and evaluation of implementing trauma-focused innovation within rural schools could contribute novel information to the field that might propel the successful adoption and implementation of trauma-focused EBPs within school settings. Additionally, formally evaluating the use of targeted implementation strategies within school systems could promote implementation of a variety of school-based, mental health innovations, including trauma-focused care. This type of research has been initiated by several research groups (Cook, Lyon, Locke, Waltz, & Powell, in press; Lyon, Cook, Locke, Davis, Powell, & Waltz, in press). Once the results of these studies are formally published, it will be important to evaluate whether they are applicable to a rural school context.

Finally, future research should focus on the application of distant learning technologies (e.g., online webinars, televideo conference learning or coaching) to advance the availability of EBP training within rural areas (Khanna & Kendall, 2015). For example, the Medical University of South Carolina partnered with the developers of TF-CBT and NCTSN to create an online educational course (TF-CBT*Web*) that mental health professionals can complete to learn TF-

CBT. This online training has been effectively disseminated and used by mental health professionals across 130 countries, and initial studies have displayed significant increases in learners' knowledge about the treatment components of TF-CBT after completing the online training (Heck, Saunders, & Smith, 2015). While limitations of distance learning continue to require ongoing attention (e.g., difficulty evaluating clinician's actual delivery of treatment elements after completing the training), it will be essential for treatment developers to enhance the dissemination and accessibility of EBT training and certification processes for mental health professionals serving rural and/or other under resourced areas.

Research Limitations

The primary limitation of this study relate to the inability to recruit school-based clinicians who are serving rural schools that are not offering trauma-focused service, which limited the ability to examine why rural schools might make an active decision to not offer trauma-focused services to the children and families they serve. As previously described, I, as the PI, contacted numerous school-based clinicians ($N = 8$) who were working in schools that were reportedly not providing trauma-focused care, and these clinicians either did not respond to communication attempts or declined to patriciate in the study. This suggests that novel recruitment techniques need to be used to ensure the experiences and perceptions of this group of school-based clinicians is included in future research.

Another limitation of the current study includes the flexible approach used to define *trauma-focused innovation*. As previously mentioned, three-quarters of participants were not implementing a formalized or structured trauma-focused innovation within their schools. Rather, they were implementing a variety of interventions that were adapted from various treatment programs that had varying degrees of research support. The ability to qualitatively examine the

implementation of trauma-focused, evidence-based treatments and/or practices would have been a unique contribution to the literature. However, given the majority of the sample was not implementing an evidence-based, trauma-focused treatment and the current study is one of the first to evaluate the implementation of trauma-focused care using the CFIR and IOF frameworks, using a flexible understanding of trauma-focused innovations (i.e., trauma-informed intervention or service) had the capacity to provide the richest qualitative analysis of a relatively new area of research.

Finally, the current study was unable to evaluate facilitators and barriers related to the implementation of trauma-focused services across a tiered system of school-based care. Specifically, the majority of information provided by participants focused on the use of individualized intervention (i.e., Tier III supports). Only two participants provided enough information about the group-level interventions (i.e., Tier II supports) they delivered to fully grasp the facilitators and barriers they experienced when implementing these innovations. Notably, the information provided about participants' attempts to implement Tier II interventions did not significantly differ from the information provided by other participants about their delivery of Tier III supports. Finally, the participants who described using frameworks (e.g., QPR and SOS) to provide school-wide, trauma-focused services (i.e., Tier I supports) did not provided sufficient information to analyze how their implementation of Tier I supports differed from implementing either individualized or group-focused care.

Conclusion

The current study will contribute several novel pieces of information to the literature that examines the implementation of trauma-focused services in schools. To my knowledge, the current study is the only research to date that has used the CFIR and IOF to qualitatively

examine the delivery of trauma-informed innovations within *rural* school systems. The results

shed light on both barriers and *facilitators* that were perceived as influencing rural schools'

attempts to *adopt* and implement trauma-informed innovations, including information about how

these implementation determinants are uniquely impacted by a rural environment. One of the

most unique findings within the *structural characteristics* domain included the fact that one half

of participants described the "care taking" nature of rural communities as something that

facilitated the implementation of trauma-informed services. Future research might consider

whether this "care taking" nature can be used to combat the high levels of mental health stigma

that three-quarters of participants identified as a major implementation barrier. Further, the

results suggest that school-based clinicians in rural areas do not have sufficient knowledge of

trauma-focused EBPs and did not believe that their graduate programs adequately trained them

to treat trauma-related disorders within a school setting. Given the majority of participants

reported that they would be interested in and motivated to attend additional training opportunities

to expand their knowledge of trauma-focused EBPs, the current study has highlighted a need for

future research that can examine how to make trauma-focused trainings more available to rural

mental health providers.

Improving access to trauma-focused care within rural states, like Montana, is highly

dependent upon increasing the adoption, implementation, and sustainment of trauma-focused

EBPs within schools (Farmer et al., 2003). Such aims are incredibly important to promote the

overall health and success of children living in rural areas. Not only does providing trauma-

focused care within schools enhance children's academic success, but providing such services

has the capacity to improve and save lives. Indeed, a participant in the current study, who

championed the reconstruction of an entire school to prioritize the provision of mental health and

trauma treatment, declared, "People are killing themselves…the suicide rates in Montana are the highest nationally…trying to foster a culture of compassion within our school community is critical…lives literally depend on it." Trauma-focused EBPs are widely available and, as illustrated by the results of the current study, seldomly used by school-based mental health clinicians serving rural areas. Though rural school communities certainly have responsibility in their openness to explore and to adopt trauma-focused EBPs and to meet the needs of youth, treatment developers also share in this responsibility. Simply assuming an 'if you build it, they will come' mentality to developing EBPs is naïve at best, and unethical at worst. As scientist-practitioners, treatment developers have a public health responsibility to learn about and focus on the methods and techniques to properly promote and educate potential stakeholders on best practice. As described by Balas and Boren (2000), previous research has documented that it takes 17 years for EBPs to make it from the research laboratory to the people who actually benefit from the EBPs. This emphasizes the point that it is everyone's responsibility to progress toward closing this gap and making effective treatment more immediately available to children and families. Indeed, the unmet mental health needs of children and families living in rural areas highlights the demand for a continued research agenda that uses implementation science knowledge to advance the adoption and delivery of trauma-focused innovations within rural schools at every level, as such outcomes have the ability to help children remain safe, learn, and, ultimately, fulfill their greatest potential.

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Table 1

Consolidated Framework for Implementation Research

Construct	Description
I. Intervention Characteristics	
A. Intervention Source	Perception of key stakeholders about whether the intervention is externally or internally developed
B. Evidence Strength & Quality	Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the intervention will have desired outcomes
C. Relative Advantage	Stakeholders' perception of the advantage of implementing the intervention versus an alternative solution
D. Adaptability	The degree to which an intervention can be adapted, tailored, refined, or reinvented to meet local needs
E. Trialability	The ability to test the intervention on a small scale in the organization, and to be able to reverse course (undo implementation) if warranted
F. Complexity	Perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement
G. Design Quality & Packaging	Perceived excellence in how the intervention is bundled, presented, and assembled
H. Cost	Costs of the intervention and costs associated with implementing that intervention including investment, supply, and opportunity costs
II. Outer Setting	
A. Patient Needs & Resources	The extent to which patient needs, as well as barriers and facilitators to meet those needs are accurately known and prioritized by the organization
B. Cosmopolitanism	The degree to which an organization is networked with other external organizations
C. Peer Pressure	Mimetic or competitive pressure to implement an intervention; typically, because most or other key peer or competing organizations have already implemented or in a bid for a competitive edge

D. External Policy & Incentive	A broad construct that includes external strategies to spread interventions including policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting

III. Inner Setting

A. Structural Characteristics	The social architecture, age, maturity, and size of an organization
B. Networks & Communications	The nature and quality of webs of social networks and the nature and quality of formal and informal communications within an organization
C. Culture	Norms, values, and basic assumptions of a given organization
D. Implementation Climate	The absorptive capacity for change, shared receptivity of involved individuals to an intervention and the extent to which use of that intervention will be rewarded, supported, and expected within their organization
1. Tension for Change	The degree to which stakeholders perceive the current situation as intolerable or needing to change
2. Compatibility	The degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with individuals' own norms, values, and perceived risks and needs, and how the intervention fits with existing workflows and systems
3. Relative Priority	Individuals' shared perception of the importance of the implementation within the organization
4. Organizational Incentives & Rewards	Extrinsic incentives such as goal-sharing awards, performance reviews, promotions, and raises in salary and less tangible incentives such as increased stature or respect
5. Goals and Feedback	The degree to which goals are clearly communicated, acted upon, and fed back to staff and alignment of that feedback with goals
6. Learning Climate	A climate in which: a) leaders express their own fallibility and need of team members' assistance and input; b) team members feel that they are essential, valued, and knowledgeable partners in the change process; c) individuals feel psychologically safe to try new methods; and d) there is sufficient time and space for reflective thinking and evaluation
E. Readiness for Implementation	Tangible and immediate indicators of organizational commitment to its decision to implement an intervention

1.	Leadership Engagement	Commitment, involvement, and accountability of leaders and managers with the implementation
2.	Available Resources	The level of resources dedicated for implementation and on-going operations including money, training, education, physical space, and time
3.	Access to Knowledge & Information	Ease of access to digestible information and knowledge about the intervention and how to incorporate it into work tasks

IV. Characteristics of Individuals

A.	Knowledge & Beliefs About the Intervention	Individuals' attitudes toward and value placed on the intervention as well as familiarity with facts, truths, and principles related to the intervention
B.	Self-Efficacy	Individual belief in their own capabilities to execute courses of action to achieve implementation goals
C.	Individual Stage of Change	Characterization of the phase an individual is in, as he or she progresses toward skills, enthusiastic, and sustained use of the intervention
D.	Individual Identification with Organization	A broad construct related to how individuals perceive the organization and their relationship and degree of commitment with that organization
E.	Other Personal Attributes	A broad construct to include other personal traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style

V. Process

A.	Planning	The degree to which a scheme or method of behavior and tasks for implementing an intervention are developed in advance and the quality of those schemes or methods
B.	Engaging	Attracting and involving appropriate individuals in the implementation and use of the intervention through a combined strategy of social marketing, education, role modeling, training, and other similar activities
1.	Opinion Leaders	Individuals in an organization who have formal or informal influence on the attitudes and beliefs of their colleagues with respect to implementing the intervention

2. Formally Appointed Internal Implementation Leaders	Individuals from within the organization who have been formally appointed with responsibility for implementing an intervention as coordinator, project manager, term leader, or another similar role
3. Champions	"Individuals who dedicate themselves to supporting, marketing, and 'driving through' an [implementation]" [101](p. 182), overcoming indifference or resistance that the intervention may provoke in an organization
4. External Change Agents	Individuals who are affiliated with an outside entity who formally influence or facilitate intervention decisions in a desired direction
5. Key Stakeholders	Individuals from within the organization that are directly impacted by the innovation (e.g., staff responsible for making referrals to a new program or using a new work process)
6. Innovation Participants	Individuals served by the organization that participate in the innovation (e.g., patients in a prevention program in a hospital)
C. Executing	Carrying out or accomplishing the implementation according to plan
D. Reflecting & Evaluation	Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about the progress and experience

Note. From http://www.cfirguide.org/constructs.html

Table 2

Implementation Outcomes Framework

Construct	Description
Acceptability	Satisfaction with various aspects of the innovation (e.g., content, complexity, comfort, delivery, and credibility)
Adoption	Uptake; utilization; initial implementation; intention to try
Appropriateness	Perceived fit; relevance; compatibility; suitability; usefulness; practicability
Implementation Costs	Marginal cost; cost-effectiveness; cost-benefit
Feasibility	Actual fit or utility; suitability for everyday use; practicability
Fidelity	Delivered as intended; adherence; integrity; quality of program delivery
Penetration	*Level of institutionalization? Spread? Service access?*
Sustainability	Maintenance; continuation; durability; incorporation; integration; institutionalization; sustained use; routinization

Note. Adapted from "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," by Proctor, E. et al., 2011, *Administration and Policy in Mental Health and Mental Health Services Research, 38,* p. 68. Open Access.

Table 3

Participant Demographics

Demographic Variable		Frequency
Gender	Woman	10
	Man	2
Ethnicity	White	11
	Hispanic/Latino	1
Professional Role	School Psychologist	5
	School Counselor	5
	CSCT Therapist	2
Education (Degree)	School Psychology (SSP)	5
	Counselor Education (MA)	3
	Social Work (MA)	1
	School Counselor (MA)	2
	Health & Human Development (MA)	1
License	Class 6 Educator license in School Psychology	5
	LCPC/LSC	3
	In Training (Licensure Eligible)	2
	Not Licensed	2
Grade Level Served	Elementary (including Pre-K)	4
	Middle School	0
	High School	3
	Multiple Grade Levels	5
Received Trauma Training		5

Table 4

Qualitative Coding Results

Construct	Overall Results	Facilitator Results	Barrier Results	Exemplar Quotes	
Implementation Outcomes Framework (IOF)					
Acceptability	100% [a] 70 references [b]	66.67% [c] 43 references [d]	33.33% [e] 22 references [f]	F:	*"[Trauma-informed care] is best practice for every student…it can be so easily used across the board. And so, I think…it's so beneficial to offer trauma-informed practices here at school."* [g]
				B:	*"I really think it's just our, our rural environment. We just, very much of our community is like a don't ask, don't tell about mental health in general. And so, I think that it's seen as like a strength to hold that in. And it is very foreign to a lot of our students and a lot of our staff to, to talk about it openly."* [h]
Adoption	75% 13 references	58.33% 11 references	16.67% 2 references	F:	*"I think I saw that there's a need mostly , kids with PTSD or trauma or kids that have experienced trauma would end up needing to leave the classroom a lot, and academic aren't getting done."*
				B:	*"I think the biggest thing is just the attitudes…I think the whole school could shift, but that would be a big change for some of those schools. They just haven't been willing to take that next step."*
Appropriateness	100% 115 references	91.67% 78 references	8.33% 31 references	F:	*"[Providing trauma-focused care] would help increase their ability to self-regulate, increase their ability to concentrate, make decisions, all of the executive functioning, functioning necessary for learning."*
				B:	*"I don't know that [providing trauma-focused care] is always appropriate in the school setting.*

					Sometimes I think it would be much better outside [the school].”
Feasibility	75% 38 references	0% 3 references	75% 35 references	F:	*“If you're talking to somebody from another school, a public school high school for example, it would probably give you a different answer. It's apples and oranges. But we have actors in our school that made it more feasible to implement this approach and create this research and these principles into our format…we do recognize also that we have the right people that have all invested in this. We haven't had a lot of internal struggle that other buildings experience when any kind of major changes occur with curriculum or you know, culture.”*
				B:	*“I think we would need more support and more resources than we have to really take what that would require on.”*
Penetration	33.33% 7 references	25% 6 references	8.33 % 1 reference	F:	*“So our first group was last year, and now they moved up to the high school…and then we have a new group down in the middle school now that we are working with.”*
				B:	*“I just did that for fifth and sixth graders because that's the age that we lead the groups with.”*
Sustainability	8.33% 1 reference	8.33% 1 reference	0% 0 references	F:	*“It works. You know it is possible because people see it working.”*
Consolidated Framework for Implementation Research (CFIR)					
I. Intervention Characteristics					
A. Innovation Source	25% 5 references	8.33% 1 reference	16.67% 4 references	F:	*“We basically tore down the alternative department in the last seven or eight years and then rebuilt it with this new foundation, which basically was everything Karl Rogers ever said about mental health fused with contemporary trauma-informed*

					research. And we've created this environment that we have today."
				B:	*"I think [the trauma-focused intervention] struggles to fit in here and integrate successfully…a lot of that stuff is coming from the top down model where decisions are being made at the district level and they're not coming from, they're not being developed in this school with this culture. So it's hard to make those things universal for every school and every staff."*
B. Evidence Strength & Quality	50% 10 references	41.67% 9 references	8.33% 1 references	F:	*"The school is a pretty, you know, like they really like to integrate evidence-based practices and so they focus mostly on what there was more research available for them and what was kind of easiest to track data on."*
				B:	*"It's nothing like strongly evidence-based program during specific intervention. It probably just looks like a lot of talk therapy."*
C. Relative Advantage	25% 5 references	16.67% 3 references	8.33% 2 references	F:	*"So, kind of what I said earlier that trauma focused services, that we can see a reduction in anxiety and depressive symptoms just by providing trauma focused services instead of targeting those individually."*
				B:	*"Yeah, it's a PTSD like interview and questionnaire form that I've used with a couple kids. It's not very friendly for all age ranges. You kind of need a child that has some really good insight into their behavior and I wouldn't use it with someone younger than junior high probably."*
D. Adaptability	25% 7 references	25% 7 references	0% 0 references	F:	*"QPR is not 100% awesome. You know, there's a real heavy emphasis on warning signs and indicators and all that stuff that's kind of misleading, confusing information for young people. But I think*

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					it's a great start and we tweak our program locally to best serve our needs"
E. Trialability	--	--	--	--	--
F. Complexity	33.33% 5 references	8.33% 2 references	25% 3 references	F:	*"The one that ended up coming back with the best research base was the SOS program, and I mean it's incredibly affordable. The state of Montana actually, like OPI, supports it as being a great education program for both adults and for kids. It's gone over really well. It's very understandable. And so basically, basically I was like, well, of all these ones that I was given, this one is the best."*
				B:	*"Something that's difficult that requires like a licensed mental health professional to be there every single day isn't going to work at those schools."*
G. Design Quality & Packaging	25% 3 references	0% 0 references	16.67% 2 references	B:	*"I wish that there was more digital opportunity to attend some of these trainings than what I'm actually seeing."*
H. Cost	41.67% 10 references	16.67% 5 references	25% 5	F:	*"I really expected cost that we were really worried about, and our administrators were fantastic. They're like, 'No matter what it costs, we'll figure out how to pay for it. Just tell us what you guys want.'"*
				B:	*"Under the federal government there is no funding. The funding is not there. I think it's unbelievable in this day and age is that we don't have any funding to help us with mental health and trauma-informed services…there is no funding, and that's a shame."*
II. Outer Setting					
A. Needs & Resources of Those Served by the Organization	100% 159 references	100% 131 references	0% 7 references	F:	*"We have, it seems like, a very high prevalence rate…giving all kids like an ACEs Survey, a lot of them are going to be at the point where they're at risk. We have a fairly high number of lower SES*

					kiddos. We've got a unique population here in [city name]. So we might not meet the national prevalence rate; we might be in a bit higher here when looking at the kids who've been exposed to some type of trauma. So definitely there's a high need."
				B:	*"I think the biggest thing is just lack of awareness and lack of, they feel like [trauma exposure] is not something that's happening in their school."*
B. Cosmopolitanism	91.67% 92 references	75% 74 references	16.67% 17 references	F:	*"Our school district works with [consultant name], so we are able to consult with her on an as needed basis. I rely heavily on our relationship with [consultant name], which our district has a very positive one with her. I use her on a regular basis."*
				B:	*"I think it's just the culture of their communities. They are really close-knit communities. I feel like they have a tradition of solving things on their own, and they don't like to ask for help from other people. So, I think that's the biggest thing and feeling like they can handle it even when they don't know."*
C. Peer Pressure	16.67% 2 references	16.67% 2 references	0% 0 references	F:	*"Other districts around us doing something similar so it's kind of spread from there."*
D. External Policies & Incentives	66.67% 22 references	41.67% 12 references	25% 10 references	F:	*"And the way that the district offers incentive for their tiered systems, which are those systems that have trauma-informed practices within them. I would say that is probably the biggest motivator."*
				B:	*"[Trauma treatment] is something that I would like to do more of but don't get much time to do that. Just kind of where our district forces our hand in what they want us doing."*
III. Inner Setting					

				F:	*"I think that rural communities, the staff members, parents, have more of a tendency to take care of each other and they are more aware of personal struggles. And so I think it increased the recognition of trauma, like the school members, parents, they had a pretty good pulse on what kid was suffering trauma or had been in a serious accident or what have you. And so, I think it increased…recognizing trauma in children and in referrals to me."*
A. Structural Characteristics	83.33% 41 references	8.33% 10 references	75% 29 references	B:	*"Socially, being a rural isolated place in Indian country also presents some cultural challenges to foster health. There is a lot of stigma regarding mental health issues, in any community of course, but especially in Indian country. And so, young men and young women here are supposed to be tough and strong; they are supposed to be stoic. And when that's not happening, you know there's a dissonance…which exacerbates issues."*
B. Networks & Communication	100% 46 references	75% 38 references	25% 7 references	F:	*"I know that now the CSCT therapists, myself and we have a case manager through [grant name], which is a grant to address suicide and mental illness, and a few others, some attendance stuff, and so we meet weekly and talk about how we can better support and so, I think that just through starting the conversation and having people that meet and talk regularly is helping.*
				B:	*"It can be hard to find time to meet as a team and have a more of a team based approach. So that will be the hardest thing I would say is just meeting and making sure that we're providing comprehensive care across the board."*
C. Culture	91.67% 42 references	33.33% 20 references	58.33% 21 references	F:	*"If you're going to be employed at [school name] that means that you have embraced this [trauma-*

				sensitive] approach and you recognize the importance of that and recognize the urgency and how critical is this. And we will not go any other direction because this is needed."
				B: *"Some of my schools…that are in pretty rural communities, very kind of farm-based cultural norms out there. So, for some of those schools it's pretty difficult for them to think about exposure to trauma…they just tend to have more of that mentality of you just get through it. Like you don't need to talk about all of those things. You don't need to worry about that, past is the past. Let's focus on moving forward. And these behaviors just need to stop. So those schools, I think it's a little bit harder to get some of those trauma-informed decisions to be made."*
D. Implementation Climate	--	--	--	--
1. Tension for Change	66.67% 34 references	66.67% 33 references	0% 1 reference	F: *"It was so, what I want to say, in your face kind of escalated, we were able to make things happen fairly quickly…Our population of students with some of those higher needs, including trauma, have elevated a lot. And so I think that people are more aware that, 'Boy, this is really affecting my classroom. This is really affecting the students' performance.' And so, I think that it makes it possible because they're very supportive of it. They see the need and they also see that by having those supports in place at school, hopefully we're able to provide some more success for the students."*
				B: *"But I think the biggest thing is just the attitudes because I think it doesn't necessarily have to be one person implementing it. I think the whole school*

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					could shift, but that would be a big change for some of those schools. They just haven't been willing to take that next step."
2. Compatibility	91.67% 65 references	25% 23 references	58.33% 40 references	F:	*"I would say it's like the crux of my goal…reducing the negative impacts that happen at school and supporting children who are impacted by trauma in children who are feeling the effects of that is kind of central to my work, the work of mental health practitioners in the school."*
				B:	*"Just having to send them back to class…doing any trauma work and then having to have them go back to class. We also are limited in the amount of time that we can work with kids. Some CSCT therapists can only pull their kids for 30 minutes and then send them back to class. That's not a great amount of time to do real work on that."*
3. Relative Priority	100% 63 references	41.67% 33 references	58.33% 28 references	F:	*"I guess I would almost reframe that question to make it more applicable to us. I would ask more or less: how does our academic initiative fit with our trauma informed foundation? So, in defending that question that's my answer, I mean everything works backwards to that foundation. You know rather than vice versa."*
				B:	*"But I do think that trauma kind of gets pushed down because of things like anxiety and depression, especially depression and suicidal ideation. I think those are more of a priority for schools because, it sounds really terrible, but that's what gets them into lawsuits. And that's what gets them in trouble is when those kids haven't been identified, and I think that trauma can be much more silent than some of the other mental health difficulties in schools."*

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4. Organizational Incentives & Rewards	8.33% 1 reference	8.33% 1 reference	0% 0 references	F:	*"The buy-ins from the administration [are helpful]—existing policies that promote that every student can learn and succeed here."*
5. Goals & Feedback	25% 10 references	16.67% 8 references	8.33% 2 references	F:	*"So, our thoughts or our school-wide cultural, yeah, everybody is required to show consistent positive regard. Of course, we need to all contribute to providing more or less a sanctuary that is conducive to learning or healing or whatever goals we got. But everybody is required to do their part: be patient, passionate, you know it requires a good heart….and everybody is required to do that."*
				B:	*"A clashing of priorities sometimes with teachers to mental health professionals…I mean as much as teachers can be willing and engaged and ready to do some of that stuff, they also have a different training, and a different background, and a different, I mean, I guess a similar end goal, but they just have a different way of looking at that. And so that can be difficult."*
6. Learning Climate	--	--	--	--	
E. Readiness for Implementation	--	--	--	--	
1. Leadership Engagement	100% 39 references	75% 29 references	25% 7 references	F:	*"Well, it makes it possible because we have a very supportive administration and a supportive board of trustees and supportive staff realizing that mental health issues are at the forefront of academic success."*
				B:	*"I think attitudes within those schools and communities are a big part of it. Some of my schools, one in particular, really just wants to focus on kind of talking about all of the good things that are going on in the school and they don't want to talk about mental health. So, one example is we're*

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					trying to get a therapist up there just to serve like two times a week. And the administrator told that funding source, because it wasn't going to cost the school any money, that they had no mental health issues so they wouldn't need a therapist to work up there—even though they absolutely have mental health issues. So that's one pretty good example of that rural school mentality.”
2. Available Resources	100% 69 references	16.67% 12 references	83.33% 56 references	F:	*“And funding is a huge reason why there's not more. So not every school has a school counselor, or they may have a school counselor, but they don't have time in their schedule to work directly with students. So, time, money, I think some of it is a lack of awareness. So not really seeing what the, why they should spend money in that area.”*
				B:	*“I think a big part of it is funding and availability of staff. So, a lot of those schools have a hard time even getting teachers to work there. Sometimes they have a hard time coming up with the funding that would be needed in order to hire mental health staff. So, there is funding.”*
3. Access to Knowledge & Information	100% 128 references	16.67% 77 references	83.33% 51 references	F:	*“We belong to a cooperative, and that cooperative has access to a psychologist. So if we want, if we need support or have questions to ask or say, ‘What are the interventions that we need here for trauma-informed care?’ or, “What are some of the risk factors?’...they're there to help us.”*
				B:	*“I actually find that being in a rural community really limits what I'm able to do and the way that I'm able to grow as a mental health professional. I feel like if I lived in [larger city name] or even maybe another state where those things are more prevalent*

					and more available, it'd be much easier to attend some of these more advanced trainings.”

IV. Characteristics of Individuals					
A. Knowledge & Beliefs about the Innovation	100% 117 references	83.33% 83 references	16.67% 25 references	F:	*“[My graduate training] taught that if students have something like PTSD than a lot of the time they're preoccupied with these thoughts of something that had happened, some sort of trauma in their life and that can really distract them and caused them not only to not be able to focus in school.”*
				B:	*“We've covered some [trauma-focused topics] through grad school and some like cognitive behavioral stuff, but nothing real extensive. So, when it comes to treating a student like that, generally I'm going to feel more comfortable if I can get them with somebody that I think is going to be better suited to help them out.”*
B. Self-Efficacy	75% 23 references	0% 0 references	75% 23 references	B:	*“I think a lot of school psychologists in particular that work in the school setting, the majority of them probably aren't really confident in their skills and intervening on trauma, like children that have been dealing with the trauma experience.”*
C. Individual Stage of Change	91.67% 22 references	91.67% 22 references	0% 0 references	F:	*“Anytime that there's something offered, I seek out because I just feel like I can always do better.”*
D. Individual Identification with Organization	100% 34 references	66.67% 23 references	33.33% 11 references	F:	*“I think the benefits of [a rural school] are…that all hands are on deck. I can go to a school psych, I can go to a special ed teacher and would feel support and vice versa.”*
				B:	*“That school is so close knit and they're very against anyone else kind of inserting their judgment. I've had to kind of hold back a little bit and work more on relationship building with the hopes that in the future that could be a role that I could consult with them and hopefully help them make different*

					decisions then they've made in the past. But I've been there for two years now and feel like at least they're coming in and asking me questions, but I don't feel like I'm in a role yet where they would come to me to make big decisions."
E. Other Personal Attributes	66.67% 26 references	66.67% 26 references	0% 0 references	F:	*"The staff that is willing to work kind of beyond their scheduled time and outside of their time that is available for meetings to really help address different ways that they can integrate that into their classroom and into the school community and culture."*
V. Process					
A. Planning	33.33% 9 references	16.67% 5 references	16.67% 4 references	F:	*"We made a list to come up with core beliefs, like a mission so to speak. So, we identified what we wanted to do and some of the things we wanted to accomplish and tried it out. That working list fuels the make-up of our school."*
				B:	*"I think that's all kind of happening now in the planning stage, but it's still just kind of tough…like, 'Hey, this needs to happen right now.' But it's kind of like, 'Whoa pump the brakes. We're still kind of in the planning strategic type of thinking of how we are going to do this, how is this is going to lay out.' So, it's kind of happening almost like a shotgun approach, get out there and hopefully we hit a couple of targets and then come back and try again."*
B. Engaging	25% 3 references	8.33% 1 references	16.67% 2 references	F:	*"If something happens and the building feels out of balance, we get together and figure out what's going to put it back into balance…students have a voice in that and families have a voice in that."*
				B:	*"Just that relationship building. In those small schools, that's a huge part of anything changing, is*

				feeling like the people that are recommending changes have spent time building relationships with them. And just given my schedule, I just don't have that time.”
1. Opinion Leaders	--	--	--	--
2. Formally Appointed Internal Implementation Leaders	25% 3 references	16.67% 2 references	8.33% 1 references	F: *“I was sort of tasked with the research portion of it and then given many, many interventions that principals had heard about or other counselors had heard about. The one that ended up coming back with the best research base was the SOS program.”* B: *“Our district has really relied on some of these folks to be the mental health expert and it's been tough from my perspective because none of them, when they were hired for that job, had any mental health experience but they were asked because the grant required those things would be picked up on. So our district actually relied on them really heavily. And so, it's kind of taken away my ability, my role to expand into being a part of the, you know, mental health and trauma care into our schools.”*
3. Champions	33.33% 7 references	33.33% 7 references	0% 0 references	F: *“I am more or less the keeper of the flame so to speak. I say this with humility, but I worked really hard for a long time on this stuff. So yeah, this is an initiative that I more or less spear head but there is tons of support and tons of buy in from everybody in the district so.”*
4. External Change Agents	41.67% 10 references	41.67% 10 references	0% 0 references	F: *“We had this consultant come in…that was part of that project [grant name] that we have here. And so I think that opened a lot of people's eyes and we're going to go, ‘There's something to look into here.’ I think we're kind of in an enlightened phase of things of getting some systems changed.”*

5. Key Stakeholders	91.67% 26 references	58.33% 16 references	33.33% 7 references	F:	*"Oh, our staff really supports it. They were very much behind it because they were realizing that academic performance was just really suffering because of mental health needs, you know, and they weren't being addressed. And so, I think that the staff really supported it, the administration supported it, the school board supported it. I don't think there was any people who didn't support bringing in those kinds of services."*
				B:	*"What I do know is the mental health [professionals] within the schools weren't really consulted. That's been tough to swallow myself, supposedly being a mental health expert. I'm not really viewed as a mental health expert in the eyes of a lot of our administrators or school board. So, a lot of this, since I've been here going on my fifth year, it's been a lot of advocacy of what a school psych is, like, 'Hey, these are the things that I can be doing. I'm interested in being part of these things.' But it just doesn't ever really come to fruition to where I'm really brought to the table. Nor are some of our school counselors, counselors that I think we would definitely want to be part…but they're not always brought into… committees that are looking to provide services."*
6. Innovation Participants	100% 139 references	58.33% 87 references	41.67% 48 references	F:	*"Usually [posttraumatic stress symptoms] will lead to behaviors in the classroom or issues following directions and keeping up with their peers in the regular education setting, and then a teacher will refer either directly to the mental health service or they'll refer to our student intervention team depending on the severity of each individual case."*

				B:	*"Well it's not the stigma in schools, but it's also in families…in the whole idea of, 'We're going to bring our dirty laundry to school,' and they don't want to do that. So, I think that that's a barrier, a challenge because parents would rather, they don't want any of that stuff coming out, you know? And so, rather than face it and help get their kids some help, they would rather bury it. So, I think that that happens a lot here."*
C. Executing	25% 3 references	25% 3 references	0% 0 references	F:	*"I think that the teachers are great. They are utilizing some things that, like I know there's some teachers that are planking with their kids, some teachers that are doing yoga. Some teachers are recognizing some early warning signs and allowing those kids to have some mind breaks or allowing them some help."*
D. Reflecting & Evaluating	8.33% 1 reference	8.33% 1 reference	0% 0 references	F:	*"But then there's also my class and that talks about a sense of belonging in the class setting and they kind of rate their teacher and what they feel needs to be changed. And so that's super helpful too."*

[a] Percent of participants who provided at least one quote that was coded under the identified construct

[b] Number of total quotes across all participants that were coded under the identified construct

[c] Percent of participants who primarily described the identified construct as an adoption/implementation facilitator

[d] Number of total quotes across all participants that described the identified construct as an adoption/implementation facilitator

[e] Percent of participants who primarily described the identified construct as an adoption/implementation barrier

[f] Number of total quotes across all participants that described the identified construct as an adoption/implementation barrier

[g] F = Facilitator

[h] B = Barrier

Appendix A

Demographics Questionnaire

1. What is your current age in years?_____

2. How would you define your gender?
   - ☐ Women
   - ☐ Man
   - ☐ Transgender
   - ☐ Gender neutral
   - ☐ Option not listed: Please describe_____

3. What is your ethnic or racial group? (check all that apply*)*
   - ☐ American Indian/Alaska Native
   - ☐ Asian
   - ☐ Native Hawaiian or Other Pacific Islander
   - ☐ Black or African American
   - ☐ Hispanic or Latino
   - ☐ White, non-Hispanic or Latino
   - ☐ Option not listed: Please describe_____

4. At which school do you work?_____

5. What is your professional title in the school?_____

6. With what age group of children do you work (check all that apply)?
   - ☐ Pre-Kindergarten
   - ☐ Elementary School
   - ☐ Middle School
   - ☐ High School

7. How long have you served as a mental health clinician within a public school setting (in years and months)? Include total number of years serving as a school-based mental health clinician regardless of employer. _____

8. Please describe your education. Check all that apply and list the focus of the degree.
   - ☐ Associate's Degree (2 years) in_____
   - ☐ Bachelor's Degree (4 years) in_____
   - ☐ Master's Degree in_____
   - ☐ Doctoral Degree in_____
   - ☐ Professional Degree (MD/JD) in_____

9. If you are licensed, what type of license do you hold?_____

10. What is your primary theoretical orientation?

□ Behavioral
□ Integrative
□ Eclectic
□ Biological/Medication
□ Interpersonal
□ Systems
□ Cognitive Behavioral
□ Psychodynamic/Psychoanalysis
□ Option not listed: Please describe_____

11. Please describe any specialized training you have received in mental health interventions.

_____

_____

_____

12. Please describe any specialized training you have received in childhood trauma or trauma-focused treatment.

_____

_____

_____

_____

Appendix B

Semi-Structured Interview Protocol

Thank you for making some time to speak with me about the mental health services provided within your school. This interview will take about 45-60 minutes. I will be asking you different questions to learn more about how your school identifies and serves children who have experienced some form of adversity or trauma. The information I gather from this interview will help to inform future implementation of trauma-focused interventions within school systems.

All information shared today will be kept confidential. That is, your name will not be linked with the data I share with the school or through publications and presentations. Participation in this interview is voluntary, and your employment will not be affected by your choice to participate or not. In order to make an accurate record of what is said, I will be audiotaping the interview. This recording will only be used to ensure I correctly capture what you are telling me and will be destroyed when the research is done. There are no right or wrong answers to the questions that I will ask you; the important thing is that you share your honest thoughts and opinions.

Do you have any questions about how we will be spending the next 45-60 minutes?

Professional Background Questions:
1. What types of mental health services do you provide within your school (e.g., individual or group psychological treatment, behavioral or academic intervention, assessment services)?
a. Approximately what percentage of your time do you spend providing each of the services you listed?
Trauma Training Questions:

2. What did your training program teach you about child and adolescent trauma?
     a. What have you been taught about the prevalence (or pervasiveness) of trauma exposure in children?
     b. What have you been taught about how symptoms of posttraumatic stress influence children's behavior and/or academic performance?

3. As a school-based clinician, what is your role in addressing child trauma?

4. Have you received training in any interventions designed to treat trauma-related difficulties?
 [If yes:]
     a. What training have you received?
     b. How did you get involved in the trainings (e.g., volunteered, told you had to go)?
     c. Is ongoing training or consultation available? From whom?
 [If no:]
     a. Have trainings been made available to you?
     b. If so, why did you decide to not participate?
     c. If not, have you attempted to access trainings about trauma either online or in person? Why or why not?

5. Can you identify any [other] interventions designed to treat symptoms of posttraumatic stress?
6. What might you like to learn in the future about trauma and treatment of posttraumatic stress?

Trauma Intervention Adoption Questions:

7. Do you approve of implementing trauma-focused interventions within your school (e.g., TF-CBT, CBITS, ARC)? Why or why not?   a. Is providing trauma-focused services appealing to you?
8. Does it seem fitting or suitable to implement trauma-focused interventions within your school? Why or why not?   a. How would implementing trauma-focused interventions within your school seem applicable to the needs of your students?
9. How does providing trauma-focused services fit with your values and/or goals as a school-based clinician?
10. How does providing trauma-focused services fit with the norms and/or culture of your school?

11. Does your school provide trauma-focused services, or have they attempted to provide them in the past?
    a. [If yes: use Section 1]
    b. [If no: use Section 2]

12. What might you like to learn in the future about trauma and treatment of posttraumatic stress?

Section 1

If YES—the school provides trauma-focused services or has done so in the past—use this portion of the interview protocol.

Questions that are highlighted in grey are optional and should only be used to gather additional information as needed.

13. What trauma-focused services does your school provide?
    a. At Tier 1 (school-wide interventions)?
    b. At Tier 2 (group-level interventions)?
    c. At Tier 3 (individual interventions)?

14. Why did your school decide to offer trauma-focused services to students?
    a. What type of information was important when making a decision to offer trauma-focused supports?
    b. What factors motivated you or your school to start offering trauma-focused services?
    c. Who were the key individuals in your school that rallied to support providing trauma-focused services?

15. How did your school decide which trauma-focused intervention(s) to implement?
    a. Who was involved in the decision?
    b. To what extent was implementing the intervention supported by school administrators or supervisors? By school personnel?

	c. Who was consulted (inside or outside of the school) before a decision was made?
	d. What type of information was considered when making the decision to adopt a specific trauma-focused intervention?
16.	How were school personnel engaged in implementation efforts (e.g., asked for volunteers, mandated to participate)?
17.	Compared to other educational programs in mental health and behavioral support, what was unique or different about deciding to offer trauma-focused services within your school?

Trauma Intervention Implementation Questions:

18.	How does your school identify children who are experiencing posttraumatic stress symptoms or difficulties related to trauma-exposure?
	a. Compared to other forms of mental health services in schools (e.g., depression, anxiety, behavior), what is unique or different about identifying children to participate in trauma-focused services?
	b. What is unique or different about completing a trauma assessment with children in a school setting?
19.	How does the availability of time and resources impact your ability to implement trauma-focused services within your school?
	a. Compared to other forms of mental health services in schools (e.g., depression, anxiety, behavior), what is unique or different about availability of time and resources when providing trauma-focused services?
20.	How does the availability and/or quality of training impact your ability to provide trauma-focused services within your school?
	a. Compared to other forms of mental health services in schools (e.g., depression, anxiety, behavior), what is unique or different about how the availability and/or quality of trauma-focused training impacted your implementation of trauma-focused services?
21.	How does the availability and/or quality of ongoing consultation impact your ability to provide trauma-focused services within your school?
	a. Compared to other forms of mental health services in schools (e.g., depression, anxiety, behavior), what is unique or different about how the availability and/or quality of ongoing consultation impacted your implementation of trauma-focused services?
22.	What efforts do you make to engage parents and/or other caregivers in the trauma-focused services that you provide within your school? How did that go?
	a. Compared to other forms of mental health services in schools (e.g., depression, anxiety, behavior), what is unique or different about attempting to engage caregivers in trauma-focused services?
23.	Other than what we have already discussed, what made it possible for you to provide trauma-focused supports within your school? What made it difficult for you to provide trauma-focused services within your school?
24.	What were the benefits or challenges associated with attempting to provide trauma-focused services within a *rural school* (e.g., limited resources, stigma, reduced anonymity of service usage)?

Section 2

If NO—the school does not provide trauma-focused services and has not done so in the past—use this portion of the interview protocol.

Questions that are highlighted in grey are optional and should only be used to gather additional information as needed.

12. Why is your school not offering trauma-focused supports?
   a. What has been considered about the possibility of making trauma-focused supports available at your school?
   b. Was an active decision made to not offer trauma-supports?
   c. What type of information was important when making a decision to not offer trauma-focused supports?
   d. What factors made you or your school decide to not offer trauma-focused services?

13. What would indicate a need to deliver trauma-focused interventions in your school?
   a. What types of services do you think would best meet the needs of your students?

14. If you or your school wanted to offer trauma-focused services, how would you or the school go about making a formal decision to offer trauma-focused services to students?
   a. Who would be involved in the decision?
   b. Would anyone inside or outside the school be consulted before a decision was made?
   c. What types of information would be important when making a decision to offer trauma-focused services?

15. How would you or your school decide which trauma-focused interventions to implement?
   a. Who would be involved in the decision?
   b. Who would you consult (inside or outside of the school) before a decision was made?
   c. What types of information would be considered when making a decision about which specific trauma-focused intervention would be adopted?

16. What would make it possible for you to implement a trauma-focused intervention within your school?

17. What would make it difficult or prevent you from being able to implement a trauma-focused intervention within your school?

18. What would motivate you to implement trauma-focused interventions within your school?

Ending of Interview Script:
Thank you again for taking the time to participate in this important research. As you know, you will receive a $20 Amazon e-gift card as a thank you for completing this interview. I will send the e-gift card to the email address you provided in the online survey, unless you would like me to send it to a different email address?

Additionally, do you know any other school-based mental health clinicians who would be interested in and willing to participate in this research study?

Do you have any questions for me before we end?

Thank you.

Appendix C

Qualitative Coding Manual

CFIR CODING INSTRUCTIONS

I. Innovation Characteristics	
A. Innovation Source	<u>Definition</u>: Perception of key stakeholders about whether the innovation is externally or internally developed. <u>Inclusion Criteria</u>: Include statements about the source of the innovation and the extent to which interviewees view the change as internal to the organization, e.g., an internally developed program, or external to the organization, e.g., a program coming from the outside. Note: May code and rate as "I" for internal or "E" for external. <u>Exclusion Criteria</u>: Exclude or double code statements related to who participated in the decision process to implement the innovation to Engaging, as an indication of early (or late) engagement. Participation in decision-making is an effective engagement strategy to help people feel ownership of the innovation.
B. Evidence Strength & Quality	<u>Definition</u>: Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the innovation will have desired outcomes. <u>Inclusion Criteria</u>: Include statements regarding awareness of evidence and the strength and quality of evidence, as well as the absence of evidence or a desire for different types of evidence, such as pilot results instead of evidence from the literature. <u>Exclusion Criteria</u>: Exclude or double code statements regarding the receipt of evidence as an engagement strategy to Engaging: Key Stakeholders. Exclude or double code descriptions of use of results from local or regional pilots to Trialability.
C. Relative Advantage	<u>Definition</u>: Stakeholders' perception of the advantage of implementing the innovation versus an alternative solution. <u>Inclusion Criteria</u>: Include statements that demonstrate the innovation is better (or worse) than existing programs. <u>Exclusion Criteria</u>: Exclude statements that demonstrate a strong need for the innovation and/or that the current situation is untenable and code to Tension for Change.
D. Adaptability	<u>Definition</u>: The degree to which an innovation can be adapted, tailored, refined, or reinvented to meet local needs. <u>Inclusion Criteria</u>: Include statements regarding the (in)ability to adapt the innovation to their context, e.g., complaints about the

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	rigidity of the protocol. Suggestions for improvement can be captured in this code but should not be included in the rating process, unless it is clear that the participant feels the change is needed but that the program cannot be adapted. However, it may be possible to infer that a large number of suggestions for improvement demonstrate lack of compatibility, see exclusion criteria below. Exclusion Criteria: Exclude or double code statements that the innovation did or did not need to be adapted to Compatibility.
E. Trialability	Definition: The ability to test the innovation on a small scale in the organization, and to be able to reverse course (undo implementation) if warranted. Inclusion Criteria: Include statements related to whether the site piloted the innovation in the past or has plans to in the future, and comments about whether they believe it is (im)possible to conduct a pilot. Exclusion Criteria: Exclude or double code descriptions of use of results from local or regional pilots to Evidence Strength & Quality.
F. Complexity	Definition: Perceived difficulty of the innovation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement. Inclusion Criteria: Code statements regarding the complexity of the innovation itself. Exclusion Criteria: Exclude statements regarding the complexity of implementation and code to the appropriate CFIR code, e.g., difficulties related to space are coded to Available Resources and difficulties related to engaging participants in a new program are coded to Engaging: Innovation Participants.
G. Design Quality & Packaging	Definition: Perceived excellence in how the innovation is bundled, presented, and assembled. Inclusion Criteria: Include statements regarding the quality of the materials and packaging. Exclusion Criteria: Exclude statements regarding the presence or absence of materials and code to Available Resources. Exclude statements regarding the receipt of materials as an engagement strategy and code to Engaging.
H. Cost	Definition: Costs of the innovation and costs associated with implementing the innovation including investment, supply, and opportunity costs.

	Inclusion Criteria: Include statements related to the cost of the innovation and its implementation. Exclusion Criteria: Exclude statements related to physical space and time, and code to Available Resources. In a research study, exclude statements related to costs of conducting the research components (e.g., funding for research staff, participant incentives).
II. Outer Setting	
A. Needs & Resources of Those Served by the Organization	Definition: The extent to which the needs of those served by the organization (e.g., patients), as well as barriers and facilitators to meet those needs, are accurately known and prioritized by the organization. Inclusion Criteria: Include statements demonstrating (lack of) awareness of the needs and resources of those served by the organization. Analysts may be able to infer the level of awareness based on statements about: 1. Perceived need for the innovation based on the needs of those served by the organization and if the innovation will meet those needs; 2. Barriers and facilitators of those served by the organization to participating in the innovation; 3. Participant feedback on the innovation, i.e., satisfaction and success in a program. In addition, include statements that capture whether or not awareness of the needs and resources of those served by the organization influenced the implementation or adaptation of the innovation. Exclusion Criteria: Exclude statements that demonstrate a strong need for the innovation and/or that the current situation is untenable and code to Tension for Change. Exclude statements related to engagement strategies and outcomes, e.g., how innovation participants became engaged with the innovation, and code to Engaging: Innovation Participants.
B. Cosmopolitanism	Definition: The degree to which an organization is networked with other external organizations. Inclusion Criteria: Include descriptions of outside group memberships and networking done outside the organization. Exclusion Criteria: Exclude statements about general networking, communication, and relationships in the organization, such as descriptions of meetings, email groups, or other methods of keeping people connected and informed, and statements related to team formation, quality, and functioning, and code to Networks & Communications.

C. Peer Pressure	Definition: Mimetic or competitive pressure to implement an innovation, typically because most or other key peer or competing organizations have already implemented or are in a bid for a competitive edge.
	Inclusion Criteria: Include statements about perceived pressure or motivation from other entities or organizations in the local geographic area or system to implement the innovation.
	Exclusion Criteria:
D. External Policy & Incentives	Definition: A broad construct that includes external strategies to spread innovations including policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting.
	Inclusion Criteria: Include descriptions of external performance measures from the system.
	Exclusion Criteria:
III. Inner Setting	
A. Structural Characteristics	Definition: The social architecture, age, maturity, and size of an organization.
	Inclusion Criteria:
	Exclusion Criteria:
B. Networks & Communications	Definition: The nature and quality of webs of social networks, and the nature and quality of formal and informal communications within an organization.
	Inclusion Criteria: Include statements about general networking, communication, and relationships in the organization, such as descriptions of meetings, email groups, or other methods of keeping people connected and informed, and statements related to team formation, quality, and functioning.
	Exclusion Criteria: Exclude statements related to implementation leaders' and users' access to knowledge and information regarding using the program, i.e., training on the mechanics of the program and code to Access to Knowledge & Information.
	Exclude statements related to engagement strategies and outcomes, e.g., how key stakeholders became engaged with the innovation and what their role is in implementation, and code to Engaging: Key Stakeholders.
	Exclude descriptions of outside group memberships and networking done outside the organization and code to Cosmopolitanism.

C. Culture	Definition: Norms, values, and basic assumptions of a given organization. Inclusion Criteria: Inclusion criteria, and potential sub-codes, will depend on the framework or definition used for "culture." For example, if using the Competing Values Framework (CVF), you may include four sub-codes related to the four dimensions of the CVF and code statements regarding one or more of the four dimensions in an organization. Exclusion Criteria:
D. Implementation Climate	Definition: The absorptive capacity for change, shared receptivity of involved individuals to an innovation, and the extent to which use of that innovation will be rewarded, supported, and expected within their organization. Inclusion Criteria: Include statements regarding the general level of receptivity to implementing the innovation. Exclusion Criteria: Exclude statements regarding the general level of receptivity that are captured in the sub-codes.
1. Tension for Change	Definition: The degree to which stakeholders perceive the current situation as intolerable or needing change. Inclusion Criteria: Include statements that (do not) demonstrate a strong need for the innovation and/or that the current situation is untenable, e.g., statements that the innovation is absolutely necessary or that the innovation is redundant with other programs. Note: If a participant states that the innovation is redundant with a preferred existing program, (double) code lack of Relative Advantage, see exclusion criteria below. Exclusion Criteria: Exclude statements regarding specific needs of individuals that demonstrate a need for the innovation, but do not necessarily represent a strong need or an untenable status quo, and code to Needs and Resources of Those Served by the Organization. Exclude statements that demonstrate the innovation is better (or worse) than existing programs and code to Relative Advantage.
2. Compatibility	Definition: The degree of tangible fit between meaning and values attached to the innovation by involved individuals, how those align with individuals' own norms, values, and perceived risks and needs, and how the innovation fits with existing workflows and systems. Inclusion Criteria: Include statements that demonstrate the level of compatibility the innovation has with organizational values and work processes. Include statements that the innovation did or did not need to be adapted as evidence of compatibility or lack of compatibility.

	Exclusion Criteria: Exclude or double code statements regarding the priority of the innovation based on compatibility with organizational values to Relative Priority, e.g., if an innovation is not prioritized because it is not compatible with organizational values.
3. Relative Priority	Definition: Individuals' shared perception of the importance of the implementation within the organization. Inclusion Criteria: Include statements that reflect the relative priority of the innovation, e.g., statements related to change fatigue in the organization due to implementation of many other programs. Exclusion Criteria: Exclude or double code statements regarding the priority of the innovation based on compatibility with organizational values to Compatibility, e.g., if an innovation is not prioritized because it is not compatible with organizational values.
4. Organizational Incentives & Rewards	Definition: Extrinsic incentives such as goal-sharing, awards, performance reviews, promotions, and raises in salary, and less tangible incentives such as increased stature or respect. Inclusion Criteria: Include statements related to whether organizational incentive systems are in place to foster (or hinder) implementation, e.g., rewards or disincentives for staff engaging in the innovation. Exclusion Criteria:
5. Goals & Feedback	Definition: The degree to which goals are clearly communicated, acted upon, and fed back to staff, and alignment of that feedback with goals. Inclusion Criteria: Include statements related to the (lack of) alignment of implementation and innovation goals with larger organizational goals, as well as feedback to staff regarding those goals, e.g., regular audit and feedback showing any gaps between the current organizational status and the goal. Goals and Feedback include organizational processes and supporting structures independent of the implementation process. Evidence of the integration of evaluation components used as part of "Reflecting and Evaluating" into **on-going or sustained** organizational structures and processes may be (double) coded to Goals and Feedback. Exclusion Criteria: Exclude statements that refer to the implementation team's (lack of) assessment of the progress toward and impact of implementation, as well as the interpretation of outcomes related to implementation, and code to Reflecting & Evaluating. Reflecting and Evaluating is part of the implementation process; it likely ends when implementation activities end. It does not

	require goals be explicitly articulated; it can focus on descriptions of the current state with real-time judgment, though there may be an implied goal (e.g., we need to implement the innovation) when the implementation team discusses feedback in terms of adjustments needed to complete implementation.
6. Learning Climate	<u>Definition</u>: A climate in which: 1. Leaders express their own fallibility and need for team members' assistance and input; 2. Team members feel that they are essential, valued, and knowledgeable partners in the change process; 3. Individuals feel psychologically safe to try new methods; and 4. There is sufficient time and space for reflective thinking and evaluation. <u>Inclusion Criteria</u>: Include statements that support (or refute) the degree to which key components of an organization exhibit a "learning climate." <u>Exclusion Criteria</u>:
E. Readiness for Implementation	<u>Definition</u>: Tangible and immediate indicators of organizational commitment to its decision to implement an innovation. <u>Inclusion Criteria</u>: Include statements regarding the general level of readiness for implementation. <u>Exclusion Criteria</u>: Exclude statements regarding the general level of readiness for implementation that are captured in the sub-codes.
1. Leadership Engagement	<u>Definition</u>: Commitment, involvement, and accountability of leaders and managers with the implementation of the innovation. <u>Inclusion Criteria</u>: Include statements regarding the level of engagement of organizational leadership. <u>Exclusion Criteria</u>: Exclude or double code statements regarding leadership engagement to Engaging: Formally Appointed Internal Implementation Leaders or Champions *if* an organizational leader is also an implementation leader, e.g., if a director of primary care takes the lead in implementing a new treatment guideline. Note that a key characteristic of this Implementation Leader/Champion is that s/he is also an Organizational Leader.
2. Available Resources	<u>Definition</u>: The level of resources organizational dedicated for implementation and on-going operations including physical space and time. <u>Inclusion Criteria</u>: Include statements related to the presence or absence of resources specific to the innovation that is being implemented.

	Exclusion Criteria: Exclude statements related to training and education and code to Access to Knowledge & Information. Exclude statements related to the quality of materials and code to Design Quality & Packaging. In a research study, exclude statements related to resources needed for conducting the research components (e.g., time to complete research tasks, such as IRB applications, consenting patients).
3. Access to Knowledge & Information	Definition: Ease of access to digestible information and knowledge about the innovation and how to incorporate it into work tasks. Inclusion Criteria: Include statements related to implementation leaders' and users' access to knowledge and information regarding use of the program, i.e., training on the mechanics of the program. Exclusion Criteria: Exclude statements related to engagement strategies and outcomes, e.g., how key stakeholders became engaged with the innovation and what their role is in implementation, and code to Engaging: Key Stakeholders. Exclude statements about general networking, communication, and relationships in the organization, such as descriptions of meetings, email groups, or other methods of keeping people connected and informed, and statements related to team formation, quality, and functioning, and code to Networks & Communications.
IV. Characteristics of Individuals	
A. Knowledge & Beliefs about the Innovation	Definition: Individuals' attitudes toward and value placed on the innovation, as well as familiarity with facts, truths, and principles related to the innovation. Inclusion Criteria: Exclusion Criteria: Exclude statements related to familiarity with evidence about the innovation and code to Evidence Strength & Quality.
B. Self-efficacy	Definition: Individual belief in their own capabilities to execute courses of action to achieve implementation goals. Inclusion Criteria: Exclusion Criteria:
C. Individual Stage of Change	Definition: Characterization of the phase an individual is in, as s/he progresses toward skilled, enthusiastic, and sustained use of the innovation. Inclusion Criteria: Exclusion Criteria:

D. Individual Identification with Organization	Definition: A broad construct related to how individuals perceive the organization, and their relationship and degree of commitment with that organization. Inclusion Criteria: Exclusion Criteria:
E. Other Personal Attributes	Definition: A broad construct to include other personal traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style. Inclusion Criteria: Exclusion Criteria:
V. Process	
A. Planning	Definition: The degree to which a scheme or method of behavior and tasks for implementing an innovation are developed in advance, and the quality of those schemes or methods. Inclusion Criteria: Include evidence of pre-implementation diagnostic assessments and planning, as well as refinements to the plan. Exclusion Criteria:
B. Engaging	Definition: Attracting and involving appropriate individuals in the implementation and use of the innovation through a combined strategy of social marketing, education, role modeling, training, and other similar activities. Inclusion Criteria: Include statements related to engagement strategies and outcomes, i.e., if and how staff and innovation participants became engaged with the innovation and what their role is in implementation. Note: Although both strategies and outcomes are coded here, the outcome of engagement efforts determines the rating, i.e., if there are repeated attempts to engage staff that are unsuccessful, or if a role is vacant, the construct receives a negative rating. In addition, you may also want to code the "quality" of staff - their capabilities, motivation, and skills, i.e., how good they are at their job, and this data affects the rating as well. Exclusion Criteria: Exclude statements related to specific sub constructs, e.g., Champions or Opinion Leaders. Exclude or double code statements related to who participated in the decision process to implement the innovation to Innovation Source, as an indicator of internal or external innovation source.

1. Opinion Leaders	Definition: Individuals in an organization that have formal or informal influence on the attitudes and beliefs of their colleagues with respect to implementing the innovation. Inclusion Criteria: Include statements related to engagement strategies and outcomes, e.g., how the opinion leader became engaged with the innovation and what their role is in implementation. Note: Although both strategies and outcomes are coded here, the outcome of efforts to engage staff determines the rating, i.e., if there are repeated attempts to engage an opinion leader that are unsuccessful, or if the opinion leader leaves the organization and this role is vacant, the construct receives a negative rating. In addition, you may also want to code the "quality" of the opinion leader here - their capabilities, motivation, and skills, i.e., how good they are at their job, and this data affects the rating as well. Exclusion Criteria:
2. Formally Appointed Internal Implementation Leaders	Definition: Individuals from within the organization who have been formally appointed with responsibility for implementing an innovation as coordinator, project manager, team leader, or other similar role. Inclusion Criteria: Include statements related to engagement strategies and outcomes, e.g., how the formally appointed internal implementation leader became engaged with the innovation and what their role is in implementation. Note: Although both strategies and outcomes are coded here, the outcome of efforts to engage staff determines the rating, i.e., if there are repeated attempts to engage an implementation leader that are unsuccessful, or if the implementation leader leaves the organization and this role is vacant, the construct receives a negative rating. In addition, you may also want to code the "quality" of the implementation leader here - their capabilities, motivation, and skills, i.e., how good they are at their job, and this data affects the rating as well. Exclusion Criteria: Exclude or double code statements regarding leadership engagement to Leadership Engagement *if* an implementation leader is also an organizational leader, e.g., if a director of primary care takes the lead in implementing a new treatment guideline.
3. Champions	Definition: "Individuals who dedicate themselves to supporting, marketing, and 'driving through' an [implementation]", overcoming indifference or resistance that the innovation may provoke in an organization.

	Inclusion Criteria: Include statements related to engagement strategies and outcomes, e.g., how the champion became engaged with the innovation and what their role is in implementation. Note: Although both strategies and outcomes are coded here, the outcome of efforts to engage staff determines the rating, i.e., if there are repeated attempts to engage a champion that are unsuccessful, or if the champion leaves the organization and this role is vacant, the construct receives a negative rating. In addition, you may also want to code the "quality" of the champion here - their capabilities, motivation, and skills, i.e., how good they are at their job, and this data affects the rating as well. Exclusion Criteria: Exclude or double code statements regarding leadership engagement to Leadership Engagement *if* a champion is also an organizational leader, e.g., if a director of primary care takes the lead in implementing a new treatment guideline.
4. External Change Agents	Definition: Individuals who are affiliated with an outside entity who formally influence or facilitate innovation decisions in a desirable direction. Inclusion Criteria: Include statements related to engagement strategies and outcomes, e.g., how the external change agent (entities outside the organization that facilitate change) became engaged with the innovation and what their role is in implementation, e.g., how they supported implementation efforts. Note: Although both strategies and outcomes are coded here, the outcome of efforts to engage staff determines the rating, i.e., if there are repeated attempts to engage an external change agent that are unsuccessful, or if the external change agent leaves their organization and this role is vacant, the construct receives a negative rating. In addition, you may also want to code the "quality" of the external change agent here - their capabilities, motivation, and skills, i.e., how good they are at their job, and this data affects the rating as well. Exclusion Criteria: Note: It is important to clearly define what roles are external and internal to the organization. Exclude statements regarding facilitating activities, such as training in the mechanics of the program, and code to Access to Knowledge & Information *if* the change agent is considered internal to the study, e.g., a staff member at the national office. If the study considers this staff member internal to the organization, it should be coded to Access to Knowledge & Information, even though their support may overlap with what would be expected from an External Change Agent.
5. Key Stakeholders	Definition: Individuals from within the organization that are directly impacted by the innovation, e.g., staff responsible for making referrals to a new program or using a new work process.

	Inclusion Criteria: Include statements related to engagement strategies and outcomes, e.g., how key stakeholders became engaged with the innovation and what their role is in implementation. Note: Although both strategies and outcomes are coded here, the outcome of efforts to engage staff determines the rating, i.e., if there are repeated attempts to engage key stakeholders that are unsuccessful, the construct receives a negative rating. Exclusion Criteria: Exclude statements related to implementation leaders' and users' access to knowledge and information regarding using the program, i.e., training on the mechanics of the program, and code to Access to Knowledge & Information. Exclude statements about general networking, communication, and relationships in the organization, such as descriptions of meetings, email groups, or other methods of keeping people connected and informed, and statements related to team formation, quality, and functioning, and code to Networks & Communications.
6. Innovation Participants	Definition: Individuals served by the organization that participate in the innovation, e.g., patients in a prevention program in a hospital. Inclusion Criteria: Include statements related to engagement strategies and outcomes, e.g., how innovation participants became engaged with the innovation. Note: Although both strategies and outcomes are coded here, the outcome of efforts to engage participants determines the rating, i.e., if there are repeated attempts to engage participants that are unsuccessful, the construct receives a negative rating. Exclusion Criteria: Exclude statements demonstrating (lack of) awareness of the needs and resources of those served by the organization and whether or not that awareness influenced the implementation or adaptation of the innovation and code to Needs & Resources of Those Served by the Organization.
C. Executing	Definition: Carrying out or accomplishing the implementation according to plan. Inclusion Criteria: Include statements that demonstrate how implementation occurred with respect to the implementation plan. Note: Executing is coded very infrequently due to a lack of planning. However, some studies have used fidelity measures to assess executing, as an indication of the degree to which implementation was accomplished according to plan. Exclusion Criteria:
D. Reflecting & Evaluating	Definition: Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.

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Inclusion Criteria: Include statements that refer to the implementation team's (lack of) assessment of the progress toward and impact of implementation, as well as the interpretation of outcomes related to implementation. Reflecting and Evaluating is part of the implementation process; it likely ends when implementation activities end. It does not require goals be explicitly articulated; it can focus on descriptions of the current state with real-time judgment, though there may be an implied goal (e.g., we need to implement the innovation) when the implementation team discusses feedback in terms of adjustments needed to complete implementation.

Exclusion Criteria: Exclude statements related to the (lack of) alignment of implementation and innovation goals with larger organizational goals, as well as feedback to staff regarding those goals, e.g., regular audit and feedback showing any gaps between the current organizational status and the goal, and code to Goals & Feedback. Goals and Feedback include organizational processes and supporting structures independent of the implementation process. Evidence of the integration of evaluation components used as part of "Reflecting and Evaluating" into **on-going or sustained** organizational structures and processes may be (double) coded to Goals and Feedback.

Exclude statements that capture reflecting and evaluating that participants may do during the interview, for example, related to the success of the implementation, and code to Knowledge & Beliefs about the Innovation.

IOF CODING INSTRUCTIONS

Implementation Outcomes

A. Acceptability	Definition: the quality or state of meeting one's needs, preferences or expectations. It is an evaluation of adequacy in reference to one's own needs, preferences or expectations. It has a personal quality to it. It connoted that something is capable or worthy of being accepted. Inclusion Criteria: Satisfactory Exclusion Criteria: Not satisfaction
B. Adoption	Definition: the intention, initial decision, or action to try or employ an innovation or evidence-based practice (Proctor et al, 2011) Inclusion Criteria: Statements using the following synonyms: uptake; utilization; initial implementation; intention to try. Adoption can be measured from the perspective of the provider or organization. Exclusion Criteria:

C. Appropriateness	<u>Definition</u>: the quality or state of being fitting, suitable, or proper for a particular purpose, person, condition, occasion, or place. It is an evaluation of the degree of fit or match between something and some criterion. It refers to the degree of fit or match with a technical or social criterion. It connotes that something is right or proper. <u>Inclusion Criteria</u>: relevance; practicability <u>Exclusion Criteria</u>: Not compatible
D. Feasibility	<u>Definition</u>: Proctor: the extent to which a new treatment, or an innovation, can be successfully used or carried out within a given agency or setting (Karsh 2004) Weiner: refers to the state or degree of being easily or conveniently done. It is a judgement about whether or not, or at the ease with which, a task or action can be performed given available resources (e.g., effort, time and money) and situational factors (e.g., timing, sociopolitical will). It has a strong situational component. <u>Inclusion Criteria</u>: Actual fit or utility; suitability for everyday use; practicality <u>Exclusion Criteria</u>:
E. Fidelity	<u>Definition</u>: the degree to which an intervention was implemented as it was prescribed in the original protocol or as it was intended by the program developers (Dusenbury et al. 2003; Rabin et al. 2008) (copied from Proctor et al, 2011) <u>Inclusion Criteria</u>: Delivered as intended; adherence; integrity; quality of program delivery <u>Exclusion Criteria</u>: Distinguish adherence (the extent to which therapy occurred as intended) from other potentially pertinent implementation factors such as provider skill or competence (Hougue et al., 1996)
F. Cost	<u>Definition</u>: the cost impact of an implementation effort (Proctor et al, 2011) <u>Inclusion Criteria</u>: Marginal cost; cost-effectiveness; cost-benefit; the cost of the particular intervention, the implementation strategy used, or the location of service delivery (e.g., cost of implementation in a solo practitioner's office versus a tertiary care facility)

	Exclusion Criteria:
G. Penetration	Definition: the integration of a practice within a service setting and its subsystems (Proctor et al, 2011)
	Inclusion Criteria: Reach (Glasgow, 2007); level of institutionalization; spread; service access
	Exclusion Criteria:
H. Sustainability	Definition: the extent to which a newly implemented treatment is maintained or institutionalized within a service setting's ongoing, stable operations (Proctor et al, 2011)
	Inclusion Criteria: Maintenance; continuation; durability; incorporation; integration (e.g., integration of a given program within an organization's culture through policies and practices); institutionalization (passage [a single event such as transition from temporary to permanent funding], cycle or routine [repetitive reinforcement of the importance of the evidence-based intervention through including it into organizational or community procedures and behaviors, such as the annual budget and evaluation criteria], niche saturation [the extent to which an evidence-based intervention is integrated into all subsystems of an organization]); sustained use; routinization
	Exclusion Criteria: Not the compilation of multiple implementation constructs