EXAMINING PREDICTORS OF SYMPTOM DEVELOPMENT AND SUCCESSFUL
SCHOOL-BASED TREATMENT PROGRAM IMPLEMENTATION FOR
TRAUMATIZED YOUTH

by

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Examining Predictors of Symptom Development and Successful School-based Treatment Program Implementation for Traumatized Youth

Abstract

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This study sought to characterize a sample of children with elevated PTSD symptoms, to determine the individual- and family-level risk and protective factors for PTSD symptomatology. Predictors of elevated PTSD symptom levels included higher levels of depressive symptoms, higher levels of family conflict, and less frequent use of cognitive reappraisal as an emotion regulation strategy. Those students who sought treatment also reported using less effective coping skills. Gender and age effects were also present. Further, this study sought to describe the process of implementing a psychological treatment program in a small-town school, with the ultimate goal of informing our understanding of the most effective approaches to school-based interventions. Challenges faced included parent and teacher resistance as well as poor school and community climate. Implications for trauma-focused treatment programs, and for the effective implementation of school-based interventions more generally, are discussed.
Introduction

Traumatic events are relatively common, occurring in approximately 25% of youth by the age of 16 (Costello, Erkanli, Fairbank, & Angold, 2002). The most common of these “high impact events” include the death of a loved one, witnessing a violent event, and sexual abuse while events with lower frequency include captivity or natural disaster (Costello et al, 2002). Of these children, close to 75% have only experienced one such event. In addition, nearly 30% of children report experiencing a “low impact event,” such as parental separation or a move to a new home or school, in the past 3 months (Costello et al, 2002). Children who report experiencing either type of trauma in the past 3 months are nearly twice as likely to have also experienced a trauma of the other type (Costello et al, 2002).

Experiencing a traumatic event puts a child at immediate risk for developing symptoms of disorders including posttraumatic stress disorder (PTSD), as well as depression, substance abuse, and a range of other anxiety reactions including generalized anxiety disorder and separation anxiety (Cohen & Mannarino, 2008; Cohen, Mannarino, & Knudsen, 2004). Trauma exposure is also associated with decreased reading ability, lower grade point average, and increases in number of school days missed (Delaney-Black et al, 2002; Hurt, Malmud, Brodsky, & Giannetta, 2001). In addition, having a trauma history is a risk factor for future psychological problems such as depression, suicidality, and personality disorders as well as increasing the chances of experiencing significant functional impairment (Johnson et al, 1999; Molnar, Buka, & Kessler, 2001; Silverman, Reinherz, & Giaconia, 1996; Wethington et al, 2008). Therefore effective treatments are crucial for those experiencing trauma and abuse in alleviating current
distress as well as preventing the development of future psychopathology and improving future potential.

After experiencing a traumatic event, children often exhibit symptoms that can be broadly categorized into three domains: affective, behavioral, and cognitive (Cohen & Mannarino, 2008). Affective problems include both internalizing and externalizing symptoms as well as deficits in emotion regulation. Behaviorally, traumatized children may begin to show avoidance as well as other anxious symptoms such as fear of separation from an attachment figure (Cohen & Mannarino, 2008). Going along with externalizing affective symptoms, children may also become increasingly argumentative or aggressive, and in older adolescents substance abuse may become a concern. Cognitive symptoms may include self-blame, shame, and an irrational understanding of why the event occurred (Cohen & Mannarino, 2008).

In its description of posttraumatic stress disorder, the Diagnostic and Statistical Manual of Mental Disorders (APA, 2000) acknowledges that there are aspects of reactions to traumatic experiences, as well as what qualifies as a trauma, that are unique to children and adolescents. For example, children may exhibit more agitated and disorganized behavior and may manifest re-experiencing symptoms more frequently in the form of nightmares (Dyregrov & Yule, 2006). Children may also report feelings of sadness or confusion more often than helplessness or fear (Scheeringa, Zeanah, & Cohen, 2011). In addition, more careful assessment of avoidance behavior may be necessary when working with children, as they are less able to articulate symptoms such as loss of interest or restriction of affect (Dyregrov & Yule, 2006). For adolescents in particular, there may also be unique social consequences to experiencing a trauma, such as feelings
of isolation or alienation from peers (Dyregrov & Yule, 2006). Further, it has been suggested that the criteria for a qualifying traumatic event be expanded for children to include more “low magnitude” events such as loss of a parent, either through death or removal from the home (Scheeringa, Zeanah, & Cohen, 2011). Treating children and adolescents who have experienced trauma thus presents its own set of challenges, and it does not simply involve a pared-down version of treatment for adults (Bouchard, Mendlowitz, Coles, & Franklin, 2004).

Korol and colleagues (cited in Green et al, 1991) developed a model for conceptualizing how children process and respond to a traumatic event. In this model, the authors identify four separate yet interdependent domains that play into this process: characteristics of the trauma, cognitive processes (appraisal, attributions, intrusion vs. avoidance), individual characteristics (coping style, temperament), and environmental factors, including the family context. This project will focus specifically on the latter two domains of functioning, and examine how they impact PTSD symptom risk and how they might affect treatment response following a traumatic event.

**Family context and response to trauma**

The family context is one of the most important influences on a child’s development. Extensive research indicates that parenting style and family factors contribute to the development and exacerbation of psychopathology in children and adolescents. These potentially problematic factors include high levels of conflict, hostility, and criticism and/or low levels of warmth, nurturance, and support. Children raised in families with these characteristics may develop deficits in emotion expression and control and social skills as well as physiological disturbances (for a review, see
Repetti, Taylor, & Seeman, 2002). The ultimate consequence of these deficits can be a range of mental and physical health problems.

The family context is particularly important in the wake of a traumatic event. Following a trauma, parenting style, as well as family patterns of communication, intimacy, and division of responsibility may be affected (Dyregrov, 2001). Scheeringa and Zeanah (2001) propose what they refer to as a relational view of PTSD, and suggest that families in which a trauma has occurred (either just to the child, just to the parent, or both) might exhibit one of three patterns, all of which are problematic and likely exacerbate a child’s functioning. The authors term the first of these patterns the withdrawn/unresponsive/unavailable pattern. Parents fitting into this pattern show avoidance and withdrawal that leaves them unavailable to the child and unable to recognize and sensitively respond to signs of distress. Such a response could seriously impact a child’s ability to cope effectively with a traumatic experience (Dyregrov & Yule, 2006). The second pattern is the overprotective/constricting pattern. As the name suggests, parents who fall into this pattern become overprotective of their children out of fear that the child will be traumatized again. The third and final pattern is termed the reenacting/endangering/frightening pattern. These parents may become preoccupied with the trauma, and ask the child to discuss it or discuss it when the child is present, with such frequency that the child may be retraumatized. If nothing else, this pattern again would likely interfere with a parent’s ability to offer appropriate support to the child (Scheeringa & Zeanah, 2001). Thus these authors propose that a parent’s (specifically for these authors, the mother’s) relationship with the child moderates the child’s response to a traumatic event. These authors assume that there will be some level of negative
effects on the child as a result of the trauma alone, but that these effects can be
strengthened or weakened depending on how the parents respond. In their original
version, they conceptualize these patterns as applying to families with young children.
However one can imagine similar patterns playing out with adolescents. For example,
parents who fall into the overprotective/constricting pattern may place unreasonable
limits on the child’s extracurricular activities or on how much time the child is able to
spend outside of the home with peers. This particular pattern may be especially
problematic for adolescents, as one of the most important developmental achievements of
the adolescent period is to establish some level of autonomy and individuality from the
family (Cicchetti & Rogosch, 2002).

Several authors have found that family factors do, in fact, relate to the level of
symptoms a child exhibits following a traumatic experience. For example, in families
rated by caseworkers as having generally poor functioning, child victims of sexual abuse
exhibit more severe symptoms (Conte & Schuerman, 1987). Children who perceive
higher levels of parental conflict following a natural disaster report more PTSD
symptoms (Wasserstein & La Greca, 1998). Parental conflict may increase for a number
of reasons following a trauma. For example individual differences in personality and
coping styles may result in different reactions to trauma, and this asynchrony may lead to
misunderstanding among parents (Dyregrov, 2001). This, in turn, may relate to higher
child symptom levels because conflictual parents are not as able to provide the kind of
support that would buffer the negative effects of a trauma on their children (Wasserstein
& LaGreca, 1998), consistent with the withdrawn/unresponsive/unavailable pattern
(Scheeringa & Zeanah, 2001) described above. Similarly, studies have shown that
children’s level of distress in response to a natural disaster was moderated by parent behavior (observed expressed affect) before the event and mediated by parental stress levels after the event, especially for boys (Proctor et al, 2007). Parents’ severity of PTSD symptoms has also been found to predict child’s level of symptoms following a natural disaster (Green et al, 1991). In addition, a post-trauma family environment characterized by a general sense of depression and/or irritability (Green et al, 1991) and inadequate levels of cohesion (Loar et al, 2001) also contributes to more severe PTSD symptoms in children.

There may also be less direct links between family environment and child functioning in the wake of a trauma. For example, children who grow up in problematic families often have relationships that are more dysfunctional and less supportive (Repetti et al, 2002). This lack of an effective support group may be particularly problematic for children who experience a trauma. Exacerbating this is the fact that children from these types of families may also be over-responsive to stress and have developed less effective coping skills (Repetti et al, 2002).

Parental psychopathology has also been shown to affect child functioning. An extensive literature relates parental depression to a wide range of problems in children, including increased risk for antisocial behavior, depression and anxiety symptoms, substance use, and poor social functioning (Kim-Cohen et al, 2005; Lieb et al, 2002; Weissman et al, 1987). Parental depression has also been related to ineffective and overreactive discipline as well as unresponsive and inattentive parenting (Gelfand & Teti, 1990; Leung & Slep, 2006). In addition, children of anxious parents show higher levels of anxiety symptoms and more difficulty with emotion regulation (Gruner, Muris, &
Anxious parents have also been shown to be more withdrawn and less engaged in interactions with their children than non-anxious parents (Woodruff-Borden, Morrow, Bourland, & Cambron, 2002). These effects are also relevant to children who have experienced a trauma. Mothers with higher symptom levels, on measures of general psychological functioning as well as measures of just depression, have children with higher internalizing and externalizing symptom levels while mothers with higher functioning had children more likely to move to less severe symptom categories in the time period following trauma (Deblinger, Steer, & Lippmann, 1999; Loar, Wolmer, & Cohen, 2001). In addition, parental symptoms of depression and anxiety have been suggested to mediate the relationship between exposure to violence and symptoms of depression and conduct disorder in young children (Briggs-Gowan et al, 2010).

Another avenue through which family functioning can affect a child’s response to trauma is in the area of family communication. For example, Kliewer and colleagues (1998) found that children who feel that they could not discuss their experience with violence because they felt others did not want to hear about the experience or were made uncomfortable by it were more severely impacted by this trauma, as indicated by higher levels of intrusive thoughts and internalizing symptoms. This may be due to the fact that discussion of stressful events acts as a type of exposure, habituating the person to the trauma memory, lowering her arousal, and giving her an opportunity to better comprehend the event and therefore make it less threatening (Lepore, 1997).

Thus a large literature consistently finds a connection between parent and family functioning and child symptomatology in response to a traumatic event. While there is
little consistency in the measures used to assess symptom levels and both parent and child functioning, making it difficult to directly compare studies in this area, the fact that this finding is consistent across several methods lends further evidence to the veracity of the finding (Scheeringa & Zeanah, 2001). However much of this research has been done with natural disasters, and it is important to understand how family factors play into children’s response to other types of traumas. Understanding family influence on symptoms related to exposure to violence may be particularly important, as this type of trauma may be more likely to result in symptoms of PTSD (McNally, 1993). A significant portion of this research has also been conducted on families with young children, however it is equally important to understand the extent to which the family context plays a role in adolescent trauma. In addition, information regarding specific combinations of parent and child factors that are particularly problematic would also be useful (Proctor et al, 2007).

Further, most of this literature is about how family factors/parental functioning affects a child’s response to trauma (symptom levels, manifestation, etc). Some research has examined how parental participation in treatment affects treatment response. For example, King and colleagues (2000) found that parental involvement in treatment did not increase effectiveness compared to individual treatment, although the effects of parental involvement in treatment on outcome likely depend on what the parent components/participation involves (Stallard, 2006). However, the ways in which family factors might affect treatment response is not as well studied and therefore not as clear. One study by Friedrich and colleagues (1992) found that initial levels of maternal depression and family conflict correlated inversely with change in depression symptoms
following treatment for sexual abuse. However it is difficult to know the extent to which these results may generalize, given the very specific nature of the trauma and the fact that treatment was not consistent between subjects, and involved of a mixture of individual and group treatment. Studies examining these factors in a broader range of traumas, with a more consistent treatment approach, are needed.

Factors that would be important to consider include parental response to the trauma, parents’ own trauma and mental health history, parent-child communication style, and parents’ ability to encourage the use of effective coping strategies (Salmon & Bryant, 2002). It may well be the case that parents affect a child’s response to treatment via the symptoms (type and severity) the child has coming into treatment. As described above, parents may exacerbate children’s symptoms following a trauma, making the child’s presentation at treatment onset more severe and thus affecting the extent to which the child can respond to treatment. Alternatively, parents can serve as an important resource for children in the wake of a traumatic experience. For example they can help the child appraise the situation appropriately, correct any misconceptions the child might have about the event, or assist the child in effectively coping with emotions that are brought on by the event (Salmon & Bryant, 2002). This could alleviate the child’s symptoms and make it easier to engage her in treatment.

**Emotion regulation, coping skills, and response to trauma**

Deficits in emotion regulation, like family factors, are thought to underlie a significant portion of psychological disorders (Gross & John, 2003). Eisenberg (1998) defines emotion regulation as the process of “initiating, sustaining, modulating, or changing the occurrence, intensity, or duration of internal feeling states and emotion-related physiological processes” (p. 6). Two commonly studied strategies for emotion
regulation are cognitive reappraisal, an antecedent-focused strategy, and emotion suppression, a response-focused strategy (Gross & John, 2003). The former strategy involves rethinking an event to change its emotional impact, and tends to reduce negative affect and startle responses, while the latter involves modulating the emotional response that is already occurring to change the behavioral expression of emotion (Cisler, Olatunji, Feldner, & Forsyth, 2010; Gross & John, 2003). Unlike reappraisal, suppression tends to increase physiological arousal and may not impact negative affect (Cisler, Olatunji, Feldner, & Forsyth, 2010).

While the process of emotion regulation is not always a conscious one (Gross & John, 2003), our ability to regulate our emotions is not entirely internal. Rather, we learn regulation strategies at least in part from our environment, specifically our families. Parents can react negatively (i.e. showing their own distress, punishing the child, minimizing the child’s distress) or positively (i.e. encouraging expression, comforting, problem-solving, modeling of appropriate coping strategies) in response to children’s expression of emotion (Eisenberg et al, 1996). In turn, children show either appropriate (i.e. moderate level of expression, negative arousal reduction) or inappropriate (i.e. avoiding, seeking revenge) regulation strategies depending on parents’ reactions (Eisenberg et al, 1992). For example, maternal minimizing and/or punitive reactions in response to children’s emotion expression is positively related to avoidant coping, as children may learn to hide their emotions out of fear of a negative reaction from parents, and negatively related to constructive coping in the child (Eisenberg et al, 1996). These kinds of reactions may also undermine a child’s sense of security (Eisenberg et al, 1996). Supportive responses, on the other hand, may encourage children to learn constructive
strategies for managing their emotions, such as modulating their arousal (Eisenberg et al., 1996).

Children from dysfunctional families are often left with an inadequately developed ability to process emotions. This includes over-reacting to expressions of emotions in others, a lack of understanding of emotions, and inefficient coping strategies such as distraction or escape (Repetti et al., 2002). Adequate understanding of emotions is essential for successful and appropriate regulation (Salmon & Bryant, 2002). In addition, children’s ability to appropriately regulate their emotions and respond to emotional situations has been shown to be positively related to positive social functioning (Eisenberg et al., 1996). The ability to effectively regulate one’s emotions is important because it has been shown to relate to measures of social competence, including ratings of popularity as well as comforting behavior (Eisenberg et al., 1996). In addition, children with a diagnosed anxiety disorder report more difficulty regulating negative emotions (dysregulated expression, less adaptive coping, higher intensity of experience) (Suveg & Zeman, 2004).

Emotion regulation strategies are also related to how one copes with stressors. Those who use reappraisal are more likely to try to reinterpret stressful events, or to look for potential benefits and thus try to “repair” stressful situations. Suppressors, on the other hand, tend to ruminate on stressful situations and typically take no action, making it no more likely that the situation, or at least the person’s perception of the situation, will improve (Gross & John, 2003). These two broad categories for managing stressful situations are often designated approach and avoidance coping strategies respectively (Scarpa, Haden, & Hurley, 2006).
The importance of emotion regulation and coping strategies becomes clear upon examination of their links to psychological well-being. In adults, those who employ suppression strategies have been shown to experience and express less positive emotion and to experience more negative emotion than those who employ reappraisal (Gross & John, 2003). In response to trauma specifically, adults with PTSD intentionally inhibit both positive and negative emotions more often than those without PTSD (Roemer, Litz, Orsillo, & Wagner, 2001). However, low levels of avoidant coping have been shown to relate to lower levels of PTSD symptoms, while high levels of avoidant coping relate to higher PTSD severity (Scarpa, Haden, & Hurley, 2006). In children, avoidant coping has been related to poor psychological adjustment, specifically increased symptoms of anxiety (including PTSD), depression, and conduct problems following stressors ranging from a residential fire to a parental divorce (Jones & Ollendick, 2002; Sandler, Tein, & West, 1994). This may be due to the fact that attempts to avoid intrusive or distressing thoughts often result in these thoughts increasing in frequency, thus potentially heightening levels of distress (Lepore, Silver, Wortman, & Wayment, 1996). Even if the child does not have a natural tendency to use avoidant coping styles, she may be forced to adopt such a style depending on her environment. For example, if the child’s attempts to discuss the event, or her feelings regarding the event, are met with negative reactions the child may end up becoming avoidant.

Part of what makes suppressors experience more negative emotion is a feeling of lack of authenticity in relations with others (Gross & John, 2003). The reason why suppression and avoidance are seen as maladaptive strategies is in part due to their connection with social functioning. For example, peer ratings suggest that suppression
attempts are noticeable by others (Gross & John, 2003). Because suppressors avoid expressing strong emotions, they might also avoid close interpersonal relationships, which typically require such expression. Taken together, these findings have clear implications for the quality of suppressors’ support network. In fact, Gross & John (2003) found that reappraisers were generally better liked by peers while suppressors had less social support broadly, with the strongest effect being for less emotional support. This has potential treatment implications in and of itself. For example, Kliwier and colleagues (1998) found that exposure to violence had the strongest impact, as measured by higher levels of intrusive thinking and internalizing symptoms, on early adolescents who reported low levels of parental support. In addition, parental support has been found to be an important mediator of treatment outcome for young sexually abused children at 6 and 12 months following individual treatment (Cohen & Mannarino, 1998). Further, victims of childhood sexual abuse who experience higher levels of support, affection, and nurturance from parents have lower levels of adjustment difficulties (Conte & Schuerman, 1987; Lynskey & Fergusson, 1997), which may improve response to treatment.

In the Sandler (1994) study, low levels of active coping were also found to moderate the concurrent relationship between stress levels and child conduct problems (Sandler, Tein, & West, 1994). Coping skills were also found to be related to later symptom levels. For example, active coping was predictive of lower levels of depression and anxiety symptoms and conduct problems (Sandler, Tein, & West, 1994). It is important to note that coping skills may not be effective or ineffective in and of themselves, but rather their usefulness may depend on the situation. In cases where the
child has some level of control, active coping strategies would be beneficial, however in situations where the child has no control perhaps distraction may be more beneficial while problem-solving would not be effective (Sandler, Tein & West, 1994).

An individual’s strategies for regulating emotions and coping with stressful situations have consistently been shown to affect psychological well-being, with specific strategies being linked to more severe symptomatology. It is likely that an individual’s level of symptomatology and functioning entering treatment, in turn, would affect treatment response. In addition, some research has been done examining the role of emotion regulation and coping strategies in treatment response in adults. For example, improvements in emotion regulation have been shown to mediate PTSD treatment response in adult refugees (Hinton, Hofmann, Pollack, & Otto, 2009). Emotion regulation ability has also been found to mediate the relationship between therapeutic alliance and PTSD scores following treatment (Cloitre et al, 2004). Adult PTSD patients with higher levels of emotional engagement in session also show more improvement in treatment (Jaycox, Foa, & Morral, 1998). However few studies have directly examined the link between emotion regulation and coping strategies and treatment response in PTSD in children.

**CBT for trauma symptoms: Main components and adaptations for treatment of children and adolescents**

Given the potential negative sequelae associated with a traumatic experience, treatments that effectively reduce distress and improve functioning are essential. One approach to therapy that has been well supported in the literature as an effective treatment for alleviating symptoms of PTSD and other disorders resulting from a trauma is
cognitive behavioral therapy (Deblinger, Mannarino, et al, 2006; Harvey & Taylor, 2010; Hetzel-Riggin et al, 2007; Silverman et al, 2008). The main components of this treatment are described below, along with ways in which these components can be adapted for use with children and adolescents.

**Psychoeducation.** Psychoeducation is conducted primarily in the initial sessions. It involves reviewing the common symptoms resulting from a traumatic experience in order to normalize the child’s current struggles and informing families about the proven effectiveness of available treatments in order to instill hope (Cohen & Mannarino, 2008). Another component of psychoeducation is an explanation of the rationale behind the work that the therapist will be doing with the family. The level of involvement of the victim in this phase of treatment will vary depending on her age, as young children will not be as capable of engaging in these types of discussions.

**Imaginal and In vivo exposure.** During imaginal exposure, the client and therapist identify anxiety-provoking scenes related to the trauma and place them on a hierarchy, and the client is then instructed to imagine these scenes in great detail in session. However, during in vivo exposure the client confronts objects or environments associated with her trauma directly (Feeny et al, 2004). There are a number of possible reasons why these approaches are effective. For example, they may give the client a sense of confidence having faced and conquered the feared stimulus, they allow the client to habituate to her fears, and/or they may provide the client with an opportunity to test her ideas about the world as a generally hostile and dangerous place (Harvey, Bryant, & Tarrier, 2003). While the use of exposure has been shown to be quite effective in the
treatment of PTSD in adults, its effectiveness with children and adolescents has not been well studied (Feeny et al, 2004).

As Bouchard and colleagues (2004) note, performing exposures with children and adolescents is a different procedure than it is with adults. Therapists need to ensure that the child understands the reasons for conducting exposures, and may need to spend more time than they would with an adult building rapport, and making therapy a fun, positive experience before the introduction of exposure exercises (Bouchard et al, 2004). Further, children may need to be eased into the exposure process gradually, starting with items very low on a hierarchy so that the therapist can ensure that the child is set up to experience initial success (Bouchard et al, 2004). With child and adolescent clients, the therapist may also need to be aware of tactics a child might use to end an exposure prematurely (Bouchard et al, 2004).

*Stress inoculation/anxiety management.* Common techniques used in stress management focus on teaching the client how to calm down using controlled or focused breathing or progressive muscle relaxation (Cohen, Mannarino, Berliner, & Deblinger, 2000). In treatment with youth, it is also common to review how to stop automatic negative thoughts or memories and replace them with ones that are more positive, for example details of a favorite birthday party (Cohen et al, 2000).

*Cognitive restructuring.* Cognitive restructuring is used to assist the victim in avoiding self-blame and other maladaptive thoughts (Celano, Hazzard, Campbell, & Lang, 2002). Specific techniques used in cognitive restructuring include identifying and challenging maladaptive thoughts and affirming to the client that she is not to blame (Celano et al, 2002). Research has shown that adolescents’ attributions regarding their
trauma are an important predictor of treatment outcome (Cohen & Mannarino, 2000). In fact, self-blame among victims of abuse has been associated with symptoms of depression and PTSD even one year after the abuse had taken place (Feiring, Taska, & Chen, 2002). In working with younger victims, addressing both the client’s as well as the parent’s maladaptive cognitions is likely to be an important component of therapy.

In addition, there are some features of typical treatment that are specific to children and adolescents. For example, with children and adolescents research has shown that the opportunity to retell their trauma story is subjectively perhaps the most useful component of treatment (Deblinger, Mannarino, et al, 2006, 2011), despite the fact that a comparison of those who received a narrative component to those who did not revealed no significant differences in outcome (Deblinger et al, 2011).

**Parent training.** Parent training and individual parent sessions are common in the treatment of traumatized youth, especially youth who have experienced abuse. In cases where a parent was the perpetrator of the abuse, typically only the non-offending parent would be involved. Family involvement in the treatment of childhood trauma is important because it is very common for the trauma to affect the child’s relationship with significant others (Feather & Ronan, 2009), as well as these significant others’ own mental health (Cohen et al, 2000). Indeed, parent or caregiver support and involvement in therapy has been shown to predict child response to treatment (Feather & Ronan, 2009). In addition, Wethington et al (2008) suggest that treatment effects on parents may mediate children’s own response to treatment. Topics typically addressed in parent training would include enhancing parenting skills, educating the parents regarding what the child is doing in therapy so that they can bring the treatment into the home, teaching
effective communication, and providing parents with skills to handle their own reactions to the traumatic incident (Cohen et al, 2000; Kerig et al, 2011). Cognitive restructuring techniques can also be used with parents who may blame themselves for what happened to their child and be suffering from guilt and shame as a result (Celano et al, 2002; Cohen et al, 2000). Further, it may be particularly important for parents to recognize and address aspects of the trauma for which they may hold their child responsible (Cohen et al, 2000). Parents may also undergo exposure of their own, which may include discussing the event as well as being shown any narrative or creative art work that their child has produced in her own work with the therapist, assuming that the child has given permission for this to occur (Cohen et al, 2000).

*Combined parent-child sessions.* After the child and parents have made an adequate amount of progress, the therapist may decide to hold joint sessions. These sessions provide an opportunity for both parties to practice the skills they have been learning and to be able to experience positive parent-child interactions which they can then bring into the home (Deblinger, Thakkar-Kolar, & Ryan, 2006). When it is appropriate and both parties are ready, these combined sessions would also involve the child telling the parent about the trauma in detail, so that the child can see that the parent is able to tolerate hearing this story and is able to react with understanding, love, and support (Cohen et al, 2000). However before this type of session would occur, the therapist should ensure that both parties understand the reasons for holding such a session and are prepared for the reaction of the other party. It is important for parents to be able to address and manage their own reactions to the trauma, because the child may fear that the family will never return to normal and the faster the parent can restore that sense of
normaley the faster the child can be reassured that the trauma did not cause irreversible damage (Cohen et al, 2000).

Another component of treatment that is typically included in cognitive behavioral therapy for children who have experienced a trauma is learning to identify, label, and appropriately express emotions, as well as increasing awareness of the physiological components that accompany these emotions (Stallard, 2006; Vickerman & Margolin, 2007). This, in turn, helps children learn to better regulate their emotions. This ability to regulate emotions is not only important on its own, but it may also contribute to a child’s ability to more effectively participate in other components of treatment. For example, Deblinger, Thakkar-Kolar, and Ryan (2006) suggest that once children are able to regulate their emotions effectively they will be better able to participate in exposure exercises and to process the thoughts and emotions that these exercises bring to the surface.

A number of studies have been conducted that demonstrate the effectiveness of using individual cognitive-behavioral approaches to the treatment of PTSD in children and adolescents. These treatments have reduced PTSD symptoms in children suffering from a range of trauma types, including sexual abuse (Cohen, Deblinger, Mannarino, & Steer, 2004), witnessing an accident or act of violence (Smith et al, 2007), and traumatic grief (Cohen, Mannarino, & Knudsen, 2004) as well as multiply abused children (Feather & Ronan, 2009). In fact, Trauma-Focused Cognitive-Behavioral Therapy (Cohen, Mannarino, & Deblinger, 2006) meets criteria for a well-established psychosocial treatment (Silverman et al, 2008).
Some research has also been conducted to examine the efficacy of CBT-based group interventions for child PTSD. Goenjian and colleagues (1997) found that a brief, 4-session group intervention, that included 1-4 individual sessions, significantly reduced symptoms of PTSD but not depression in early adolescents following a natural disaster. March and colleagues (1998) found significant reductions in symptoms of PTSD, depression, and other anxiety disorders as well as anger following an 18-week group therapy treatment. Layne and colleagues (2001) found that a 20-session group therapy for high school students in a war-torn country was effective in reducing symptoms of PTSD, depression, and complicated grief. These reductions, in turn, were correlated with improvements in peer and academic functioning (Layne et al, 2001).

Cognitive behavioral treatments have emerged as the best-validated approach for trauma in children and adolescents (Pine & Cohen, 2002). There are a number of such treatments for PTSD or subthreshold trauma symptoms that all feature common treatment components and have been shown to be highly effective in reducing distress and improving functioning in both adults and children. Despite this fact, and despite the negative consequences associated with traumatic experiences, it is still the case that many child trauma victims do not receive treatment, or at least do not receive treatment from psychologists, instead seeking the help of the school or a pediatrician (Wethington et al, 2008). Barriers to treatment include logistical ones such as transportation, scheduling difficulties, need of parents to care for other children, and financial limitations.

To surmount these barriers to treatment, programs are needed that are more accessible to children and families. Such programs would be available in settings with which children and families already have regular contact. Schools are one such setting,
and calls are increasingly being made to utilize schools and similar settings as a way to engage children and families in mental health services (Committee on School Health, 2004; National Institute on Mental Health, 2001). There is good reason for schools to be invested in the mental health of students, due to the relationship between mental health and learning/academic success (Paternite, 2005). In fact, some suggest that schools’ mandate to educate all students requires them to address mental health needs as well as academic ones (Rones & Hoagwood, 2000). School-based treatments also offer further advantages beyond eliminating some of the logistical barriers to seeking therapy. For example, school-based treatments avoid the stigma that can be associated with seeking mental health services, can facilitate coordination of care, and offer greater opportunity to generalize skills given that treatment occurs in a “real world” setting (see Marsia-Warner, Nangle, & Hansen, 2006 and Paternite, 2005 for reviews). Because mental health symptoms often manifest at school, these services also have the advantage of giving the child the opportunity to process symptom-related incidents with providers immediately following the event (e.g. a behavioral outburst or panic attack; Beidas et al, 2012). Further, school-based services have the potential to fit in well with educational trends that emphasize scientifically-based programs, measurable outcomes, individualized learning, and general health (Atkins, Hoagwood, Kutash, & Seidman, 2010). There are, however, some potential difficulties with school-based mental health. For example, many programs run in schools have not been empirically validated, and it is not always possible to translate treatment protocols developed in research settings into practice in the schools (Marsia-Warner, Nangle, & Hansen, 2006).
The treatment employed in the current study is a school-based approach to the treatment of youth with a trauma history. This program, entitled the Cognitive Behavioral Intervention for Trauma in Schools (CBITS; Jaycox, 2004), is a manualized program that was developed to reduce symptoms of anxiety, including PTSD, and depression and to improve social and academic functioning in youth who have experienced a traumatic event.

Several studies have examined the effectiveness of this treatment in various populations. In their small pilot study, Morsette and colleagues (2009) found that completion of the CBITS program was effective in reducing symptoms of PTSD and depression in three of four sixth grade students from rural schools on or near a Native American reservation. Stein et al (2003) conducted a randomized trial comparing the outcome of sixth grade students exposed to violence who completed the CBITS program to a waitlist control group. Approximately 60 students were enrolled in each group, and all students came from large urban schools. These authors found that 3 months after treatment, children in the CBITS group showed significantly lower scores on symptoms of PTSD, as measured by the CPSS, and depression, as measured by the CDI. These students also had lower levels of psychosocial dysfunction, as measured by the Pediatric Symptom Checklist (Stein et al, 2003).

A CBITS-based program has also been shown to be effective in reducing symptoms of Latino immigrant children exposed to community violence (Kataoka et al, 2003). In this study, 198 third through sixth grade students from urban schools were randomized to either an intervention group or a waitlist control group. PTSD symptoms were measured with the CPSS, and depression symptoms were measured with the CDI.
At a 3-month follow-up, students who received the intervention showed significantly lower symptoms of PTSD and depression than those in the control group (Kataoka et al, 2003).

In the most recent study, Jaycox et al (2010) randomly assigned 118 fourth through eighth grade students to either individual trauma-focused cognitive behavioral therapy or participation in CBITS groups. This study was conducted in New Orleans following Hurricane Katrina. Students’ symptoms of PTSD and depression were measured with the CPSS and CDI respectively. At post-treatment, children in both treatment groups showed statistically and clinically significant decreases in both PTSD and depression symptoms. However, it is important to note that while rates of participation in the CBITS groups were quite high, a large number of children assigned to individual treatment never sought services. Individual treatment was based in a community mental health clinic rather than the school, and these authors report that many families asked if individual services could be accessed through the school (Jaycox et al, 2010). This finding underscores the advantages of offering treatment to children in the school setting.

**Common barriers to treatment engagement**

Despite the fact that we have effective treatments available for PTSD, implementing and making these treatments accessible can be a challenge. Common reasons for not seeking treatment include low perceived need for treatment, desire to solve one’s own problems, and negative attitudes toward treatment stemming from doubts of effectiveness or negative past experiences (for a review, see Mojtabai, 2011). Another major barrier to seeking mental health treatment is social stigma, meaning
negative attitudes held by individuals or social groups more generally toward mental health treatment. Stigma stems from the understanding an individual or group has of the cause of mental illness as well as attitudes toward help-seeking in general (Murry, Heflinger, Suiter, & Brody, 2011). The presence of stigma, and its negative effect on rates of help seeking, has been shown in a number of studies with different populations, including African and Latina immigrant women (Nadeem et al, 2007), Chinese Americans (Kung, 2003), older adults (Conner et al, 2010), and undergraduate and graduate students (Golberstein, Eisenberg, & Gollust, 2008).

With children, additional barriers include concerns with issues of trust and confidentiality, specifically uncertainty over what information will be shared with parents or teachers, or feelings of discomfort talking to adults with whom they are not familiar or who might be “out of touch” (Gulliver, Griffiths, & Christensen, 2010; Wilson & Deane, 2001). Other potential barriers to treatment seeking include social invalidation of trauma severity (Sayer et al, 2009) or a desire to just move on and “get back to normal” (Kataoka et al, 2009). Further, they may feel that their concerns are not serious enough or be worried about approaching adults they perceive to be too busy to help them (Lindsey & Kalafat, 1998; Wilson & Deane, 2001).

There are also factors beyond a child’s control that impact her ability to engage in services. For example, parents may not always be willing to consent to treatment even if the child is interested in receiving services. This may be due to denial of problem severity, lack of trust in providers, doubts about treatment’s potential for effectiveness, concerns with their child being singled out or made fun of, concern that the clinician will not be able to establish a good relationship with their child, or fears of being blamed for
their child’s difficulties (Pullman et al, 2010; Starr, Campbell, & Herrick, 2002). As mentioned previously, there are also many logistical challenges, particularly for parents who want to be involved in their child’s treatment. These include lack of time, transportation, and childcare.

Implementation of school-based treatment programs, such as the one used in the present study, presents its own set of unique challenges, because engagement must occur at multiple levels including the individual level (students, teachers, and providers) as well as the school, school district, and community levels. There are three commonly recognized stages of implementation: adoption, implementation, and sustainability (Fixsen et al, 2005 & Rogers, 2003; cited in Forman et al, 2009). Thus at each stage there are different players who need to be engaged with different intervention-related activities (Forman et al, 2009). Working within a school environment therefore presents complex layers of potential complications. More specific challenges include the fact that a common model for these services involves pulling a child out of class to meet with counselors (Atkins, Hoagwood, Kutash, & Seidman, 2010). This not only impacts what the child learns but could also result in resistance from teachers, a challenge that frequently arises in school-based mental health (Forman et al, 2009). In addition, school-based mental health providers may be limited in the number of sessions they can offer or in the length of time allotted for sessions given the school’s schedule as well as their often heavy caseload (Beidas et al, 2012). For their part, parents may not be seeking treatment for their child but rather be referred by a teacher or school counselor, thus they may have a decreased level of motivation. Parents may also have concerns about stigma
for their child and for the family (Santiago et al, 2013). Finally, they may prefer to keep mental health concerns separate from the academic setting in the interest of privacy.

**Mental health in rural populations**

The barrier that stigma poses to help seeking for psychological disorders is an issue that also commonly arises in working with rural communities such as the one in which the present study took place. In this context, stigma may mean a sense of shame for being unable to solve one’s own problems and/or a sense of embarrassment stemming from lack of privacy in small, tightly-knit communities (Pullman et al, 2010; Starr, Campbell, & Herrick, 2002). Levels of self-reported stoicism and self-reliance, thought of as traditionally rural values, have also been related to decreased likelihood of seeking mental health services (Hoyt, Conger, & Valde, 1997; Judd et al, 2006). Other barriers to help seeking in rural populations include overlapping relationships with providers, challenges with confidentiality, doubts regarding treatment effectiveness, lack of awareness and education regarding mental illness, and limited resources or providers (Pullman et al, 2010; Roberts, Battaglia, & Epstein, 1999; Starr, Campbell, & Herrick, 2002). It may also be the case that the definition of health differs in rural communities, such that a person must be physically unable to complete daily tasks before health problems of any type are recognized and addressed (Judd, 2006). Additionally, there are logistical barriers unique to rural populations, such as physical isolation that can mean long distances between homes and service facilities (Murry et al, 2011; Pullman et al, 2010). Likely due to a combination of these factors, people in rural communities may prefer to seek the help of other family members, pastors, or medical doctors rather than going to a mental health professional (Murry et al, 2011). Indeed, adults in rural
populations have been shown to be less likely to utilize mental health services than adults in urban settings (Hartley et al, 2002, cited in Heflinger & Christens, 2006). If this is the case, children in rural settings may also be less likely to receive these services, as they are dependent upon adults for both consent and possibly transportation.

**The Current study**

In February 2012, a student in a small town outside of Cleveland, Ohio entered his high school cafeteria as students were preparing to start their school day and began shooting, killing three students and injuring three more. In the months following this shooting, a series of suicides and suicide attempts occurred among students at the high school as well as members of the community. Recognizing the need for mental health services, school administrators reached out to local mental health providers and trauma experts to request assistance. CBITS was selected as the treatment to be used in the local schools to address student needs. This study was conducted in conjunction with these services.

**Study Aims**

The CBITS program has already been shown to be effective in reducing symptoms of PTSD in children who have experienced a trauma. Thus the aim of the present study was not to determine whether or not this program is effective. Rather, the goals of this study were two-fold. First, we sought to characterize a sample of children with elevated PTSD symptoms, to determine the individual- and family-level risk and protective factors for PTSD symptomotology. The advantage of examining the types of variables included in this study is that they are not permanent characteristics. Rather,
they are characteristics that can be addressed in the therapeutic context. Thus, with this knowledge, the ultimate goal would be to inform treatment design.

Part 2 of this study was a feasibility study that aimed to describe the challenges faced when attempting to introduce a treatment program into a school system generally, as well as the specific challenges that are presented by both the rural setting of the community and the unique nature of the community’s trauma. This trauma, a school shooting, is unique because it occurred in the school but threatened the entire student population, as opposed to bullying or a fight or other act of violence that affects just a small group of students. Further, school shootings are relatively rare, thus it presents a unique set of challenges not described in any studies of this program thus far. Based on these challenges, the goal of this second part of the study was to make suggestions for ways in which future studies can introduce treatment programs and become involved in a community in ways that maximize receptivity, engagement, and participation in treatment, thus maximizing efforts of program developers as well as the impact of treatment.

An additional goal of Part 2 was to characterize a trauma sample in greater depth in order to better understand the ways in which families of children with a trauma history function and to more closely examine the risk and protective factors that may be impacted by the CBITS program. A deeper understanding of the functioning of families of children with PTSD will again allow us to better tailor treatment. For example, researchers suggest that the family context be addressed in treatment for traumatized children (Lynskey & Fergusson, 1997), however until we understand the functioning of
families in which trauma has occurred and how it differs from typical families, we cannot know what family-focused components need to be incorporated into treatments.

This study can contribute to our understanding not just of the means through which the CBITS program effects change, but can also potentially inform the design not just of this program but of trauma-focused programs more broadly. This is important given the frequency with which traumatic events occur and the plethora of potential negative sequelae that may result. It is also important to maximize school-based treatments in general. Due to the challenges families often face in seeking psychological treatment and the convenience of having services built into a resource with which families are already involved, this type of treatment is becoming an increasingly frequent means through which children can receive mental health services. This study will speak to strategies that future programs can employ to best integrate themselves into school systems, maximize engagement, and gain the acceptance of school administration and staff as well as the parents and students.

Hypotheses

The hypotheses for Parts 1 and 2 of this study are as follows:

Part 1:

• Maladaptive emotion regulation strategies are thought to underlie many psychological disorders. Due to its tendency to increase physiological arousal and its failure to modulate negative affect, emotion suppression is unlikely to be adaptive in most circumstances, particularly in the face of a trauma. Thus we hypothesize that those students with higher PTSD symptom levels will employ suppression more often and reappraisal less
often as emotion regulation strategies than those with low PTSD symptom levels.

• Research consistently indicates that a trauma history is associated with increased risk for other psychological disorders, including depression. Thus we hypothesize that higher depressive symptom levels will be predictive of higher PTSD symptom levels.

• A problematic family environment has been shown to contribute to the development and exacerbation of psychological disorders such as PTSD. High levels of family conflict are one characteristic of such problematic environments. Therefore it is hypothesized that higher levels of family conflict will be predictive of higher levels of PTSD symptoms.

• Based on past research (Green et al, 1991; Vernberg et al, 1996) it is likely that females will show higher PTSD symptom levels than males. However, analyses examining how gender will interact with other risk and protective factors will be largely exploratory, due to the lack of research done in this area.

• Due to a lack of research studies in this area that include a range of ages or consider age-related differences in risk factors for PTSD symptoms, analyses comparing middle and high school students will be largely exploratory.

Part 2:

• As stated previously, CBITS is an established program that has been shown to be effective in reducing symptoms of both PTSD and depression.
Therefore it is expected that students participating in this study will also show significant decreases in both symptom types at the end of treatment.

- Other analyses will be exploratory, and will seek to understand the characteristics of families in which trauma occurs and to better describe the challenges faced when attempting to address trauma-related symptoms using school-based services. They will also aim to offer suggestions for ways in which psychologists can engage schools and families in these services.

Part 1

Methods

Participants

All parents with a student in the 7th through 10th grades received a letter containing information about the CBITS program. With this letter was a consent form for their child to participate in the screening process and in treatment, if appropriate. Families had the option of returning a paper consent form or responding electronically. Of the 1117 families contacted, consent was obtained for 128 students (11.5%). Prior to conducting the screening, all teachers were notified of the dates on which screening would occur and on which treatment groups were likely to begin. They also received a brief summary of CBITS and were provided with the relevant contact information if they had further questions. Participating students were pulled from study hall or lunch periods in groups of 5-10 over the course of a 2-week period to complete the screening questionnaire packets.

Of these 128 students, 35 were above the PTSD symptom cutoff and were interviewed to assess their eligibility for participation in CBITS. If the student was an
appropriate fit, he or she was given information regarding the general topics covered in CBITS and was informed about the group nature of treatment. Of these 35 students, 17 were deemed inappropriate, mostly due to the nature of their stressor, which often included school- or friend-related concerns but no specific trauma. Of the 18 remaining students 6 decided not to enroll in a group, leaving a total of 12 students (see Figure 1). Consent for treatment was obtained from all parents prior to the start of the program. Thus, consistent with other studies of the CBITS program, students were only excluded from participation in CBITS if they were inappropriate due to a lack of symptom severity or lack of a specific trauma, did not score above the cutoff on the screening tool, parents refused to provide consent, and/or the student declined participation. Regarding the 6 students who opted out of group participation, reasons provided included feeling treatment was unnecessary, discomfort with the group setting, and concerns with missing class time.

**Measures**

*Trauma symptoms.* Consistent with past research, a trauma exposure checklist was used as the screening measure for acceptance into the CBITS program. This measure was divided into two sections. In part 1, students indicated whether or not they had experienced any of 17 traumatic events listed. In the second part, students were asked to indicate how frequently they had experienced a list of 17 symptoms in the past 2 weeks in relation to the most distressing event they selected in part 1. Responses were on a 0 to 3 scale ranging from “not at all” to “almost always.” To be eligible for participation in treatment, students had to endorse at least one event in part 1 and have a score of 14 or higher in part 2 (Langley & Nadeem, 2013).
Adolescent depressive symptoms. The Child Depression Inventory (CDI; Kovacs, 1992), a widely used self-report measure, was used to assess depressive symptoms. The 12-item short form was used in this study to minimize participant burden. For each item, students chose between three statements, e.g. “I am sad once in a while,” “I am sad many times,” or “I am sad all the time.” Items are scored on a 3-point scale. This version has an internal consistency of .79 for children 7-12 and .84 for children 13-17 and a test-retest reliability of .92 (Kovacs, 2011). The full version of the CDI has been used in previous studies examining the efficacy of the CBITS program (e.g. Jaycox et al, 2010; Kataoka et al, 2003).

Emotion regulation. Emotion regulation strategies were assessed with the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA; Gullone & Taffe, 2012). The ERQ-CA is a revised version of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), a well-validated and widely used measure of emotion regulation strategies. The ERQ-CA consists of 10 items, worded to be more appropriate for children and adolescents, rated on a 5-point scale from “strongly disagree” to “strongly agree.” Higher scores reflect greater use of the emotion regulation strategy. Like the ERQ, the ERQ-CA has four items assessing the use of a suppression strategy (i.e. “I keep my feelings to myself”), and 6 items assessing the use of reappraisal (i.e. “When I want to feel happier about something, I change the way I’m thinking about it”). This measure has adequate internal consistency, test-retest reliability, and convergent validity (Gullone & Taffe, 2012). The original ERQ has been used in studies examining the relationship between regulation strategies and adjustment following traumatic events in adults (Moore, Zoellner, & Mollenholt, 2008).
**Family conflict.** Level of family conflict was assessed with the Conflict Behavior Questionnaire (CBQ-20; Robin & Foster, 1989). The CBQ-20 is a 20-item measure of family conflict and negative communication. Items were presented in a true/false format and included statements such as “my mom puts me down.” This measure generates a single summary score, with higher scores indicating greater family distress. The CBQ has been used in previous studies examining the role of the family context in treatment efficacy with adolescents (e.g. Brent et al, 1998).

*Grade.* The grade of the child was coded as 0 = middle school and 1 = high school.

*Gender.* The gender of the child was coded as 0 = male and 1 = female.

*Qualitative Data.* Parental reactions to the consent process, obtained through written or electronic communication, were recorded and used in qualitative descriptions to address the issue of parent engagement.

**Analytic Approach**

Our analyses employed multiple regressions to examine the power of individual- and family-level factors to predict overall PTSD symptom levels. Multiple regressions were also used to examine the predictive power of these factors in relation to the 3 specific PTSD symptom domains (avoidance, reexperiencing, and hyperarousal).

Next, hierarchical linear regression analysis was used to explore gender differences, as research suggests that there may be important differences in the ways males and females respond to traumatic events. For example, Proctor and colleagues (2007) found that the effect of parental stress on child PTSD symptom levels varied by child gender. It is possible that other risk and protective factors in the wake of a trauma
may differ by gender as well. In addition, some research suggests that females exhibit higher symptom levels following a traumatic experience than males (Green et al, 1991; Vernberg et al, 1996). Such gender differences would have clear implications for ways in which treatment could be tailored to most effectively target males versus females. The current study could potentially contribute to our knowledge in this area.

Finally, hierarchical linear regression analysis was also used to explore potential age differences in risk and protective factors for PTSD symptoms. For example, in typical development the level of parent-child conflict has been shown to increase during the first half of adolescence, followed by a subsequent decrease into later adolescence (De Goede et al, 2009). Against this background, trauma-related increases in family conflict may have less of an effect on high schoolers than on middle schoolers, who are less accustomed to such conflict. Older children are also in the process of pulling away from family and spending more time with peers. Thus it is also possible that high school students may be less affected by their family environment because it may be less relevant or they may seek help and support more from peers than from parents. In addition, younger children may be less able to employ adaptive cognitive strategies in the face of a traumatic event. Thus it may be the case that risk and protective factors vary by age, making age considerations another factor in the appropriate design and tailoring of individual or group treatments.

Results

Descriptive Statistics

The mean total scores for each measure are presented in Table 1 by PTSD symptom group, and bivariate correlations are presented in Table 2. The distribution of participating students across grade was as follows: 7th grade, n = 33; 8th grade, n = 32; 9th
grade, n = 35; 10th grade, n = 28. 53% of the sample was male. Students were split on the basis of their PTSD symptom screening score, with scores considered to be high if they were above the measure’s cut-off of 14. As mentioned previously, thirty-five students (27%) had PTSD scores above this cutoff. Of the students with high PTSD scores, 9 were male and 26 were female.

Independent samples t-test showed that those students above the PTSD symptom cutoff had higher CBQ scores (t(123) = -4.82, p < .05) and higher CDI scores (t(125) = -10.06, p < .05) than students with lower PTSD symptom levels. There no differences between groups on ERQ reappraisal (t(125) = 1.21, n/s) or ERQ suppression (t(125) = -1.7, n/s).

Of the 35 students who scored above the PTSD symptom cut-off, 12 students enrolled in CBITS groups and completed the program. Independent samples t-tests revealed differences between the students with high PTSD symptoms by group status. Of those with high PTSD symptom levels, those students who chose to enroll in the CBITS program had significantly higher CDI total scores (t(34) = -3.53, p < .05) and significantly lower scores on cognitive reappraisal (t(34) = 2.40, p < .05). Students enrolled in the CBITS program also had higher levels of family conflict, though this difference was just at trend level (t(31) = -1.92, p = .06). There was no significant difference between the two groups in level of emotion suppression (t(34) = -0.08, n/s).

**Regression Analyses**

Multiple linear regression analysis was used to examine the ability of CDI, CBQ, and ERQ reappraisal and suppression total scores to predict total PTSD symptom score. Results indicated that CDI total score ($\beta = .73$, $p < .05$), CBQ total score ($\beta = .15$, $p < .05$), and total ERQ reappraisal score ($\beta = .14$, $p < .05$) significantly predicted total PTSD
symptom levels (p < .05). Total ERQ suppression score was not related to the level of PTSD symptoms (β = -.03, n/s).

Multiple linear regressions were also used to examine the effects of the individual- and family-level variables in predicting the PTSD symptom subtypes. Consistent with the results for total PTSD symptom levels, total CDI score (β = .57) total CBQ score (β = .20) and total ERQ reappraisal score (β = .17) significantly predicted levels of PTSD re-experiencing symptoms (p < .05). Total ERQ suppression score was not related to level of re-experiencing symptoms (β = .01). In contrast, only students’ CDI total scores were related to levels of PTSD avoidance (β = .77, p < .05). Finally, students’ total CDI score (β = .60) and total CBQ score (β = .16) were significantly predictive of levels of PTSD hyperarousal (p < .05).

Examining gender effects

Hierarchical linear regression analysis was used to examine the independent effects of CDI, CBQ, and ERQ total scores on total PTSD score after controlling for the effects of gender. Gender was entered in step 1, the individual- and family-level variables were entered in step 2, and all interaction terms were entered in step 3. The total variance explained by the model was 64.9%, F(9, 114) = 23.42, p < .05. Results indicated that in the final model only CBQ total score significantly predicted total PTSD symptom levels (β = -.52, p < .05). There was also a significant interaction between gender and CBQ total score (β = .76, p < .05). Examination of this interaction indicated that females with high levels of family conflict had higher PTSD symptom levels than females with low levels of family conflict, while there was no effect of family conflict levels on PTSD symptoms among males (see Figure 2). Follow-up analyses examining
the relationship between family conflict and PTSD symptoms separately by gender confirmed that the relationship between family conflict and PTSD symptoms is not significant for males ($\beta = .01$, n/s), but is significant for females ($\beta = .61$, $p < .05$).

**Examining grade effects**

Hierarchical linear regression analysis was also used to examine the independent effects of CDI, CBQ, and ERQ total scores on total PTSD score after controlling for the effects of grade. Grade was entered in step 1, the individual- and family-level variables were entered in step 2, and all interaction terms were entered in step 3. The total variance explained by the model was 63.9%, $F(9,114) = 22.39$, $p < .05$. Results from the final model indicated that CDI total score ($\beta = .57$, $p < .05$) and CBQ total score ($\beta = .24$, $p < .05$) significantly predicted PTSD symptom levels. There was also a significant interaction between grade and ERQ reappraisal total score ($\beta = .80$, $p < .05$).

Examination of this interaction indicated that for high school students level of cognitive reappraisal made no difference in PTSD symptom levels, but for middle school students those with low reappraisal scores had higher PTSD symptom levels than those with high reappraisal scores (see Figure 3). Follow-up analyses examining the relationship between cognitive reappraisal and PTSD symptoms separately by grade confirmed that the relationship between reappraisal and PTSD symptoms is not significant for high school students ($\beta = .06$, n/s), but is significant for middle school students ($\beta = -.28$, $p < .05$)

**Discussion**

Children show varying levels of PTSD symptoms in the wake of a traumatic event. Some show very high levels of symptoms and associated impairment, while others seem to be only minimally affected. Understanding how these differences come to be
involves understanding the risk and protective factors that characterize the children in these different groups. In children it is important to examine both individual- and family-level factors, as the family unit still plays such an influential role. The goal of this first part of this study was to contribute to our understanding of these risk and protective factors by examining differences between children with high PTSD symptom levels and children with low PTSD symptom levels. With this understanding, the ultimate goal would be to contribute to the design of trauma-focused interventions.

Results indicated a significant, positive relationship between PTSD symptom levels and depressive symptoms. This finding is consistent with past studies highlighting the frequent co-morbidity of PTSD and depression in children and adolescents (e.g. Kilpatrick et al, 2003; Thabet, Abed, & Vostanis, 2004). In fact, some researchers have suggested that PTSD and depression share underlying risk factors, including both characteristics of the precipitating event as well as characteristics of the individual (Breslau, Davis, Peterson, & Schultz, 2000; O’Donnell, Creamer, & Pattison, 2004). Further evidence of this shared risk is suggested in the finding that adults with a trauma history but without a diagnosis of PTSD are not at an increased risk for depression (Breslau, Davis, Peterson, & Schultz, 2000). The link between symptoms of depression and PTSD is further emphasized in findings from past studies of CBITS, which showed that this trauma-focused treatment also resulted in improvements in symptoms of depression. Given this link, trauma-focused treatments may do well to incorporate some depression-specific skills or make explicit how the skills the children are learning to address trauma may also be used to address depression. For example, when children are
learning cognitive skills they can be instructed on how to challenge trauma-related thoughts (e.g. I am not safe at school) as well as depressive thoughts (e.g. I am no good).

High levels of family conflict were also related to higher PTSD symptom levels. This is consistent with findings of other studies relating family functioning to PTSD symptom severity (Conte & Schuerman, 1987; Wasserstein & La Greca, 1998). This finding may be explained in a number of different ways. It may be the case that children from high-conflict families do not receive the support they need to overcome stressful events, or that they have not learned the emotion regulation and coping skills to successfully navigate stressful situations on their own (Repetti et al, 2002). Further, parents from these high-conflict homes may be experiencing their own psychopathology, leaving the child at a genetically and environmentally higher risk to develop pathology herself. However while it is possible that family conflict is a risk factor for poor outcome following a trauma, it may also be the case that in the wake of a traumatic event family conflict increases as a response to stress. In future studies, it will be important to explore these possibilities in further detail, using longitudinal data sets so that results can also speak more clearly to the direction of the relationship between these two factors.

Cognitive reappraisal was related to all aspects of PTSD symptom levels except symptoms of hyperarousal, with higher levels of reappraisal predicting lower levels of PTSD symptoms. However emotion suppression was not related to total PTSD symptoms levels or to levels of any of the symptom subtypes. This is in contrast to the findings of Moore and colleagues (2008), which indicated that reappraisal was not related to PTSD symptom severity, while suppression was associated with higher PTSD severity. The Moore study used an adult sample, while the present study focused on children in
early- to mid-adolescence. Thus the conflicting findings may be attributable to what is normal at different developmental stages. In children and adolescents, reappraisal is likely to be used less often as it is a more sophisticated strategy. Thus when children are able to use it stronger effects are found. For adults, however, reappraisal is likely to be more common while the use of suppression may be more unusual (Blanchard-Fields, Stein, & Watson, 2004). Thus for adults the use of suppression may be more deleterious.

Regarding the effects of gender, results indicated that females had higher levels of depressive symptoms and family conflict than males. The greater number of females in the high PTSD symptom group is consistent with past research suggesting that females show higher levels of PTSD symptoms following a trauma than males (Green et al., 1991; Vernberg et al., 1996). The fact that females show higher levels of depression than males is not surprising, given the number of studies that have shown this trend. There was also an interaction between gender and PTSD symptom group with regard to family conflict. Females in the high PTSD symptom group had higher levels of family dysfunction than females in the low PTSD group, while there was no difference in family conflict levels among males. In other words, for females PTSD symptoms were more tied in to family functioning. It is possible that gender socialization is playing a role here. Past research suggests that females are socialized to place more value in interpersonal relationships than males (for a review, see Cyranowski, Frank, Young, & Shear, 2000). If this is true, then it would follow that dysfunctional family relationships would have a greater effect on females than on males.

In terms of age differences, a significant interaction indicated that for high school students PTSD group made no difference in level of cognitive reappraisal, but for middle
school students those with low PTSD symptoms had higher cognitive reappraisal scores than those with high PTSD. It may be the case that the middle school years are the time during which the ability to use cognitive reappraisal is developing, while by high school most youth have attained this skill and thus it becomes less of a differentiating factor. This possibility is supported by recent brain imaging studies suggesting increases in cognitive reappraisal use across adolescence (McRae et al, 2012).

Overall, these results identify possible risk factors for the development of PTSD symptoms generally, while also identifying risks factors specific to different age and gender groups. In terms of the clinical implications of these findings, these results suggest that trauma-focused treatment programs would do well to include modules that also address symptoms of depression and teach children how to manage and effectively cope with family conflict, in order to most comprehensively address the needs of this population. The importance of including these skills is underlined by the fact that even of the students with high symptom levels, those who participated in the groups had higher levels of depression. Results also suggest that some tailoring of treatment should be done depending on the composition of the group. More specifically, with younger groups more time may need to be spent teaching cognitive skills, while with groups of predominantly females it may be beneficial to focus more specifically on coping with conflict and interpersonal effectiveness.

It is important to note that there are some limitations to this study. First, this study employed concurrent measures of PTSD symptoms and individual- and family-level factors. However, in order to examine questions of causality more fully it would be necessary to have measures of purported risk factors that predate PTSD symptom levels.
While studies of this sort would be difficult to conduct given the unpredictability of traumatic events, it may be possible to examine these sequential questions using data sets that happen to capture these variables in the correct sequence. In addition, it could also be informative for future studies to include measures of peer functioning, as students in middle and high school are entering the age where peer influence is becoming more significant. Second, it is possible that this study was subject to selection bias, such that the students who exhibited symptoms at either extreme (i.e., either no symptoms or severe symptoms) were more likely to have received parental permission to participate. This could impact the extent to which this sample is representative of children with a history of exposure to a traumatic event. Thus it will be important to replicate these findings in larger, more representative samples.

Part 2

Methods

Participants

As mentioned previously, a total of 12 students opted to participate in the CBITS program. At the parent information session held at the beginning of treatment, parents were informed about the opportunity to take part in the second, family-focused phase of this study. Study procedures were explained, and it was made clear that their ability to participate in CBITS would not be affected in any way by their participation in this study. Families were offered $50, to be split between the child and parent, in return for their participation. Those parents who did not attend this session in person were contacted by telephone and given the same information. Parents were also encouraged to discuss participation with their child. Of the eligible families, 9 agreed to participate and were
enrolled in the family-focused portion of the study. Parental consent and child assent were obtained.

Measures

Demographics. Information was collected regarding the age and ethnicity of parents and children as well as the employment status, level of education, marital status and income of the parents.

Adolescent PTSD symptoms. Adolescent PTSD symptom levels were assessed using the Child PTSD Symptom Scale (CPSS, Foa et al, 2001). Children were asked to report how frequently they experienced each of the 17 symptoms (e.g. “having bad dreams or nightmares”) in the past month, with responses ranging from “not at all” (0) to “5 or more times a week” (3). Scores on this scale range from 0-51, with higher scores indicating more severe symptoms, and can be grouped by symptom clusters into three groups: reexperiencing, avoidance, and arousal. A cutoff score of 11 distinguishes high and low PTSD symptoms. In addition, there are 7 items assessing functional impairment to which children respond “absent” or “present.” This measure has been shown to have adequate internal consistency, test-retest reliability, and convergent validity (Foa et al, 2001). The CPSS has also been used in prior studies of the CBITS program to assess treatment outcome (e.g. Jaycox et al, 2010; Stein et al, 2003).

Adolescent depressive symptoms. The 12-item short form of the Child Depression Inventory (CDI; Kovacs, 1992) was used to assess the level of self-reported depressive symptoms in youth. For each item, students chose between three statements, e.g. “I am sad once in a while,” “I am sad many times,” or “I am sad all the time.” Items are scored on a 3-point scale. This version has an internal consistency of .79 for children 7-12 and .84 for children 13-17 and a test-retest reliability of .92 (Kovacs, 2011). The full version
of the CDI has been used in previous studies examining the efficacy of the CBITS program (e.g. Jaycox et al, 2010; Kataoka et al, 2003).

The CDI parent-report version was also used in the present study. The parent version of the CDI has 17 items such as “my child looks sad” and “my child enjoys school” rated on a 4-point scale from “not at all” to “much/most of the time.” Responses can be broken into 2 subscales: emotional problems and functional problems. The total score of the parent version has an internal consistency of .90 for 7-12 year olds and .86 for 13-17 year olds (Kovacs, 2011). The functional problems score has an internal consistency of .82 for 7-12 year olds and .75 for 13-17 year olds. The emotional problems score has an internal consistency of .87 for 7-12 year olds and .83 for 13-17 year olds (Kovacs, 2011).

Emotion regulation. Adolescent emotion regulation strategies were assessed with the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA; Gullone & Taffe, 2012). The ERQ-CA is a revised version of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), a well-validated and widely used measure of emotion regulation strategies. The ERQ-CA consists of 10 items, worded to be more appropriate for children and adolescents, rated on a 5-point scale from “strongly disagree” to “strongly agree.” Higher scores reflect greater use of the emotion regulation strategy. Like the ERQ, the ERQ-CA has four items assessing the use of a suppression strategy (i.e. “I keep my feelings to myself”), and 6 items assessing the use of reappraisal (i.e. “When I want to feel happier about something, I change the way I’m thinking about it”). This measure has adequate internal consistency, test-retest reliability, and convergent validity (Gullone & Taffe, 2012). The original ERQ has been used in studies
examining the relationship between regulation strategies and adjustment following traumatic events in adults (Moore, Zoellner, & Mollenholt, 2008).

*Coping strategies.* Adolescent coping strategies were assessed with the Children’s Coping Strategies Checklist (CCSC; Program for Prevention Research, 1999). This 54-item measure assesses the ways in which children cope with problems or upsetting situations. The prompt “when you had problems in the past month” was given, followed by statements such as “you told people how you felt about the problem” and “you told yourself you can handle whatever happens.” Items fall on a 4-point scale from “never” to “most of the time.” Questions are grouped into 4 dimensions: active coping strategies (problem focused coping, positive reframing coping – 16 items), distraction coping strategies (physical release of emotions, distracting actions – 10 items), avoidance coping strategies (avoidant actions, repression, wishful thinking – 8 items), and support seeking coping strategies (support for actions, support for feelings – 10 items). These dimensions have been found to have internal consistency between .73 (avoidance strategies) and .89 (active coping) and test-retest reliability between .64 (avoidance coping) and .80 (active coping; Program for Prevention Research, 1999). The CCSC has been used in studies examining the effect of coping strategies on children’s adjustment to potentially traumatic experiences, including parental divorce (Sandler et al, 1994) and natural disaster (Pina et al, 2008).

*Family functioning.* The Family Assessment Device (FAD; Epstein, Baldwin, & Bishop, 1983) is a widely-used measure of family functioning. Parents rated each of the 60 items on a 4-point scale from “strongly disagree” to “strongly agree.” Items included statements such as “we are reluctant to show our affection for each other” and “making
decisions is a problem for our family,” with lower scores indicating more adaptive family functioning. The FAD consists of six specific subscales: problem solving (5 items), communication (6 items), roles (8 items), affective responses (6 items), affective involvement (7 items), and behavior control (9 items), as well as a general functioning score (12 items). Internal consistency scores for the subscales range from .57 (roles) to .83 (general functioning) in nonclinical samples (Kabacoff, Miller, Bishop, Epstein, & Keitner, 1990). The FAD has been used in previous studies examining the role of the family context in treatment efficacy with adolescents (e.g. Brent et al, 1998) and as a measure of treatment outcome with physically abusive families (Kolko, 1996).

*Family conflict.* Level of conflict within the family was assessed using the Conflict Behavior Questionnaire (CBQ-20; Robin & Foster, 1989). The CBQ-20 is a 20-item measure of family conflict and negative communication. Parallel versions are available for both parent and child report, and both versions were used in the present study. Items were presented in a true/false format and included statements such as “for the most part, my child likes to talk to me” and “my mom puts me down.” This measure generates a single summary score, with higher scores indicating greater family distress. The CBQ has been used in previous studies examining the role of the family context in treatment efficacy with adolescents (e.g. Brent et al, 1998).

*Parent depressive symptoms.* The Beck Depression Inventory - II (BDI-II; Beck, Steer, & Brown, 1996) was used to assess levels of parental depression. The BDI is a 21-item measure commonly used to assess depression symptoms in adults. For each item, respondents chose which one of four statements was most true about them in the past two weeks. Items included statements such as “I am no more irritable than usual,” “I am
more irritable than usual,” “I am much more irritable than usual,” “I am irritable all the time.” Responses are given scores of 0-3, with higher scores indicating more severe symptoms. Items map on to DSM criteria for depression, and scores above 16 are considered to be clinically significant. The BDI-II has been found to have acceptable discriminant and construct validity, and has been shown to have an internal consistency of .92, and a test-retest reliability of .93 (Beck, Steer, & Brown, 1996).

**Parental anxiety.** Parents reported on their own levels of anxiety with the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988; Beck & Steer, 1993), a 21-item measure of anxiety symptoms in adults. Parents were asked to indicate how much they had been bothered by symptoms such as being “unable to relax” and “feelings of choking” in the past two weeks. Responses were on a 4-point scale from “not at all” to “severely.” Scores of 16 or higher indicate moderate to severe levels of anxiety. The BAI has been shown to have adequate internal consistency and test-retest reliability, and has also been shown to have acceptable convergent and discriminant validity (Beck et al, 1988; Fydrich, Dowdall, & Chambless, 1992).

**Gender.** The gender of the child was coded as 0 = male and 1 = female.

**Engagement.** Group leaders rated each child’s level of participation and affect expressed in the session at the end of each meeting on a 2-item form. Both items were rated on a 5-point scale, with higher scores indicating greater engagement. Group leaders also indicated whether or not the student completed the activities assignment for that week.

**Treatment Fidelity.** The CBITS protocol has been manualized to improve consistency and treatment fidelity across providers. The topics to be covered each week
are specified in detail in the treatment manual. Group leaders were provided with the CBITS Fidelity and Adherence Measure, a checklist detailing the topics to be covered in each session based on the treatment manual. They completed this measure at the end of each session, noting which of the required topics were actually covered in the session.

*Treatment Outcome.* Measures of PTSD and depressive symptom levels, as well as measures of family conflict and emotion regulation, were re-administered to students following the final treatment session to assess their symptom change. Measures of child depression and family conflict were also re-obtained from parents at the end of treatment.

*Qualitative Data.* Data regarding student reactions to CBITS was collected through informal interviews at the end of treatment.

**Intervention**

The treatment used in this study was the Cognitive Behavioral Intervention for Trauma in Schools (CBITS; Jaycox, 2004). CBITS is a 10-week program for children as young as 10 years old designed to be delivered in a group format, with between 6 and 8 students per group. CBITS is a skills-based cognitive therapy intervention. Sessions cover basic relaxation training, cognitive structuring, and social problem solving. Groups met during the school day, however the timing of groups was carefully chosen to minimize the amount of class time missed. Groups were held during study halls when possible, and if held during class periods the periods rotated so that each child did not miss the same class more than twice. At the end of each group session, students were given a brief activities assignment to help them generalize the skills they just reviewed.

In addition to these group sessions, children also met individually with a group leader to conduct imaginal exposure for up to three sessions. Parent education sessions were also included. This program includes features that have been found to increase the
effectiveness of school-based mental health services generally, specifically communication with school staff regarding program goals and rationale, treatment components that address the multiple domains that affect child functioning (school, family, and peers), and an emphasis on skill-building (Rones & Hoagwood, 2000). See Appendix A for a full description of session content for individual child and parent sessions.

**Analytic Approach**

Our analyses used descriptive statistics to characterize this group of traumatized youth in more depth, in an attempt to provide further information that can be used to better tailor our existing treatments to specific populations of children. Next, we used paired T-tests to examine the levels of risk and protective factors pre- and post-treatment. This may help us to determine the ways in which treatments of this type are effective and the specific types of change that they foster.

Qualitative analysis with data collected in parts 1 and 2 of the study was also used to go beyond suggestions for treatment adaptations to assess the feasibility of running a manualized psychosocial treatment program in a school setting, describe the challenges associated with school and family engagement in the wake a community-wide trauma, and suggest strategies for maximizing participation in larger-scale studies of this type.

**Results**

*Descriptive Statistics*

All of the students and parents who participated in this second part of the study were female, and all were Caucasian. Eight of the 9 mothers (88.9%) were married or living with a partner, and 7 of the 9 mothers (77.8%) worked outside of the home. Of the 9 students who participated, 4 were in the 7th grade, 2 were in the 8th grade, and 3 were in
the 10th grade. Students attended between 6 and 10 sessions, with an average of 8 sessions attended. Two students attended the full 10 sessions of the program.

Average total score on the BDI, the measure of maternal depression, was 13.11 (SD = 9.01). The recommended clinical cutoff score on the BDI is typically around 16, with scores above 10 considered to be in the dysphoric range (Beck, Steer, & Brown, 1996). Using this criterion, 5 of the 9 mothers scored at least in the dysphoric range. Thus about half of these mothers of children with a trauma history have elevated levels of depression, though they fall below the clinical range. The average total score on the BAI, the measure of maternal anxiety, was 23.33 (SD = 12.81). The clinical cutoff score on the BAI is 16 (Beck & Steer, 1993). Seven of the nine mothers had a total BAI score over 16. This suggests that the majority of the mothers of these children show clinically significant levels of anxiety.

Regarding levels of family conflict, the average CBQ score in non-distressed families is 2.4 by maternal report and 2.0 by adolescent report. The average score in distressed families is 12.4 by maternal report and 8.4 by adolescent report (Robin & Foster, 1989). The scores for families in this study fell in a range between these scores, indicating that levels of family conflict were elevated but not within the range of clinical significance.

Comparison of average item scores on the Children’s Coping Strategies Checklist for the students in this study to the norms for this measure (Ayers, Sandler, West, & Roosa, 1996) is shown in Table 3. Scores are shown separately for each subscale. These results indicate that this group of children with a trauma history employed cognitive decision making, direct problem solving, seeking understanding, and positive cognitive
restructuring strategies less often than their typical peers. On the other hand, these students used physical release of emotions, distracting actions, and avoidant actions more often than average. Thus the students in the present study employed fewer active coping strategies and more distraction or avoidant coping strategies.

Regarding family functioning, Table 4 shows the average scores for each of the Family Assessment Device subscales compared to the cut-off scores established by the authors (Miller, Epstein, Bishop, & Keitner, 1985). On this measure, scores above the cut-off indicate impairment. Overall, the families in this study seem to be functioning in the normal range. The slight elevations in problem solving and communication subscales may indicate some minor impairment.

**Analyses**

Average pre-treatment and post-treatment scores are presented in Table 5. A paired-samples t-test was used to evaluate the impact of treatment on total PTSD symptom levels. There was a significant decrease in total PTSD symptoms from pre- to post-treatment (t(8) = 2.86, p < .05). In addition, there was a significant decrease in parent-reported symptoms of child depression (t(8) = 3.08, p < .05). Student self-report of depression symptoms also showed a decrease, however it was not significant (t(8) = 1.08, n/s). While none of the other measures showed significant change, they all trending in directions that suggest improvement in functioning. For example, cognitive reappraisal scores went up between time 1 and time 2 (t(8) = -1.43, n/s), while emotion suppression scores went down between time 1 and time 2 (t(8) = 1.31, n/s). In addition, there was a trend for child-reported family conflict scores (t(8) = 1.87, n/s) and parent-reported family conflict scores to go down between time 1 and time 2 (t(8) = 1.81, n/s).
Qualitative analysis

An additional goal of this study was to use qualitative data to further our understanding of what makes school-based programs effective as well as the challenges that may arise when attempting to conduct a research study or implement a clinical program in a school setting.

Regarding potential barriers to the implementation of school-based programs, one common challenge is parent engagement. At a basic level, this engagement includes family recruitment, and parental willingness to give permission for their student to participate in treatment. In this study, lack of engagement at this level manifested in different ways. One way was through passive resistance, reflected perhaps in the low response rate to requests for permission to screen students. In fact, one problem that arose in this study was to find a recruitment strategy that would maximize response and engagement rates while still respecting the values, practices, and unique dynamics of the school and the community in which this study took place. While it is common practice for school-based treatment research to employ a passive consent strategy, in this case this passive approach caused significant upset within a subset of the community. Several parents, some of whom were prominent residents of the town, called or emailed the head of special education and/or school administrators and expressed the opinion that the passive strategy was underhanded or invasive, and as a result the school system’s new superintendent opted to require an active consent for participation. Families were given the option of responding either with a hard copy or electronically for the purposes of convenience, and were told that respondents would be randomly selected to receive gift cards regardless of their answer. Despite these accommodations, the response rate was
low and it is likely that the number of students who participated in the screening process, and thus in the CBITS program, was significantly lower than it would have been had a passive consent process been possible.

Of those who did respond, parent resistance to their child participating in CBITS seemed to stem from several different sources. These include self-reliance (e.g. “We are working through our grief together, and we are doing fine”) or a desire to simply move on (e.g. “We are at a point where the kids are moving forward with their lives and I would prefer the opportunity to have to revisit and discuss thus pulling thoughts into the present not occur”), to questions about the extent to which discussions of traumatic events and trauma-related treatment are developmentally appropriate (e.g. “Although I am thankful that we have a school who is fortunate to have programs such as this, I think its rather intrusive to ask such questions at this age”). Other parents expressed resentment toward the school and a clear desire to keep mental health concerns separate from the school setting (e.g. “I find the suggestion to do this with the kids totally intrusive and violating… It’s an invasion of family privacy and very "big brother" of the school;” “I understand what/why this "special program" is for/about. But I feel there is no need for the school to be monitoring my children concerning such matters. It is my job as a parent to be attentive to these kinds of issues.”). The idea that the school would offer such services seemed to anger some parents, with indications that the family wished to have no further contact with anyone other than the academic staff (e.g. “I hope this is the last time I have to communicate with you”).

Another level of difficulty engaging parents was encountered once students were enrolled in CBITS. This program includes two parent information sessions. These
sessions give parents the opportunity to understand what their children are learning in CBITS but are also meant to instruct parents on the ways in which they can provide appropriate support to their children and serve as models for effective coping. Thus it is important that parents attend these sessions. While the majority of parents attended the first parent session, only 1 attended the second parent session.

One additional problem noted was the reluctance or even refusal of some teachers to excuse students from class to attend the CBITS groups. Attempts were made to minimize the number of times students were pulled from core subjects such as math and language arts, however this could not be completely avoided. In these cases, school administrators took no action to ensure that students were allowed to attend sessions.

While there were challenges faced, there were also several factors that facilitated the successful implementation of these groups. The most significant of these was having a mental health professional within the school as a co-leader for the groups, or at least as an identified resource when questions or needs arose. These internal allies helped to manage small logistical matters such as selecting and reserving space, gaining access to student schedules and parent contact information, and obtaining access to copy machines and drawing materials. They were also integral to addressing larger issues such as working with hesitant teachers and understanding school and community politics. Further, they could provide information about students’ backgrounds that was important for treatment planning but likely could not have been obtained otherwise.

Regarding the content of the groups themselves, when asked what part of the group they found most helpful, the majority of students identified the relaxation techniques as skills they were likely to continue using into the future. Building in time at
the end of each session to practice relaxation seemed not only to reinforce this skill but also to prepare students for a smoother transition back to class. Another common response was the availability of group support. In addition, it seemed that students in the younger groups benefitted from more practice with the cognitive skills than was built into the treatment manual.

**Discussion**

General coping skills have been found to contribute to trauma response in adults (Scarpa, Haden, & Hurley, 2006), however few studies have examined their impact in children. Thus they are not often specifically assessed or addressed in the context of trauma-focused treatments. Further, family factors have been found to contribute to PTSD symptom levels (Conte & Schuerman, 1987; Loar et al, 2001; Proctor et al, 2007; Wasserstein & La Greca, 1998), however trauma-focused interventions tend to focus on the child with the trauma history and do not always involve more family-focused components. Thus one goal of this study was to more closely examine these factors and add to our understanding of what might need to be included in the design of future treatments.

In addition, school-based treatment programs are becoming more common due to the increasing recognition of the link between psychological functioning and academic performance as well as to the advantages they offer to families, particularly in disadvantaged neighborhoods. Despite this growing popularity, a number of barriers to successful implementation of treatment programs in schools have been identified. Thus an additional goal of this study was to describe the process of implementing this school-based, trauma-focused treatment and to offer suggestions for how implementation can be
more successful in future efforts. A more in-depth examination of the implementation process will follow in the general discussion.

First, the 9 students in this study showed improvements in symptoms of PTSD and depression by the end of the treatment. The effect size for PTSD symptom reduction in this study was .98, which is consistent with other studies examining the effectiveness of CBITS for which data was available. For example, Kataoka and colleagues (2003) had a pre- to post-treatment effect size of .75, while Jaycox and colleagues (2010) had an effect size of .79. The effect size for the decrease in parent-reported symptoms of depression in this study was .99. This decrease in depressive symptoms is also consistent with past CBITS studies.

The data from this study were also used to contribute to our understanding of how children with a trauma history might vary from other children. Results indicated that students in the treatment groups showed more avoidant and distraction coping and less active coping compared to their peers. It is possible that the less effective coping skills these students reported contributed to their impairment in the wake of a traumatic event, and that the coping skills a child has before a trauma occurs are an important predictor of post-trauma functioning. However in this study we did not have coping skills data from a group of students with a trauma history but low levels of PTSD symptoms so this possibility could not be explored. Future studies should examine this possibility, since a coping skills module could be easily incorporated into a treatment program and not only help to lower present symptom levels but potentially prevent impairment in the face of future stressors.
In addition, there was a trend toward improvement in emotion regulation in this study. While the sample in this study was too small to examine the relationship between change in emotion regulation strategy and change in trauma symptoms, research with adults suggests that improvements in emotion regulation may mediate PTSD treatment response (Hinton, Hofmann, Pollack, & Otto, 2009). This relationship should be examined in future studies using larger samples of children, in order to better understand what makes treatments effective.

We also did not have a sufficient sample size to examine how family factors played into treatment response. However research by Friedrich and colleagues (1992) suggests that parental pathology and family conflict levels impact treatment response following sexual abuse. It is possible that these factors affect treatment response following other types of trauma as well. Future studies with samples of mixed trauma types should examine this possibility, because an understanding of the factors that complicate treatment and negatively impact treatment response is just as important as knowledge of the factors that facilitate improvement.

One interesting note is the elevated levels of anxiety reported by the mothers of these participants. It is possible that parental anxiety simply made parents more likely to enroll their children in the CBITS program. However this finding is consistent with other studies that have found that children of anxious parents show higher levels of anxiety themselves, as well as more difficulty regulating their emotions (Gruner, Muris, & Merckelbach, 1999; West & Newman, 2003). It will be important to examine parent symptoms in larger trials of this type, to see if this is a consistent finding. These anxious parents may be at risk for falling into either the withdrawn/unavailable/unresponsive
pattern, if they are overwhelmed by their own emotional reactions and thus become avoidant, or the overprotective/constricting pattern described by Scheeringa and Zeanah (2001). It would likely be challenging to assess parenting styles as part of a school-based trauma intervention, both because it would be logistically challenging and because it may raise the defensiveness of parents. However, if larger studies of this type also find elevated levels of parental anxiety it may be important to adapt the agenda of parent groups such that the potentially maladaptive ways in which anxious parents are likely to respond to their children are addressed. For example, a withdrawn/unresponsive parent may not be aware of her child’s distress, thus educating parents about how to recognize emotions and offer proper support may be warranted. On the other hand, an overprotective/constricting parent may reinforce his child’s anxiety and perception of the world as fearful and unpredictable. In that vein, parent groups could also cover how to not reinforce anxious behavior, how to appropriately support a child’s attempts at exposure and fear hierarchies, and how to effectively manage their own anxiety so they can best help their child.

In addition, a number of suggestions for future work in school-based mental health can be made based on the qualitative results of this study. In terms of recruitment, a passive consent process, at least in the initial phases where potential students are being identified, is likely to be more effective in maximizing program impact. If active consent must be used offering incentives may be important, particularly if clinicians sense that motivation to seek treatment may be low in the community due to factors such as mental health stigma or a lack of awareness of mental health concerns. At a larger level, this
demonstrates the importance of being aware of the culture of the school and the community prior to introducing a program.

Aside from recruitment, an additional challenge faced was keeping parents engaged in treatment as indicated by the poor attendance at the second parent session. Parent engagement has been cited as a challenge in other CBITS studies (Langley et al, 2010) as well as other studies of school-based interventions (Clarke et al, 1999; Schochet et al, 2001). Parent notes regarding the meetings were sent home with students, however follow up phone calls to the homes indicated that few students had delivered these notes to their parents. Thus direct mailings and/or phone calls are likely to be more effective in maximizing parent participation. Further, more frequent communication home between parent sessions may have helped to maintain parent interest. This may have the added bonus of prompting parents to ask their children about treatment. This would have the benefit of encouraging students to use the skills they learn in therapy out of the session and communicating to the students that the parent can be a source of support. Finally, there were times at which teachers were resistant to excusing students to attend therapy sessions. It may have been helpful for information about the groups to be sent to the teachers by the administrators rather than the special education staff, to convey their support and give the groups an extra degree of importance. Future studies may want to carefully consider how information regarding treatment programs is introduced to teachers.

It is important to note that there are some limitations to this study. First, the data used in this study was collected from female students and their mothers. This is not necessarily surprising given that females are more likely to show impairment following a
trauma, and that family-focused research often relies on maternal data. However it will be important for full-scale studies to examine factors influencing response to trauma-focused treatment in mixed gender samples, particularly given the finding in Study 1 that family factors are more important for females than for males. It will also be important to gather perspectives on family functioning from fathers, and to examine the potential influence of paternal psychopathology. In addition, these data come from an exclusively Caucasian sample. While this is consistent with the largely Caucasian make up of the community from which the sample was drawn, both this and the lack of male reporters limits the generalizability of the findings.

**General Discussion**

There is a growing recognition of the importance of school-based mental health efforts and the promise and advantages they offer for intervention as well as prevention efforts. There are also an increasing number of empirically validated treatments for children and adolescents that are available and ready to be introduced into the school setting. These programs cover a wide variety of psychosocial concerns, including disruptive behavior (Wilson & Lipsey, 2007), obesity (Brown & Summerbell, 2009), and anxiety (Bernstein, Layne, Egan, & Tennison, 2005). An important question for advancing the field of school-based intervention is how to best implement such programs, thus maximizing their effectiveness. The question, then, is not whether or not school-based mental health is a worthwhile field for clinical psychologists, but rather how we can maximize the potential of these programs. Questions also arise regarding the ways in which we should conduct the necessary research, and carry out the clinical work in a way that is in keeping with both our professional training and standards as well as with the
structure and limits of the school system. Thus the main issue is one of adaptation to the school environment. Barriers to successful adaptation and implementation are encountered with students, parents, and school administration and staff. However it is also important to consider community-level factors, as well as mental health stigma and challenges specific to the type of treatment in question. Each of these issues will be discussed in turn.

**Student engagement**

Interview studies seeking to determine facilitators of adolescent engagement in treatment have found that one important factor was the use of educational campaigns to promote help-seeking (Wilson & Deane, 2001). This type of campaign typically includes information that normalizes both the presence of symptoms as well as seeking therapy and also points to the consequences of not getting help. It is important that this normalization comes both from peers (e.g. knowing someone who has been in treatment) as well as the community of caregivers, who can model openly discussing struggles and can underscore the importance of seeking help. Further, evidence suggests that these campaigns are most appealing, and thus likely to be most effective, when they are interactive rather than relying on the use of lectures that students must sit through.

In the interest of increasing student engagement, another important strategy is to make clear that the students have a choice. These kinds of techniques, which recognize adolescents’ increasing autonomy and maturity, have been suggested as ways to engage treatment resistant teens generally, regardless of the presenting problem (Sommers-Flanagan, Richardson, & Sommers-Flanagan, 2011). Importantly, survey research has shown that there is generally a positive attitude about help seeking among adolescents. The trick to turning this positive attitude into actual treatment engagement may lie in
presenting information regarding treatment in the most effective and appealing way (Wilson & Deane, 2001). To address these questions of both education and respect for growing autonomy, one action we could have taken in this project that might have increased student participation would have been to send out information to the students as well as the parents, rather than relying on the parents to explain to the students about the screening and why it was happening. General information about stress and mental health, as well as specific information about trauma, could have been presented as part of an interactive student assembly, while information to parents could have specifically discussed the importance of normalizing help-seeking. One potential challenge to this is the issue of mental health stigma, discussed below.

Teens have also reported being more likely to seek help from adults who are familiar and who appear knowledgeable and relatable (Lindsey & Kalafat, 1998). This includes the teen feeling as though the adult is able to understand adolescent issues (Wilson & Deane, 2001). Thus there are two important barriers for outside clinicians to be aware of and potentially overcome as they attempt to engage students in a school-based program. The first is the question of familiarity. In this vein, it may be helpful for outside providers to meet with classes of students or offer to hold general school assemblies so that they can become at least somewhat familiar to students prior to the roll out of a treatment program. The second is a question of understanding of teen issues. This issue could be viewed as one of cultural competence, with some scholars even suggesting that clinicians think of adolescence as its own culture, one defined by developmental status rather than ethnic or religious background (Sommers-Flanagan, Richardson, & Sommers-Flanagan, 2011). These points are important for psychologists
coming into a school to be sensitive to and keep in mind. In the case of this study, the clinicians’ age likely worked in their favor concerning questions of their ability to relate to the students. However, it may have been beneficial for clinicians to attend class meetings or homeroom periods to address the issue of familiarity.

Once they are in treatment, the next challenge is to maximize each student’s participation. One factor that has been identified as an important facilitator of student participation in school programs is the amount of time spent focusing specifically on relationship building at the beginning of treatment (Hawley & Garland, 2008). Students in school-based group treatments have reported a preference for programs that begin with a focus on general issues they may be facing and only move on to cover more sensitive issues after the group has established a level of comfort and trust in each other (Wilson & Deane, 2001). The structure of CBITS lends itself to this to some extent, in that the first session is dedicated just to introductions and to a review of common trauma symptoms. This symptom review also serves to normalize students’ experience. However even this discussion of trauma symptoms may be seen by some students as moving too quickly. It is not likely that more time could be dedicated to rapport building in CBITS given the limited number of sessions the program includes, however this research suggests that it may be beneficial to meet as a group prior to the official start of the CBITS program, to spend more time focusing specifically on relationship building. Another key to increasing student participation in treatment is giving them initial experiences of concrete success or skills to build a sense of efficacy. This goal is also something the CBITS program is designed to achieve, by starting with relaxation training before moving into the cognitive portion, where the skills are more difficult to master.
Even if students are enrolled in a program, their response to treatment will vary. Aside from designing treatments to foster early success, thus increasing participation and investment in treatment, one factor that becomes important in maximizing student benefit from a program is the clinician’s level of experience working with this age group. More specifically, because adolescents will not often easily or openly discuss difficult experiences or admit to what is bothering them, the clinician’s ability to listen for relevant information and follow up with the right questions becomes crucial to a student’s success in a program (Hawley & Garland, 2008).

From this research, several suggestions for future school-based programs can be made. Generally speaking, future studies of this type should consider each phase of implementation separately, as they involve different challenges. First, it is important to put a great deal of thought into the early phases of implementation. The work needed in order to successfully implement school-based programs can be heavy in the initial stages, and the success of this phase is crucial to the success of the program in general. This includes the time prior to the beginning of treatment, and involves integrating any study staff into the school and carefully considering how the program and its clinicians are introduced to the students. Next, it is important to select programs that foster early success and initial skill acquisition to get buy-in from students. Finally, it is important that clinicians have specific training and experience in working with an early- to mid-adolescent population. This specific age group presents a unique set of challenges, and a program will have maximum benefit if those who are implementing it are prepared to meet these challenges.

*Parent Engagement*
Parent consent and engagement was cited as one of the top four barriers to implementation by groups attempting to introduce CBITS to their school and remains one of the most common barriers to school-based mental health services in general (Langley et al, 2010). This was certainly one of the barriers confronted in this study. As discussed previously, the response rate from the active consent process was low. Due to the constraints of this particular study, however, this consent strategy was the only option. In future studies of this sort, if active consent is necessary direct contact is likely to be most effective. While our low response rate persisted despite information being sent directly to parents, the research of groups such as Stein and colleagues (2007) suggests that it would likely have been even lower if we had sent materials home with students. Many studies involving school-based interventions use a passive consent process (e.g. Aber, Brown, & Jones, 2003; Chemtob, Nakashima, & Hamada, 2002; Kataoka et al, 2003), and it may be the case that in general this approach, at least in the phase where potentially at-risk students are being identified, will be the most successful in maximizing the impact of school-based interventions. Thus if this approach is approved by the school, it should be given preference over other approaches. Parental consent could still be required to participate in treatment, but parents may be more open to their child receiving services if they are told that their child is showing some distress and are offered an explanation of how services could be beneficial.

Regarding parent participation once children are in treatment, in this study while the majority of parents came to the initial information session only one came to the second one. Perhaps more contact in the interim, in the form of letters or phone calls offering updates on what was being covered in treatment, would have increased the show
rate to the second session. There are also pre-existing factors that may have influenced parent engagement. For example, Santiago and colleagues (2013) found that the schools with the highest reported parental engagement were the ones in which parents were already highly engaged with the school generally. While there is nothing program developers in future studies can do to address this pre-existing level of engagement, it may be important to be aware of it prior to program implementation. If general parent engagement is low, then clinicians can be aware that they may need to devote more time and resources to reaching out to parents than they might have anticipated. It may also be helpful for program developers or researchers examining program effectiveness to incorporate explicit training in and emphasis on effective strategies for engaging parents when preparing clinicians to deliver a given treatment.

Because it is such a barrier to getting children involved in treatment, it is important for research to continue exploring strategies to maximize parent engagement. As mentioned previously, some barriers are logistical. These include difficulty getting in contact with parents, lack of time on the part of both clinicians and parents, lack of childcare, or lack of transportation. Some ways to get around logistical challenges have been identified, such as meeting parents at home or at work rather than asking them to attend a meeting at school (Santiago et al, 2013). The challenges of this approach, though, are that it places extra demands on clinicians and raises concerns with issues of confidentiality. Alternatively, McKay and colleagues (1996) showed that an intervention specifically designed to increase parent engagement by problem-solving logistical barriers to treatment with them and demonstrating action (e.g. calling a school to set up a meeting for the parent) was effective in improving first session attendance and treatment
completion rates. These approaches are worth examining in more depth, to determine their relative effectiveness.

At the same time, however, it is perhaps more important to understand where parent resistance comes from, whether it is resistance to their child receiving services or to their own participation in these services. Researchers suggest several factors may be at play, including stigma, denial of problem severity, lack of trust in providers, doubts about a treatment’s potential for effectiveness, concerns with their child being singled out or made fun of, concern that the clinician will not be able to establish a good relationship with their child, or fears of being blamed for their child’s difficulties (Pullman et al, 2010; Starr, Campbell, & Herrick, 2002). Challenges regarding stigma may certainly have come into play in this study. In other CBITS studies, consistent positive responses from parents were noted about the availability of mental health services in the school in general, and about the availability of CBITS specifically (Santiago et al, 2013). However, in this study that was not the case. In response to requests for participation parents in this study exhibited a range of negative reactions to the prospect of mental health services within the school, ranging from expressions of self-reliance to defensiveness or even hostility. It may be possible to get around some of this stigma before parents are even asked for their permission to evaluate and/or treat their children. For example, in the early phases of program implementation, prior to any requests for consent, it may be helpful to hold general psychoeducational parent sessions. At these sessions, clinicians could discuss the common challenges that arise in childhood and adolescence as well as the potential negative consequences of not addressing these challenges, tailored to the age group that is being targeted. This information should be
offered in a matter of fact way. This would normalize any symptoms a child might be exhibiting and perhaps make it more difficult for parents to minimize or feel blamed. To address doubts about efficacy, some evidence regarding the research that supports various programs could be offered, when available. It may also be helpful to make clear to parents the potential benefits that their child receiving treatment could have for their own functioning and well-being (Greenberg, 2004). Connections between mental health and academic functioning may also be compelling for some parents.

Another way in which some researchers have suggested psychologists may be able to overcome the barrier that poor parent engagement presents for program developers and clinicians is to establish good relationships with school administrators and teachers, in order to gain their support and thus establish a connection with the community (Greenberg, 2004). This approach, however, assumes a certain level of parental trust in the school and its staff, and confidence in the school’s ability to attend to the well-being of students. If this trust does not exist, this approach loses its effectiveness. A lack of trust in the school may have come into play in this study specifically. Given the fact that the event that prompted the introduction of these services was a shooting in the school, parents may have felt that the school let their children down or may have lost their sense that the school is a safe haven for their children.

**Teacher and school engagement**

Modern schools are being asked to provide more services to a greater number of students with fewer resources than in the past (Greenberg et al, 2003). This includes providing mental health services. Research has shown that the majority of teachers agree that schools should attend to the mental health needs of students, though many also endorsed the need for more training to recognize and understand mental illness (Reinke et
Aside from a lack of recognition of psychopathology, common challenges faced by those attempting to implement school-based psychological interventions at the level of the school and its staff include limited financial resources/fiscal instability, lack of time in the school day, passive resistance of administrators (no active support or involvement), teacher concerns about the impact on academics, and competition with other school priorities (Forman et al, 2009; Langley et al, 2010). Domitrovich et al (2008) suggest conceptualizing these challenges, as well as the others that psychologists might encounter, at three levels: the macro level, the school level, and the individual level. Factors at each of these three levels likely influence the extent to which school-based mental health programs are implemented with effectiveness and adherence to program design.

The macro level might include factors such as district leadership and district policies (Domitrovich et al, 2008). In the case of this study, very few direct barriers were encountered at the macro level. The policies of the school district were not in conflict with the CBITS program, and the school board made no objections to research being conducted through the school once the voluntary nature of the study was clarified. The program had also received external funding, and therefore the financial situation of the school was not a factor and no financial challenges came into play. However while neither the school board nor the superintendent objected to this project, they also offered little active support. In addition, it was the superintendent who decided to mandate an active consent process for program recruitment following the objections of community members to the passive approach.
Macro level factors have the potential to pose significant barriers to program developers, and it will be important for any clinicians or researchers attempting to implement a school-based program to make an informed decision about which schools would be best to work with. This would likely involve educating themselves about the school district and its policies, to anticipate potential challenges and come up with strategies for resolving these challenges. Budget and funding guidelines may be particularly important for program staff to examine, so that they are aware of any rules or regulations that could potentially create a barrier to program introduction or implementation (Atkins, Hoagwood, Kutash, & Seidman, 2010). It may also be advantageous to examine the district’s history of relationships with outside providers generally, and their approach to mental health specifically.

Once potential barriers have been identified, there are several strategies suggested in the literature for managing the challenges that clinical programs and clinical research programs may encounter at this macro level. If the concerns are budgetary, programs that can ultimately be implemented by school mental health staff or by teachers will likely be more appealing. If the challenges are related more to a devaluation of or lack of emphasis on mental health concerns, researchers have suggested taking advantage of the Individuals with Disabilities Education Act’s requirement that every child receive free and appropriate education (Greenberg et al, 2003). By making clear the impact that poor psychological functioning can have on a child’s ability to engage in school and benefit from instruction, through such factors as sleep difficulties, inability to sustain attention, and externalizing behaviors, a case can be made that a child with mental illness cannot receive appropriate education. Similarly, it may be possible to use the No Child Left
Behind Act’s emphasis on research-based practices to make programs backed by research, as well as programs still in the research phase, more appealing to school districts (Greenberg et al, 2003). Another potentially useful strategy is to emphasize the ease with which these programs can be evaluated, which then gives the school the opportunity to efficiently collect concrete data regarding a program’s effectiveness (Nadeem et al, 2011). Ideally this would include psychological symptom measures as well as variables that are more directly relevant to schools, such as number of absences or detentions, test performance, or GPA. This not only recognizes the growing emphasis on accountability in education but also mirrors the response to intervention framework that is becoming more common in schools (Nadeem et al, 2011). Thus it is a framework with which schools and teachers are familiar.

The school level would include such variables as the particular school’s decision structure and administration, as well as classroom climate, school climate, and school culture (Domitrovich et al, 2008). Several factors posed barriers for this specific study at the school level. These included the school climate, which at the time was characterized by tense relations between teachers and school administrators in both the middle school and the high school. Specific complaints from the teachers ranged from lack of support to frequently and rapidly changing curricula to insufficient compensation. While there is little that program developers and clinicians can do to remedy a poor school climate it is still important to be aware of, as the climate can impact the ability of the program to run effectively. In fact, poor staff morale has been found to relate to program implementation difficulties (Gottfredson & Gottfredson, 2002). Atkins and colleagues suggest that working specifically with “key opinion leaders” (p. 43) can facilitate program acceptance.
and thus can help make implementation go more smoothly in a situation where school politics may create complications (Atkins, Hoagwood, Kutash, & Seidman, 2010).

In this study, the contentious school climate was not conducive to teacher participation or interest in the program, but likely also decreased their level of cooperation with program clinicians. As mentioned in the results, one issue was with teachers’ resistance to letting students out of class to attend sessions. This is not a problem unique to this study, but has been reported by other studies examining the effectiveness of the CBITS program (Langley et al., 2010). There is no clear solution to the issue of students missing class time to participate in treatment programs. While it is possible to minimize the number of class periods a student misses in order to participate in a program, it is likely not realistic to think that this can be avoided entirely. Time spent in non-core subjects such as art or music can be an important outlet for students, lunch periods are important opportunities for socialization, and study periods can be crucial for students who participate in extracurricular activities. Thus pulling students for treatment exclusively during these times of the day has its own drawbacks. While treatment programs that meet after school avoid these problems, they present challenges of their own. After school sessions may conflict with extracurricular activities such as sports games or club meetings, and students who rely on the school bus for transportation may not have the flexibility to stay after school (Openshaw, 2011). It may be the case that a mixture of these strategies would be best, but ultimately the ideal solution may vary by school and program developers and clinicians likely have to be flexible with regard to scheduling.
Teacher resistance to student participation in CBITS is just one manifestation of a more general lack of support for the CBITS program encountered in this study at the school level. While the administration was supportive of the program in theory, they did not take an active role either in specific situations in which barriers arose, such as teacher resistance, or in general to ensure that program clinicians had the resources they needed to run the program effectively. The lack of vocal support from school administrators might have sent a message to the teachers that the program was not important or should not be a priority. Future studies or programs of this sort should make an effort to gain active, vocal support from school administrators to ensure adequate resources but also to gain backing for the program’s importance.

While challenges related to school climate may not arise at most schools, issues related to teacher resistance and lack of active support from administrators are likely to be more common. Several strategies have been suggested to address these school-level challenges. For example, researchers have suggested that program developers make explicitly clear the connections between psychological well-being, the school’s mission, and the factors that are likely to matter most to teachers and administrators: school attendance, classroom behavior, and academic performance (Domitrovich et al, 2008; Greenberg, 2004; Greenberg et al, 2003). Paternite (2005) suggests that this emphasis on a program’s potential impact on academic variables not just serve as a selling point to the school, otherwise mental health and academic staff merely coexist. Rather, he suggests that psychologists should integrate themselves into the school and embrace academic success as a common goal, rather than focusing solely on more traditional psychological variables (Paternite, 2005). Relately, others suggest that perhaps an approach that
emphasizes improvement in functioning rather than symptom reduction would be more effective (Atkins, Hoagwood, Kutash, & Seidman, 2010). Future studies would do well to ensure that there is strong coordination and collaboration between school administration, parents, and mental health staff during the development and early implementation phases, to engage administrators and increase their investment in the program that is being introduced. Further, it may be helpful to consult with school staff when deciding how a given program will be implemented and integrated into the specific school (Atkins, Hoagwood, Kutash, & Seidman, 2010).

Finally, factors that are important at the individual level might include intervention perceptions and attitudes as well as the professional characteristics of program deliverers (Domitrovich et al, 2008). In this particular study, it is possible that teachers struggled to see the importance of a trauma-focused program in particular, due to the fact that students with trauma histories, like children with other kinds of internalizing disorders, are not necessarily most likely to be the students that cause teachers problems in the classroom. Thus they may be less likely to be identified as in need of services. As an example, when approached to ask for permission to pull one of her students out of class for screening one teacher expressed surprise that the student might be in need of psychological treatment, stating “but she’s so quiet!” As Domitrovich and colleagues (2008) suggest, teachers may be less likely to be supportive of an intervention that does not address externalizing problems. Thus the utility of emphasizing the potential effects of a psychosocial intervention both on academics and on school climate becomes relevant at this level as well (Forman et al, 2009; Weist et al, 2005). In addition, perceptions of the program clinicians are likely to be important. In this case, given the climate of the
schools this included not just the perception of the clinician’s skills and professionalism but also the extent to which the clinicians were associated with the administration. In general, in order to appeal to teachers and school administrators at the individual level, it is important to ensure that clinicians are well-trained and well-supervised, and that they understand the culture of the school. It is also important to ensure that the program offered is empirically supported, and that this fact is made clear to teachers and school staff (Forman et al, 2009; Weist et al, 2005).

Trauma and Mental Health Stigma

Implementers of school-based mental health programs are likely to encounter challenges at many levels within the school system. However this is not likely to be the only source of resistance that psychologists encounter. The community in which the school is situated, and the values and beliefs that community holds, are likely to play a significant role in the success of a program. As mentioned previously, members of small towns and rural communities more frequently value characteristics such as self-reliance and privacy that may foster reluctance to seeking mental health treatment. There may also be a lack of recognition of mental illness, or at least a lack of recognition of the significant impact it can have on all areas of functioning. One way in which this stigma manifested in this specific study was in the way in which clinicians were told by the school to present the program. Rather than referring to trauma or PTSD, clinicians were requested to discuss the treatment as a way to address stress and cope with stressful events. The implicit message was that the school felt that discussing mental illness would be off putting, but that by using this framework of more normative, common experience of stress that families would be less offended, leading them to be more likely to engage in the program. Thus there are general barriers that must be faced when
attempting to implement mental health services in small communities. However, some research suggests that trauma in general, and school shootings in particular, present their own additional, unique challenges for mental health providers.

School shootings are unique traumas, even among other types of youth violence, for several reasons (Verlinden, Hersen, & Thomas, 2000). First, there is not always a clear reason why these shootings occur, or at least the reasons are different than for other types of violence, such as gang rivalry or drug-related incidents. Second, the perpetrator often has no criminal history and at times does not even have a prior history of behavior problems or violence. Thus the perpetrator is often a surprise to the community. Third, there is frequently no clear goal in a school shooting except to kill. Thus the risk factors and warning signs for school shootings appear to be different from those for youth violence in general (Verlinden, Hersen, & Thomas, 2000), and there is a sense of randomness that does not often characterize other acts of youth violence. Further, despite the fact that they are rare compared to other forms of violence, school shootings capture a great deal of attention and often result in a climate of fear in a setting that is typically thought of as a safe haven for children (Verlinden, Hersen, & Thomas, 2000).

While there may be a sense of randomness or purposelessness to school shootings, there is not necessarily a sense of lack of control that may characterize other types of traumas such as natural disasters. While no one person or group of people can be blamed for a tornado, for example, because of the common beliefs about causes of school shootings, there is plenty of potential blame to go around. This blame may manifest in several different ways (Jordan, 2003; Levin & Madfis, 2009), often in the form of “should have’s:” someone should have noticed something or seen the warning
signs, someone should have stepped in, someone should have been watching this child more closely, someone should have known. Frequently this blame falls on many members of a community, including the perpetrator’s family, friends, teachers, and classmates. The family might be blamed for not properly supervising firearms, and assumptions might be made about the quality of the parenting the shooter received. School teachers and staff members might be blamed for not fostering an environment in which students feel comfortable expressing concerns about another student, not educating students enough about the signs of mental illness, lack of preparedness for disaster situations, or for not noticing changes in the shooter’s mood or behavior. Finally, friends and classmates might be blamed for not noticing signs of risk or not sharing concerns, or for somehow causing the shooting through their behavior toward the shooter (Jordan, 2003; Levin & Madfis, 2009).

There may also be something unique about the pattern of help seeking in the aftermath of a school shooting. In their study of help seeking among school personnel following a school shooting, Schwarz & Kowalski (1992) found that reluctance to accept services grew over time even though PTSD symptoms were still present, and that staff declined to participate in follow up assessment and treatment because they thought services were intrusive reminders of the shooting they wished to avoid. In fact, those who later declined services were more likely to have had higher initial symptom levels and thus were presumably most strongly affected. This was certainly the attitude of some of the parents in this study, as indicated by responses to the request to screen children for participation in CBITS. It is quite possible that this attitude could have been prevalent in the broader community as well, and communicated either directly or indirectly to the
children. Interestingly, these authors also found that while school staff requested that group therapy be available, none of them attended the groups once they were made available (Schwarz & Kowalski, 1992). This is precisely what happened with the staff in the schools in this study, and suggests a sense of ambivalence regarding help seeking.

One factor that may contribute to this ambivalence in the case of school shootings, and that is consistently discussed in research on school shootings, is the amount of trust in the school that is present in the aftermath of a school shooting. The image that both parents and teachers have of the school as a safe place may well be shattered, and a sense of distrust in the school may develop. Parents may be less likely to take advantage of school services because they doubt the school’s ability to protect and provide for their children. Teachers may become less engaged because they feel partially blamed for what happened. In the case of this particular school, teachers also described experiencing caregiver fatigue, explaining that they felt overburdened by the expectations to be a source of support for students while simultaneously having to manage their own lingering reactions to the shooting. There was a sense from the teachers of a desire to minimize their time spent at school, because it had become such a source of stress. Thus it appears that school shootings are in some ways unique traumas, and psychologists intending to offer school-based services for students following a school shooting should be aware that such situations present a unique, additional set of challenges.

The unique nature of school shootings becomes even more complex when they occur in a small town setting. In such a setting nearly everyone is a victim, either a primary victim, including students, teachers, staff and all others in the school at the time of the shooting, or a secondary victim, including parents, siblings, spouses, friends, and
others who hear directly about the event and experience fear and panic for the safety of their loved ones (Jordan, 2003). Even secondary victims can be hugely impacted, as evidenced by the case of a mother of a Columbine student who heard about the shooting that occurred there, bought a gun, and shot herself, allegedly because she was so overwhelmed by the incident (Jordan, 2003). While this is an extreme case, it speaks to the point that in small communities the reverberations of a major traumatic event can be widespread. At a broader level, community traumas like this can either foster a sense of community solidarity or result in divisions based on beliefs about appropriate reactions or level of connection to the trauma (Nurmi, Rasanen, & Oksanen, 2012). In addition, community traumas might encourage expressions of solidarity within the group but discourage it with outsiders, out of a sense that people outside of the community will not be able to understand what those within it are experiencing (Nurmi, Rasanen, & Oksanen, 2012).

Alternatively, events of this sort can also foster community-wide feelings of guilt or shame (Nurmi, Rasanen, & Oksanen, 2012). While everyone is potentially a victim, everyone also has the potential to feel part of the blame due to the fact that most people are likely to have at least some connection to the perpetrator or his/her family. Thus the “should have’s” described above could touch almost everyone in the community. This diffuse sense of responsibility, or sense that the shooter is not the only one responsible for the incident, could be imposed either internally or externally. This, in turn, can lead to the community feeling stigmatized and foster a “shared negative identity centering on the crisis” (Nurmi, Rasanen, & Oksanen, 2012, p. 316) that makes them wary of outsiders.
This potential sense of community guilt and wariness of outsiders is something that clinicians brought in to a school in the aftermath of a shooting should be aware of, so they can anticipate and work around resistance, but also so they do not inadvertently feed into these perceptions or suggest that they hold these beliefs of blame. To overcome the broader issue of mental health stigma in small communities, program developers and clinicians may need to consider investing time in the community before the program even begins, to offer such services as psychoeducational sessions to parents and students that normalize both psychological distress and help seeking. Such sessions would additionally serve to simply make clinicians known in the community, and potentially reduce the perception of clinicians as outsiders.

**Suggestions for Future Programs and Future Research**

The area of implementation science is a growing one, as the emphasis on evidence-based treatments intersects with the growing recognition of the importance of school-based mental health efforts. As a result, programs of the sort described in this study are likely to continue, as clinicians and researchers attempt to design and study treatment programs and identify the best ways to implement evidence-based treatments in schools. The following is a brief summary of suggestions for these future programs, based on the findings of this study as well as several others.

Prior to going into a school, it is important to be aware of and sensitive to the climate and politics of a specific school, as well as the structures and policies in place that may impact a program’s ability to run effectively. In fact, Forman and colleagues (2009) suggest evaluating a school using a readiness checklist before deciding whether or not to go forward with implementation. Program developers might do well to ensure that teacher education and outreach is included in the initial phases of the program, and also
to ensure that they spend time focusing on how to address challenges posed by resistant teachers or administrators as a part of clinician training. It may also be helpful for program designers to account for the fact that not all schools have class periods of the same length. If treatment sessions are supposed to fit into a single class period, there may need to be some flexibility built into each session’s agenda.

Once a relationship with a school has been established, engagement and participation become the main concerns. To ease potential community defensiveness and decrease adolescent resistance, it is likely to be beneficial for outside clinicians to make an effort to become a familiar member of the community prior to the initiation of recruitment. Careful consideration of the recruitment strategy and consent process to be used should also be taken in order to maximize participation. Further, clinicians should be thoughtful about how services are introduced to school staff, parents, and students. In all cases, the potential academic benefits of seeking mental health services could be emphasized. Campaigns designed to raise awareness of mental health concerns and normalize help-seeking may also be effective for parents and children. In addition, clinicians should also anticipate any challenges that the specific type of program they are implementing may pose, such as the elevated level of defensiveness that may be present in the wake of a school shooting. Finally, it will likely be of benefit for clinicians to ensure open communication with parents and school staff, to increase the generalizability of what is taught in sessions and to keep these invested parties updated on progress made. This second point is particularly important as program designers have cited visible program impact as the most important factor for program sustainability (Forman et al, 2009).
In terms of future research, this study is consistent with other research in demonstrating that there are factors outside of program characteristics that impact program effectiveness. Thus moving forward the relevant question for researchers may not be just whether or not a program is effective, but rather what types of programs can be implemented effectively under specific sets of circumstances (Greenberg, 2004). It may also be informative to compare the effects of using outside clinicians versus personnel within the school to implement treatment programs. Outside clinicians offer the advantage of having no competing responsibilities when at the school, which was noted as a top barrier to successful program implementation using school personnel (Langley et al, 2010). This lack of other school responsibilities leaves outside clinicians with more time to devote to program logistics and to being available for students outside of sessions. They may also have more relevant clinical training. On the other hand, outside clinicians may have to make more effort to gain the trust of families and school staff members. School personnel are more privy to knowledge of school politics and may be better equipped to manage resistant teachers and any logistical challenges that may arise, however Langley and colleagues (2010) found that another primary barrier to successful program implementation was with school personnel not maintaining treatment fidelity. Finally, empirical research that focuses on interventions designed to address difficult implementation environments is warranted (Domitrovichetal et al, 2008), so that clinicians know how to set the stage for successful program implementation.
Table 1: Mean Total Scores by PTSD Symptom Group

<table>
<thead>
<tr>
<th>Test</th>
<th>High PTSD</th>
<th>Low PTSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td>8.17 (3.37)</td>
<td>2.67 (2.48)</td>
</tr>
<tr>
<td>CBQ</td>
<td>5.69 (5.15)</td>
<td>2.15 (2.86)</td>
</tr>
<tr>
<td>ERQ Reappraisal</td>
<td>18.94 (4.21)</td>
<td>20.09 (4.95)</td>
</tr>
<tr>
<td>ERQ Suppression</td>
<td>12.46 (3.28)</td>
<td>10.85 (5.22)</td>
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</table>
Table 2: Bivariate Correlations

<table>
<thead>
<tr>
<th></th>
<th>Total PTSD Symptoms</th>
<th>CDI Total Score</th>
<th>CBQ Total Score</th>
<th>ERQ Reappraisal</th>
<th>ERQ Suppression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PTSD Symptoms</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>CDI Total Score</td>
<td>.75*</td>
<td>--</td>
<td>--</td>
<td>--</td>
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<tr>
<td>CBQ Total Score</td>
<td>.48*</td>
<td>.49*</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>ERQ Reappraisal</td>
<td>-.11</td>
<td>-.31*</td>
<td>-.20*</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>ERQ Suppression</td>
<td>.25*</td>
<td>.39*</td>
<td>.14</td>
<td>-.19*</td>
<td>--</td>
</tr>
</tbody>
</table>

* p < .05
<table>
<thead>
<tr>
<th></th>
<th>Mean (Standard Deviation)</th>
<th>Scale Average (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Decision Making</td>
<td>1.97 (.72)</td>
<td>2.34 (.74)</td>
</tr>
<tr>
<td>Direct Problem Solving</td>
<td>2.00 (.61)</td>
<td>2.30 (.75)</td>
</tr>
<tr>
<td>Seeking Understanding</td>
<td>1.89 (.54)</td>
<td>2.20 (.72)</td>
</tr>
<tr>
<td>Positive Cognitive Restructuring</td>
<td>1.81 (.39)</td>
<td>2.24 (.72)</td>
</tr>
<tr>
<td>Physical Release of Emotions</td>
<td>2.00 (.49)</td>
<td>1.67 (.67)</td>
</tr>
<tr>
<td>Distracting Actions</td>
<td>2.44 (.48)</td>
<td>2.21 (.66)</td>
</tr>
<tr>
<td>Avoidant Actions</td>
<td>2.81 (.50)</td>
<td>2.45 (.75)</td>
</tr>
<tr>
<td>Cognitive Avoidance</td>
<td>2.53 (.58)</td>
<td>2.49 (.75)</td>
</tr>
<tr>
<td>Problem-focused Support</td>
<td>1.92 (.52)</td>
<td>1.87 (.60)</td>
</tr>
<tr>
<td>Emotion-focused Support</td>
<td>1.83 (.57)</td>
<td>1.83 (.60)</td>
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</table>
Table 4: Family Assessment Device Subscale Mean Scores

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean (Standard Deviation)</th>
<th>Established Clinical Cut-Off Scores</th>
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</thead>
<tbody>
<tr>
<td>Problem solving subscale</td>
<td>2.27 (.20)</td>
<td>2.2</td>
</tr>
<tr>
<td>Communication subscale</td>
<td>2.22 (.25)</td>
<td>2.2</td>
</tr>
<tr>
<td>Roles subscale</td>
<td>2.19 (.33)</td>
<td>2.3</td>
</tr>
<tr>
<td>Affective responses subscale</td>
<td>2.04 (.71)</td>
<td>2.2</td>
</tr>
<tr>
<td>Affective involvement subscale</td>
<td>1.71 (.26)</td>
<td>2.1</td>
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<tr>
<td>Behavioral control subscale</td>
<td>1.40 (.28)</td>
<td>1.9</td>
</tr>
<tr>
<td>General functioning subscale</td>
<td>1.97 (.33)</td>
<td>2.0</td>
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</table>
Table 5: Pre- and Post-group Scores

<table>
<thead>
<tr>
<th></th>
<th>Mean Pre-treatment Score (SD)</th>
<th>Mean Post-Treatment Score (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD symptom levels</td>
<td>30.22 (11.14)</td>
<td>19.33 (11.99)</td>
</tr>
<tr>
<td>CDI (parent report)</td>
<td>16.89 (6.39)</td>
<td>10.56 (3.75)</td>
</tr>
<tr>
<td>CDI (child report)</td>
<td>10.89 (1.36)</td>
<td>9.11 (4.70)</td>
</tr>
<tr>
<td>ERQ – Cognitive reappraisal</td>
<td>16.67 (3.81)</td>
<td>19.56 (3.94)</td>
</tr>
<tr>
<td>ERQ – Emotion Suppression</td>
<td>12.56 (2.35)</td>
<td>10.89 (1.20)</td>
</tr>
<tr>
<td>CBQ (parent report)</td>
<td>8.11 (4.96)</td>
<td>5.56 (5.55)</td>
</tr>
<tr>
<td>CBQ (child report)</td>
<td>5.89 (4.76)</td>
<td>4.11 (4.88)</td>
</tr>
</tbody>
</table>
Figure 1: Study Participation Flow Chart
Figure 2: Gender Moderating the Relationship Between PTSD Symptom Level and Family Conflict Level
Figure 3: Grade Moderating the Relationship Between PTSD Symptom Level and ERQ Reappraisal Score
Appendix: CBITS Content

Group Sessions

<table>
<thead>
<tr>
<th>Session Number</th>
<th>Session Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introductions&lt;br&gt;Confidentiality&lt;br&gt;Explanation of CBITS</td>
</tr>
<tr>
<td>2</td>
<td>Common reactions to trauma&lt;br&gt;Relaxation training</td>
</tr>
<tr>
<td>3</td>
<td>Introduction to cognitive therapy&lt;br&gt;Linkage between thoughts and feelings&lt;br&gt;Feelings thermometer</td>
</tr>
<tr>
<td>4</td>
<td>Combating negative thoughts</td>
</tr>
<tr>
<td>5</td>
<td>Avoidance and coping&lt;br&gt;Copings strategies&lt;br&gt;Construction of fear hierarchy</td>
</tr>
<tr>
<td>6</td>
<td>Exposure to trauma memory</td>
</tr>
<tr>
<td>7</td>
<td>Exposure to trauma memory continued</td>
</tr>
<tr>
<td>8</td>
<td>Linkage between thoughts and actions&lt;br&gt;Introduction to social problem solving</td>
</tr>
<tr>
<td>9</td>
<td>Social problem solving practice</td>
</tr>
<tr>
<td>10</td>
<td>Relapse prevention&lt;br&gt;Graduation</td>
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</table>

Parent Sessions

<table>
<thead>
<tr>
<th>Session Number</th>
<th>Session Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Common reactions to trauma&lt;br&gt;Explanation of CBITS&lt;br&gt;Helping children relax</td>
</tr>
<tr>
<td>2</td>
<td>Helping children challenge thoughts&lt;br&gt;Helping children face their fears&lt;br&gt;Helping children problem solve</td>
</tr>
</tbody>
</table>
Literature Cited


among urban children. *Archives of Pediatrics and Adolescent Medicine, 156*, 280-285.


