5-14-2010

The Feasibility and Idiographic Evaluation of School-Based Trauma-Focused Intervention Services in the Wake of Disaster

Leslie Katherine Taylor
University of New Orleans

The Feasibility and Idiographic Evaluation of School-Based Trauma-Focused Intervention Services in the Wake of Disaster

A Dissertation

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Applied Developmental Psychology

by

Leslie Katherine Taylor

B.S., University of Georgia 2002
M.S., University of New Orleans 2006

May, 2010

Acknowledgments

I have several acknowledgments to make regarding my dissertation project. Data collection for this project was supported in part by grants from the Institute of Mental Hygiene ensuring school wide screening and intervention for youth in the Greater New Orleans Area. Thus, I would like to acknowledge the Institute of Mental Hygiene for their support in identifying children for the *StArT* program. Secondly, I would also like to extend my heartfelt appreciation to the families who participated in the *StArT* program. These children and their parents are the reason this project came to fruition and this document was inspired by their courage and resilience. Thirdly, and with immeasurable gratitude, I would like to thank my mentor, Dr. Carl Weems, for guiding me through my graduate career and helping me design a dissertation project combining two of my favorite things: (1) forwarding the field of psychology and (2) serving my community. Fourthly, I would like acknowledge my family, the Lester family, and my dear friends. I am blessed to hold such kind, caring, and encouraging people so close to me. My successes are largely due to their support, and I would not have earned my doctorate, or become the person I am without them. And last, but certainly not least, I would like to extend my deepest thanks to one of the most remarkable people I know. Though it is no small undertaking to expressly describe how grateful I am, I will try. For keeping me smiling through the frustration and the tears, for having faith in me when I lost faith in myself, and for helping me realize my dreams, both personally and professionally, thank you Jamie. Thank you more than words can say.

Table of Contents

List of Figures

List of Tables

Abstract

Youth traumatized by natural disasters report high levels of posttraumatic stress as well as other types of impairing emotional distress symptoms (e.g., anxiety and depression) for many years post-trauma. Implementing school based screening and treatment programs for these youth eliminates barriers to traditional treatment settings and may provide symptom relief. The current study examines the feasibility of conducting school-based trauma-focused treatment program in the wake of disaster. Idiographic evaluation of the treatment process is incorporated into the treatment evaluation through use of multiple baseline design. Youth reporting at least severe levels of posttraumatic stress on the PTSD-RI were recruited for an expanded assessment and treatment (youth ages 8-13; N=6). Treatment (i.e., the *StArT* program) consisted of 10-weekly individual sessions during which different cognitive behavioral components were introduced. Youth were assessed at pre-treatment, weekly during treatment, and at post-treatment. Quantitative and qualitative findings relative to youth responses to intervention are presented and discussed in terms of the feasibility of conducting treatment in school settings and in terms of individual difference factors contributing to treatment responses. Findings from this study suggest the feasibility of school based interventions through the aid of school counselors and integration of treatment sessions into the school schedule. Youth responses to the intervention were very positive, point toward the efficacy of a disaster trauma focused cognitive behavioral therapy (the *StArT* program), and help to highlight particularly useful modules in youth.

Keywords: youth survivors of Hurricane Katrina; pediatric PTSD; partially non-concurrent multiple baseline designs; treatment efficacy of the *StArT* program.

THE FEASIBILITY AND IDIOGRAPHIC EVALUATION OF SCHOOL-BASED TRAUMA-FOCUSED INTERVENTION SERVICES IN THE WAKE OF DISASTER

Overview

Sadly, a substantial portion of youth are exposed to traumatic events (Costello, Erkanalli, Fairbank, & Angold, 2002) such as abuse (Ackerman, Newton, McPherson, Jones, & Dykman, 1998), violence (Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003), and disaster (La Greca, Silverman, Vernberg, & Roberts, 2002; Weems & Overstreet, 2008). This is concerning given that in the wake of trauma, youth often suffer from an array of impairing emotional distress symptoms. Immediate responses to trauma include the development of Posttraumatic Stress Disorder, which is characterized by high levels of negative re-experiencing, hyperarousal, emotional numbing, and avoidance (PTSD; 4th ed., text revision [*DSM-IV–TR*] American Psychiatric Association, 2000). In terms of long lasting effects, the experience of childhood trauma increases the vulnerability for developing substance abuse problems (Copeland, Keeler, Angold, & Costello, 2007; Mullings, Hartley, & Marquart, 2004), chronic Posttraumatic Stress Disorder (Widom, 1999), other anxiety disorders (e.g., Generalized Anxiety Disorder, Social Anxiety Disorder; Copeland et al., 2007), depression (Bolton et al., 2004; Copeland et al., 2007), and disruptive behavior disorders (Copeland et al., 2007). Further, adults with childhood trauma histories evidence decreased likelihood for obtaining successful employment or graduating from high school (McGloin & Widom, 2001).

Given the reverberating impact of trauma on development, designing trauma focused interventions are paramount for promoting positive adjustment in traumatized youth. Among the most widely used treatments for trauma survivors are cognitive behavioral therapies (e.g., Chemtob, Nakashima Hamada, 2002; King et al., 2000; Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003). These therapies include teaching relaxation techniques and coping skills, and conducting imaginal exposures (see Silverman, Ortiz et al., 2008, for review). Cognitive behavioral therapies have been shown to result in the reduction of posttraumatic stress levels in youth exposed to different types of traumas (hurricanes, Chemtob, Nakashima Hamada, 2002; abuse, King et al., 2000; community violence, Stein, Jaycox,

Kataoka, Wong, Tu, Elliot, et al., 2003) and are considered to be an efficacious treatment for traumatized youth (Silverman, Ortiz et al., 2008).

Unfortunately, in terms of receiving interventions, the odds are against traumatized youth. The mental health needs of many children and adolescents, particularly those who are uninsured or from low-income families, often go untreated (Kataoka, Zhang, & Wells, 2002). Incidentally, youth also encounter additional barriers to traditional treatment settings, such as lack of transportation, stigma, or childcare (Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007). School-based interventions may provide youth greater accessibility to treatment than traditional settings (Evans, 1999), have been shown to reduce stigma associated with seeking help (Nabors, Weist, & Reynolds, 2000), offer enhanced opportunities for generalization and maintenance of treatment goals (Evans, 1999), and allow interventionists to reach large numbers of at-risk youth (Levitt, Saka, Romanelli, & Hoagwood, 2007).

Perhaps because school settings present fewer obstacles to treatment than traditional mental health settings, there has been a recent thrust in the development of empirically supported school based intervention programs for youth, particularly for youth trauma survivors (e.g., Chemtob et al., 2002; Salloum & Overstreet, 2008; Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003). These intervention programs have typically included cognitive behavioral strategies and have targeted children and adolescents suffering from high levels of posttraumatic stress symptoms (Chemtob et al., 2002; Salloum & Overstreet, 2008; Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003). Findings from these programs indicate reductions in youths' posttraumatic stress symptoms from pre to post-treatment, as well as maintenance of treatment gains at follow-up (Chemtob et al., 2002; Salloum & Overstreet, 2008; Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003).

An emerging focus of school based intervention programs includes the development of treatments specifically for disaster exposed youth (e.g., Chemtob et al., 2002; Salloum & Overstreet, 2008). This may be due to the psychological impact of disaster exposure in youth. Research suggests that youth exposed to hurricane related destruction in the wake of disaster develop high levels of emotional distress symptoms over time without intervention

(e.g., anxiety and depression symptoms, La Greca et al., 1996; Lonigan, Shannon, Taylor, Finch, & Sallee, 1994). Thus, as schools reopen in the wake of disaster, implementing onsite trauma focused treatments not only offers youth symptom relief (Chemtob et al., 2002; Salloum & Overstreet, 2008), but prevention of maladaptive developmental trajectories (Copeland et al., 2007; McGloin & Widom, 2001; Mullings et al., 2004).

The feasibility of implementing school-based interventions for youth disaster survivors presents with a unique set of pitfalls and promises. In the wake of disasters, schools can serve as strongholds among the devastation, (Dean et al., 2008), and are uniquely positioned to offer mental health services to children and adolescents through the development of strong collaborative relationships among school staff and local mental health providers (Chemtob et al., 2002; Dean et al., 2008; Salloum & Overstreet, 2008; Weems et al., 2009). However, establishing these collaborative relationships can be difficult due to circumstance. School administrators may resist help offered by therapists outside the school milieu, particularly when there is poor communication among school staff. An example of this can be drawn from Dean et al. (2008)'s intervention project with youth survivors of Hurricane Katrina. As part of this project, Dean and colleagues (2008) trained local clinicians in a school based trauma focused intervention program for youth, and then had these clinicians begin offering these services to schools in areas hit hardest by the storm. Dean et al. (2008) had clinicians provide descriptions of why school administrators declined help and these reasons included ignorance of students' emotional distress, the belief that the school staff could handle mental health issues, or handling the competing demands of reopening the school and getting students back on track. Interestingly, even after school administrators declined help, teachers and school counselors continued to request help from clinicians at these agencies, pointing toward a disconnect in communication among school staff as well as difficulty determining priorities relative to student needs (Dean et al., 2008).

To date, few studies have investigated the efficacy of school based treatments for youth exposed to natural disasters (earthquakes, Goenjian et al., 2005: hurricanes, Chemtob et al., 2002; Salloum & Overstreet, 2008; tsunami, Catani et al., 2009). Given the need for intervention in youth disaster survivors (La Greca et al., 1996; Lonigan et al., 1994), and the accessibility to treatment offered by school settings (Evans, 1999), examination of the feasibility of school based interventions for youth disaster survivors offers further identification of the barriers to conducting treatment programs. Identification of these barriers would allow for anticipation and troubleshooting of potential stumbling blocks unique to the delivery of school based interventions in the post-disaster environment.

An additional gap in school based intervention research for traumatized youth pertains to study design. Intervention research is typically embedded in a nomothetic framework, exploring treatment effects through relationships among pre and post intervention variables generally (Barlow & Nock, 2009). Treatment studies with a nomothetic approach (e.g., randomized control trials, group comparisons) inform and influence evidence based treatments and practices, but may leave therapists to question the applicability of these results to an individual case (Barlow & Nock, 2009). Thus, there is general call for integrating idiographic strategies into intervention research in an effort to investigate and isolate individual difference factors (Barlow & Nock, 2009). Researchers propose investigating individual differences to treatment through examination of the impact of an established, effective independent variable (e.g., an intervention for a specific form of psychopathology; Barlow & Nock, 2009, Kazdin & Nock, 2003; Nock, 2007). This may be particularly relevant to school based intervention projects in the wake of disaster. School staff may be hesitant to implement empirically supported treatments due to the belief that students at their school are different than youth from research samples, and indeed there may be factors unique to individual students and impacting their response to intervention.

To summarize, there is a need to examine issues of feasibility and individual responses to school based treatment for traumatized youth suffering from emotional distress (i.e., posttraumatic stress, depression) in the post-disaster context. In the following sections the broad rationale for this study is presented. In the section "Psychological Adjustment in the Wake of Trauma," the necessity of conducting interventions in traumatized youth will be presented through discussion of the types of events that elicit posttraumatic responses in youth and the types of responses experienced. Then in the "Cognitive Behavioral Treatment Interventions for Traumatized Youth section," findings regarding the effectiveness of types of interventions conducted in traumatized youth, followed by "Issues in Conducting School-based Interventions" where factors influencing the feasibility of conducting school based interventions will be reviewed. Lastly, the purpose of the current study, assessing the feasibility of a school based intervention and the efficacy of a treatment protocol for traumatized youth, will be presented.

Psychological Adjustment in the Wake of Trauma

Researchers point toward examination of findings from nomothetic investigations as guiding antecedents of idiographic research (Barlow & Nock, 2009). Examination of general trends in data from traumatized youth informs us of the types of experiences youth report as traumatic as well as the types of emotional distress symptoms that trauma exposed youth report in the wake of traumatic events. Knowledge regarding youth responses to trauma is clinically relevant because it provides a framework for choosing intervention strategies that target the treatment needs in this population of youth.

Youth targeted for the present study's intervention experienced disaster related traumas. However, taking into consideration the stumbling blocks associated with conducting research in samples of youth exposed to natural disasters (e.g., researchers do not necessarily have data on youth's pre-disaster functioning, there is difficulty in conducting and following up with disaster survivors due to contextual factors), it is beneficial to examine the impact of other types of traumatic events in youth in order to better understand factors influencing the development and maintenance of emotional distress symptoms in the wake of trauma. Thus, in addition to natural disasters, the impact of other types of traumas will be discussed to further illustrate the clinical presentation of youth trauma survivors. In sum, the proceeding sections will review the incidence of PTSD and other emotional distress symptoms (e.g., internalizing and externalizing problems), the phenomenology of these symptoms, and factors influencing psychological adjustment (i.e., cognitive and affective factors) in traumatized youth.

Traumatic Events in Youth

Child maltreatment. The impact of abuse and neglect on children's psychological well-being has been widely researched and a PTSD rate has been reported from 23 to 42% in children with past histories of sexual abuse and from 27 to 40% in children with histories of physical abuse (Ackerman et al., 1998). Some abused youth continue to experience high levels of posttraumatic stress in their adulthood. A longitudinal study of adults who were abused or

neglect as children (N=676) indicates that 37.5% of sexual abuse victims, 32.7% of physical abuse victims, and 30.6% of neglected individuals meet criteria for chronic PTSD (Widom, 1999).

Exposure to violence. Exposure to violence is a part of life for many youth. Children and adolescents in urban environments not only witness, but are themselves victims of violent acts (e.g., hitting, slapping, punching, having a gun or knife pulled on them or witnessing a shooting, Stein, Jaycox, Kataoka, Rhodes et al., 2003), and there is an unequivocal association between exposures to violence and the development of PTSD (Berman, Kurtines, Silverman, & Serafini, 1996; Berton & Stabb, 1996; Ensink, Robertson, Zississ, Leger, 1997; Fitzpatrick & Boldizar, 1993). For example, African American youth (N=221, aged 7 to18) exposed to severe acts of violence (i.e., mugging, knife attacks, shootings), report a PTSD rate of 27.1 % with higher levels of exposure more positively associated with increased reporting of PTSD symptoms (Fitzpatrick & Boldizar, 1993). In a more ethnically diverse sample of American high school students (N=103) exposed to community violence, 25% reported high levels of PTSD (Berton & Stabb, 1996). Similar PTSD rates have been reported by youth outside of the United States. Ensink et al. (1997) found a 21.6% prevalence rate of PTSD in a sample of violence exposed youth aged 10 to16 (N=60) from Cape Town, South Africa.

War. Unfortunately, children living in conflict regions witness a number of traumatic events and are arguably the most innocent victims of war. The consequences of growing up in a war zone include witnessing death, sustaining crippling injuries, or becoming orphaned (United Nations Children Fund, 1995). Youth traumatized by war (i.e., a sample of Tibetan refugees aged 8 to 17, N=61) report a PTSD rate of 11.5% (Servan-Scrieber, Le Lin, & Birmaher, 1998). Higher rates of PTSD have been found in samples of youth in close proximity to areas affected by conflict (Abdeen, Qasrawi, Nabil, & Shaheen, 2008; Schwarzwald, Weisenberg, Waysman, Soloman, & Klingman, 1993). Palestinian children directly exposed to violence during the Bosnian war (i.e., witnessing beatings of friends and relatives, witnessing night or day raids, or inhaling teargas) aged 6 and 11 (N=239) report a PTSD rate of 26.8% (Thabet & Vostanis, 1999).

Natural disasters. The consequences of disastrous events, such as earthquakes, floods, and hurricanes, on community mental health have been widely documented (e.g., Dean et al, 2008; Lonigan et al., 1994; Norris, Friedman, & Watson, 2002; Norris, Friedman, Watson, Bryne et al., 2002; Rubonis & Bickman, 1991; Weems, Watts et al., 2007) and extend beyond the report of physical damage to disaster stricken areas. Psychological researchers have been intrigued by the impact of disaster on the psychological functioning of adults (see Norris, Friedman, Watson, Byrne et al., 2002) and more recently, have begun to investigate the impact of disasters on children and adolescents' mental health (e.g., La Greca et al., 1996; Lonigan et al., 1994; Vernberg, La Greca, Silverman, & Prinstein, 1996).

The prevalence of PTSD in samples of disaster exposed youth is similar to those that have been reported from samples of youth surviving other types of trauma. Youth survivors of Hurricane Andrew evidence PTSD rates consistent with those reported by youth exposed to child maltreatment (approximately 30%; Ackerman et al., 1998), community violence (27.1%; Fitzpatrick & Boldizar, 1993), and war (26.8%; Thabet & Vostanis, 1999). From a sample of (N=442) of third-, fourth-, and fifth-graders surviving Hurricane Andrew, 30% reported a diagnosis of PTSD 3-months after the storm and findings suggest stability of elevated levels of posttraumatic stress up to 12-months post-disaster (LaGreca et al., 1996).

Follow-up with individuals surviving other types of traumatic events indicates stability of PTSD symptoms over time (e.g., Widom, 1999), and research regarding the impact of natural disasters indicates a similar pattern of results with respect to symptom constancy. Survivors have reported elevated levels of posttraumatic stress symptoms or other types of emotional distress symptoms (e.g., anxiety, depression) up to 2 years post-disaster (youth survivors of a flood in Poland, Bokszczainin, 2007; youth survivors of the Spitak earthquake, Goenjian et al., 2005), putting these youth at risk for the development of chronic PTSD. Research conducted in samples of youth survivors of Hurricane Katrina provides further evidence for stability of posttraumatic stress symptoms post-disaster. School aged youth have reported high, stable levels of posttraumatic stress up to 19-months post-Katrina (Weems et al., 2009).

Associated Emotional Distress Symptoms

Prevalence rates of pediatric PTSD indicate that not all youth who experience or are exposed to potentially traumatic events will go on to develop the disorder (e.g., Saigh, Yasik, Oberfield, Halamandaris, & McHugh, 2002), but perhaps develop other types of emotional distress symptoms in response to trauma. The development of internalizing (Ackerman et al., 1998; Bolton, O'Ryan, Udwin, Boyle, & Yule, 2000) and externalizing problems in youth (Attar, Guerra, & Tolan, 1994; Bell & Jenkins, 1993; Koenen, Moffitt, Poulton, Martin, & Caspi, 2007; Stuber, Nader, & Pynoos, 1997) is not an uncommon response to trauma. For example, research suggests that traumatized youth who do not develop PTSD report more symptoms of anxiety, depression, and externalizing problems than traumatized youth with the disorder (Bolton et al., 2000; Kiser, Heston, Millsap, & Pruitt, 1991). Reviewed below are the types of externalizing and internalizing problems youth develop in response to traumatic events and in particular to natural disasters.

Externalizing problems. The experience of traumatic events in youth has been associated with development of externalizing problems. For example, abused youth (Ackerman et al., 1998; Kiser et al., 1991; Pelcovitz et al., 1994), and youth exposed to community violence (Attar et al., 1994; Bell & Jenkins, 1993; Stuber et al., 1997) have been found to act out aggressively in the wake of trauma. Although research regarding externalizing problems in traumatized youth has been conducted primarily in samples surviving types of trauma other than natural disasters (e.g., child maltreatment, community violence exposure), recent findings have come to light elucidating the phenomenology of aggressive behaviors in disaster exposed youth. The development of externalizing problems in traumatized youth may occur as a consequence of poor emotion regulation skills (Greenwald, 2002). Thus, it has been theorized that traumatized youth may not be able control their angry emotions post-trauma, and act out aggressively (Marsee, 2008). Research conducted in a sample of youth exposed to Hurricane Katrina is consistent with this idea. Findings indicate that youth survivors who experience emotional dysregulation in relation to posttraumatic stress are more likely to demonstrate reactive aggression in the wake of trauma (Marsee, 2008).

Internalizing problems. Post-trauma, youth commonly report the development of anxious and depressive symptoms. An investigation performed by Yule and colleagues (2000) informs us of the impact of disaster on the development of anxious symptoms in youth (Yule et al., 2000). Yule et al. (2000) surveyed youth survivors of the *Jupiter* sinking (N=216). Thirty-five percent of youth sampled reported anxiety disorder diagnoses post-disaster. Interestingly, not all of these youth reported a diagnosis of PTSD. Youth who did not develop PTSD (n=106) reported diagnose is of Specific Phobia (18.9%), Specific Phobia (11.3%), Separation Anxiety (3.2%) and Social Phobia (1.9%) after the disaster (Bolton et al., 2000). Findings regarding subthreshold PTSD might explain why traumatized youth without PTSD diagnoses develop anxiety disorders. Youth with subthreshold PTSD symptoms have been found to meet criteria for other anxiety disorders (Cortes et al., 2005; Ruchkin, Schwab-Stone, Koposov, Vermeiren, & Steiner, 2002). For example, youth (N=390) with subthreshold PTSD have reported higher rates of GAD (12.3%) than youth without PTSD symptoms (Ruchkin et al., 2002). Moreover, the presence of PTSD symptoms in youth has been found to predict the development of anxiety disorders post-trauma (Cortes et al., 2005); further indicating the need for intervention with youth disaster survivors.

In addition to symptoms of anxiety, symptoms of depression have been reported by youth exposed to potentially traumatic events. Researchers have found that youth who do not develop PTSD in response to trauma exhibit higher levels of depression than youth with the disorder (Bolton et el., 2000; Kiser et al., 1991). For example, approximately 12% of the non-PTSD youth surviving the *Jupiter* sinking reported a diagnosis of Major Depressive Disorder at follow up (Bolton et al., 2000), and survivors reporting diagnoses of Major Depressive Disorder (MDD) or comorbid Major Depression Disorder and PTSD during follow-up indicated higher levels of impairment than those reporting diagnosis of PTSD only. Findings by Bolton et al. (2000) implicate MDD as a significant predictor of overall dysfunction in the wake of trauma, as survivors with depression evidenced greater difficulties with interpersonal relationships, work, and school functioning than survivors reporting only diagnoses of PTSD. Relative to clinical applications, findings by

Bolton et al. (2000) further indicates the importance of conducting interventions that target depressive symptoms and perhaps the cognitive mechanisms underlying anxious and depressive symptoms.

In sum, research regarding childhood trauma, and the development of posttraumatic stress and other types of emotional distress symptoms provides potential description for the clinical presentation of youth meeting inclusion criteria for this study. Findings suggest that youth trauma survivors are not only at risk for the development of PTSD and comorbid anxiety (Cortes et al., 2005; Ruchkin et al., 2002; Yule et al., 2000) and depression problems (Bolton et el., 2000; Kiser et al., 1991), but may also potentially develop externalizing problems and have difficulty controlling their anger (Marsee, 2008). Research also supports the stability of these problems for a substantial period of time posttrauma (Bokszczainin, 2007; Goenjian et al., 2005; Weems et al., 2009), underscoring the need for steadfast intervention in traumatized youth. Thus, it seems that treatment protocols for traumatized youth should target emotional symptoms as well as take into consideration the mechanisms underlying these symptoms (e.g., Bolton et al., 2000). Underlying cognitive mechanisms, in particular, thought processes relative to the trauma, are considered to be predictors of posttraumatic psychological sequalae (Ehlers & Clark, 2000) Moreover, cognitive processes have been implicated in the maintenance of PTSD and other types of emotional distress symptoms in the wake of trauma (Green, Wilson, & Lindy, 1986; Green et al., 1991; Greenberg & Keene, 2001). Perhaps for these reasons, cognitive processes are targets for intervention in traumatized youth (Cohen & Mannarino, 2008). In the proceeding sections, a review of the role cognitive and affective processes play in the growth and continuance of PTSD and other types of emotional distress symptoms are presented.

Cognitive Factors Contributing to Post-trauma Adjustment

Theoretical models implicate cognitive factors in the development and maintenance of PTSD. Ehlers and Clark (2000) point toward the contribution of three cognitive predictors: the memory of the trauma, appraisals of the trauma, and the impact of these appraisals on coping strategies and behaviors to posttraumatic adjustment. Incomplete processing of the trauma memory and cognitive avoidance post-trauma may result in poorly elaborated and

inadequately integrated memory of the event with other autobiographical information. Ehlers and Clark (2000) posit data driven processing (e.g., processing of sensory characteristics rather than meaning during the event), lack of self reverent processing, and dissociation during the event as indicators of incomplete memory processing.

Excessively negative appraisals of the trauma, initial PTSD symptoms, and trauma related psychological sequelae can influence subsequent cognitive and behavioral coping responses (Ehlers & Clark, 2000). Commonly reported negative appraisals relative to the trauma include preoccupation with unfairness of what has happened, overgeneralization of danger, and global negative thoughts about the self (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999; Foa, Riggs, Massier, & Yaczower, 1995). Further, trauma survivors may also negatively appraise trauma related symptoms, such as intrusive memories or re-experiencing symptoms as "going crazy." Frequent negative appraisals of the trauma and related sequelae may result in feeling as if under constant threat, preventing survivors from putting the trauma behind them. According to this model, to gain a sense of control over the trauma and trauma related symptoms, survivors may use coping strategies including thought suppression, avoidance, rumination, and persistent dissociation; however, these strategies serve only to maintain their trauma symptoms (Ehlers & Clark, 2000).

Recent empirical findings provide support for cognitive predictors in the development of posttraumatic stress symptoms (Ehlers, Mayou, & Bryant, 2003; Ehring, Elhers, & Glucksman, 2008). In one of these studies, youth survivors of road traffic accidents were assessed for indicators of incomplete processing (e.g., data driven processing), negative appraisals of trauma and trauma related sequelae (e.g., negative interpretation of intrusive memories, perceived alienation from others), and cognitive strategies (e.g., rumination, persistent dissociation) within 2 weeks of the trauma, and then at 3- and 6-month follow-up. Results implicated cognitive variables as significant predictors of PTSD symptom severity beyond gender and trauma severity (Ehlers et al., 2003). Further analysis of cognitive predictors in the development of PTSD suggest that these variables show greater predictive power than other established variables (number of past traumas, perceived life threat during trauma) and as maintainers of PTSD and depression symptoms and traumatized adults (Ehring et al., 2008).

While findings regarding the role of cognitive predictors in the development of posttraumatic emotional problems are interesting in their own rite, these findings also provide implications for intervention with trauma survivors. For example, identification of negative appraisals through psychoeducation and normalization may provide symptom relief through prevention of maintenance (e.g., the individual learns that re-experiencing symptoms are not an indication of "going mad"). Further, understanding of coping responses, attributional, and perceptual styles relative to these appraisals also informs targets for interventions with traumatized youth. The impact of these factors on youth's response to life stressors and potentially traumatic events will be explored in the proceeding sections.

Coping responses. Theoretical models (Ehlers & Clark, 2000) and empirical findings (Ehlers et al., 2003) point toward negative cognitive coping responses as maintainers of posttraumatic stress in youth. In particular, the use of coping avoidant strategies (i.e., not directly addressing the stressor) are considered to result in maladaptive outcomes whereas the use of active coping strategies (i.e., changing the nature of the stressor by how one thinks about it) are believed to result in more positive psychological outcomes (Holahan & Moos, 1987). Indeed, employing avoidant coping strategies (e.g., social withdrawal, blaming others, poor emotion regulation) have been shown to predict the development of posttraumatic stress symptoms over time in sample of youth surviving hurricanes (i.e., Hurricane Andrew, LaGreca et al., 1996; Hurricane Katrina, Pina et al., 2008; Hurricane Floyd, Russoniello et al., 2002). In contrast, youth survivors of Hurricane Hugo who used positive cognitive re-framing techniques to cope post-disaster demonstrated less internalizing symptoms than those reporting feelings of self-blame regarding the hurricane (Jeney-Gammon, Daugherty, Finch, Belter, & Foster, 1993).

However, use of active coping strategies may not be the best approach across situations. Youth using active coping strategies to resolve stressors beyond their control (e.g., parent's arguing or getting divorce, the experience of a life-threatening illness), are more likely to demonstrate behavior problems and poor social competence (Clarke, 2006). The implications of Clarke's (2006) work indicate that youth benefit from having a repertoire of several coping strategies as well as the knowledge of when to use particular coping strategies. That is, having a wealth of coping skills

to choose from, and knowing which skills work best in a given situation, are instrumental for providing positive adjustment when stressors occur. Moreover, Clarke's (2006) work further suggests that youth would benefit from intervention programs that include practicing and developing coping skills in preparation for life stressors.

Attribution styles. Attribution theory proposes that when unexpected events occur people are motivated to generate causal explanations to account for the event. Attributions made in response to unexpected events may influence the severity of subsequent psychopathology (Peterson & Seligman, 1984). In particular, individual differences in causal attributions offered for life events have been posited as vulnerability factors for the development of subsequent psychopathology (Gray & Lombardo, 2003; Greenberg & Keene, 2001).

Research conducted by Nolen-Hoeksema and colleagues (1992) provides an example of how the development of attributional styles contributes to poor psychological outcomes (Nolen-Hoeksema, Girgus, & Seligman, 1992). Nolen-Hoeskema et al. (1992) performed a 5-year longitudinal study investigating predictors of childhood depression beginning when children (N=352) were in 3rd and 4th grades. Negative life events (i.e., parental divorce, death of grandparent, other children being less friendly, parents fighting), rather attribution style, were found to be the strongest predictor of depression. However, their findings also indicated that the presence of depression early in life leads to a deterioration of explanatory style in that depressed children are more likely to attribute negative events to internal, stable, global attributions, and to make external, unstable, specific attributions for positive events. In older children, attribution style was found to mediate negative life events and depression (Nolen-Hoeskema et al., 1992).

The habitual tendency to cite internal causes for unpleasant events has been associated with poor outcomes following exposure to traumatic events. A conceptual model for trauma response postulates that cognitive processing of the stressor, specifically, attributions of blame and guilt influence trauma outcome (Green et al., 1986; Green et al., 1991). Research regarding the role of self-attributions in the development of PTSD (Daigneault, Tourigny, & Hebert, 2006; Greenberg & Keene, 2001) support the model proposed by Green and colleagues (1986; 1991). Greenberg and Keane (2001) surveyed a sample of children (N=56) between the ages of 6 and 17 who had recently lost their homes to

accidental fires. Guilt was found to be a significant contributor of the development of PTSD symptoms in the0se youth (Greenberg & Keane, 2001).

Self-attributions of blame have also been associated with the development of severe posttraumatic stress responses. Report of self-blame predicted the maintenance of posttraumatic stress symptoms in youth survivors of Hurricane Andrew (La Greca et al., 1996). More recent work with traumatized youth not only suggests that self-blame serves as a mediator for anxiety, depression, posttraumatic stress, and feelings of anger in the wake of trauma, but that there is a link between self-blame for trauma and self-blame for future untoward events (Diagneault et al., 2006). Specifically, a sample of adolescent girls who blamed themselves for their abuse histories reported generalization of blame to other negative events occurring in their lives (Daigneault et al., 2006).

Perceived self-efficacy. The concept of self-efficacy refers to an individuals' belief in their ability to "produce and regulate events in their lives" (Bandura, 1982, p.122). In other words, self-efficacy is an individual's beliefs about confidence in their ability to execute behaviors to produce and regulate events in their lives that are critical to their emotional well-being (Weems & Silverman, 2006). Bandura (1982) suggested that lack of self-efficacy in handling fear-inducing situations may result in anxiety if an individual's belief in their ability to deal with frightening events is diminished.

The development of self-efficacy occurs during middle childhood. Intellectual cognitive gains during this time period allow children to focus on internal traits (Diehl & Prout, 2002). Exposure to trauma in youth may disrupt cognitive components of the self, such as self-efficacy, through the proliferation of negative evaluations and core beliefs (Harter, 1999). An example of the relationship between trauma exposure and its impact on self-perception can be found in work by Joseph and colleagues (1993). Joseph et al. (1993) collected data from sixteen adolescent survivors of the *Jupiter* sinking in order to explore the course and development of PTSD symptoms in this group. Youth reporting an absence of personal control or ability to have altered the events that occurred during the disaster experienced high levels of PTSD symptoms. Moreover, findings by Joseph and colleagues (1993) suggest that lack of

self-efficacy contributes to the maintenance of PTSD symptoms, as these youth showed symptom stability at follow-up (Joseph, Brewin, Yule, & Williams, 1993).

Control. The role of control has been investigated in relation to the understanding of emotional problems (Weems & Silverman, 2006). Theorists propose that early experiences with uncontrollable events may be thought of as a primary pathway to the development of negative emotions, and those experiences may foster a cognitive style characterized by the tendency to perceive and process events not within one's control (Chorpita & Barlow, 1998). Youth who process events in this way experience uncertainty about controlling events or believe that nothing can be done to prevent negative outcomes from occurring, and have been found to be prone to developing high levels of anxiety (Muris, Meesters, Schouten, & Hoge, 2003). Findings by Weems and colleagues (2003) support this theory. Youth with anxiety disorders report lower levels of perceived control than non-referred participants (Weems, Silverman, Rapee, & Pina, 2003).

Perceived control may serve as a risk factor for poor stress responses, as control-beliefs impact the way youth attempt to cope with uncontrollable events. Thurber and Weisz (1997) examined the role of control beliefs in children's ability to cope with a relatively uncontrollable situation (i.e., separation from parents during a 2-3 week stay at summer camp). In this sample (N=1032, mean age = 12.6), report of low perceived control was associated with what the authors refer to as 'relinquished control coping:' giving up, homesickness, or dissatisfaction with camp (Thuber & Weisz, 1997).

Affective Factors Influencing Stress Responses

Affective factors influence children's responses to trauma. Negative emotionality (i.e., symptoms of fear, anxiety, and depression) has been found to contribute to the development of poor psychological outcomes in youth experiencing stressors. For example, Lonigan and colleagues (1994) found that child survivors of Hurricane Hugo reporting high levels of sadness, worry, being scared, or feeling alone during the hurricane were more likely to exhibit posttraumatic stress syndrome. Children's level of reported emotional reactivity during the traumatic event (i.e.,

Hurricane Hugo) was found to be more strongly related to the presence of PTSD symptoms than level of exposure to hurricane-related events. Research by Lonigan and colleagues (1994) suggest that children's emotional experience during the traumatic event represents a significant risk for the development of a severe post traumatic reaction.

Pre-existing levels of anxiety may contribute to emotions experienced during a traumatic event. High levels of trait anxiety, or the propensity to experience anxiety, are associated with the tendency to perceive a greater number of situations as threatening or dangerous (Weems, Costa, et al., 2007). Frequent perception of situations as threatening or dangerous may lead to worry or fearfulness (Weems & Silverman, 2006). In as much, youth with high levels of trait anxiety may have a lower threshold for perceiving events as threatening, and may be more likely to experience negative emotions during a trauma.

Pre-existing levels of trait anxiety have been found to be a predictor of severe post-traumatic stress reactions in individuals surviving hurricanes (Lonigan et al., 1994; Weems, Pina et al., 2007). Lonigan and colleagues (1994) surveyed a large sample of youth (N=5687) 3 months after Hurricane Hugo, and their findings implicate high levels of trait anxiety as a strong risk factor for the development of PTSD symptoms. Findings from La Greca, Silverman, & Wasserstein (1998) expand upon results reported by Lonigan et al. (1994). Results reported by La Greca et al. (1998) indicate that youth exposed to Hurricane Andrew and reporting high levels of trait anxiety pre-disaster are likely to develop PTS following the hurricane (La Greca et al., 1998). Interestingly, findings from a more recent study suggest the contribution of trait anxiety to the development of posttraumatic stress extends beyond pre- and post-disaster psychological functioning. Results from a sample of Hurricane Katrina survivors indicates that pre-existing trait anxiety predicts posttraumatic stress reactions beyond level of exposure to hurricane-related events (Weems, Pina et al., 2007).

The development of high levels of posttraumatic stress in the wake of trauma may be due to the unique relationship among trait anxiety and anxiety sensitivity. Anxiety sensitivity (AS) is the cognitive fear of anxiety or anxiety related sensations. When confronted with trauma cues, AS can serve to exacerbate posttraumatic stress symptoms by amplifying fear of these symptoms in traumatized adults (Fedoroff, Taylor, Asmundson & Koch, 2000). While less is known about the role of anxiety sensitivity in the development of posttraumatic stress symptoms in traumatized youth, emerging research supports the unique contribution of AS to the development of severe posttraumatic stress in traumatized youth (Hensley & Varela, 2008; Leen-Feldner, Feldner, Reardon, Babson, & Dixon, 2008). For example, results from a sample of youth survivors of Hurricane Katrina suggests that anxiety sensitivity explains 6% more of the variance in PTSD symptoms than hurricane exposure and trait anxiety (Hensley & Varela, 2008). Further, the relationship among anxiety sensitivity and trait anxiety suggests clinical implications. Youth with high levels of anxiety sensitivity may be at increased risk of developing PTSD and should be considered targets for intervention upon trauma exposure (Hensley & Varela, 2008).

In sum, research indicates that youth's responses to stressful or potentially traumatic events are influenced by complex relationships among cognitive and affective factors. Incomplete processing of traumatic events, negative appraisal of trauma and trauma related symptoms (Ehlers & Clark, 2000), and pre-existing affective patterns (i.e., the tendency to experience anxiety and depression; Bolton et al., 2000; Lonigan et al., 1994) contribute to the development of maladaptive coping strategies such as avoidance (LaGreca et al., 1996) and blame (Daigneault et al., 2006). Interventions for traumatized youth based on the cognitive behavioral model focus on teaching youth to identify the relationship among their thoughts, feelings and behaviors to produce symptom changes. For this type of therapy, the therapist helps youth learn to identify and alter affective states (e.g., anxiety and depression) and thought patterns (low perceived control beliefs) and behaviors that contribute to maladaptive coping strategies (avoidance; Braswell & Kendall, 2001).

Indeed, cognitive behavioral intervention strategies are among the empirically supported interventions for reduction of emotional distress levels in traumatized youth (Silverman, Ortiz et al., 2008) and can include a number of different methods for producing cognitive and behavioral changes in youth (Braswell & Kendall, 2001). While many treatment interventions for traumatized youth have been adapted from effective treatments for traumatized adults or from techniques useful for treating youth with emotional and behavioral problems similar to those found in traumatized youth (e.g., anxiety or depression; Cohen, Mannarino, Berlinger, & Deblinger, 2000), a recent shift in intervention research includes the development of treatments designed specifically for youth trauma survivors (e.g., abuse survivors, Cohen, Deblinger, Mannarino, Steer, 2004; youth exposed to community violence, Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003).

However, relatively few treatments have been empirically investigated in samples of disaster exposed youth (see Silverman, Ortiz et al., 2008). An aim of this study is to evaluate the efficacy of a cognitive behavioral treatment program specifically designed for disaster exposed youth, and to implement this program in a school setting. Because the intervention will be conducted with youth, the impact of parent participation in treatment sessions, and their possible influence on children's PTSD symptom reduction, is relevant to this study. Treatment will occur during the school day when parents are not present; thus, it is important to examine research literature for differences in youth's symptom reduction if child-only as opposed to co-joint treatment sessions are conducted. The proceeding paragraphs provide an overview of the cognitive behavioral treatment process in youth, including discussion of parent involvement in treatment sessions, followed by a brief review of cognitive behavioral therapies (CBTs) conducted in disaster exposed youth.

The Cognitive Behavioral Treatment Process in Traumatized Youth

CBT for traumatized youth may include conducting individual sessions with the parent and the child, and then introducing co-joint parent-child sessions (Deblinger, Thakkar-Kolar, & Ryan, 2006). Child and parent individual sessions involve coverage of the same material (learning coping skills, relaxation, and how to express emotions appropriately). However, individual sessions often differ in content given parents may have different concerns relative to the trauma (e.g., "I should have known my child was being abused;" Deblinger et al., 1996). Child-only sessions may include games or activities for learning new coping skills and relaxation techniques. Co-joint sessions typically include exposure activities, the development of parent-child communication skills, and, given that some children are prone to developing externalizing problems in response to trauma (Ackerman et al., 1998; Kiser et al., 1991; Pelcovitz et al., 1994), implementing home behavior plans (Cohen & Mannarino, 2008).

Interestingly, parental involvement in the treatment sessions may not be essential for children's improvement. Comparison of child-only interventions with cojoint parent interventions suggests that child-only interventions are just as effective for reducing PTSD symptoms (Deblinger, Lippmann, & Steer, 1996; King et al., 2000; Kolko, 1996). For example, Deblinger et al. (1996) compared forms of CBT in a sample of sexually abused youth by assigning them to one of four conditions (one child-only, one parent-only, one with individual parent and child sessions, and standard therapeutic care). CBTs met for 12 sessions, although the duration of the co-joint session condition was slightly longer and included the overlapping components (psychoeducation, body safety skills, behavioral components, and coping skills). The parent-only condition consisted of behavioral management and communication skills and child-only consisted of sessions with gradual exposures related to the abuse. Pre- and post-treatment comparison of child-only and parent- and child-only sessions showed greater reductions in posttraumatic stress than parent only or standard therapeutic care (Deblinger et al., 1996) and maintained treatment gains at follow-up (Deblinger, Steer, & Lippmann, 1999), suggesting that conducting child-only sessions are just as efficacious in treating traumatized youth as CBTs that call for parental involvement.

Results from these treatment studies (Deblinger et al, 1996; Deblinger, Steer, Lippmann, 1999) demonstrate the importance of child only sessions in facilitating symptom reduction. Individual sessions include teaching relaxation skills (i.e., breathing and muscle relaxation techniques) to children so they can learn to control physiological responses to reminders of traumatic experiences; being able to self-soothe using relaxation techniques enhances a sense of self control (Cohen & Mannarino, 2008). In addition to relaxation skills, youth learn to further enhance feelings of self-control by learning affect modulation and cognitive coping skills as part of CBT.

Once relaxation and coping skills have been practiced, the final component of trauma focused CBT is introduced. Disorganization of the trauma memory can result in a fragmented trauma narrative, and this predicts and the development and maintenance of posttraumatic stress symptoms in traumatized individuals (Ehlers & Clark, 2000; Halligan, Michael, Clark, & Ehlers, 2003). Thus, some researchers propose that the development of the trauma narrative is crucial for reducing PTSD symptoms (Neurner, Schauer, Klaschik, Karunakara, & Elbert, 2004). Youth develop a trauma narrative to overcome avoidance of traumatic memories, identify maladaptive cognitions relative to the trauma, and to realize the trauma in the framework of their whole life (Cohen & Mannarino, 2008).

This review of research not only suggests that parental involvement in treatment sessions is not essential for reduction in PTSD symptoms (Deblinger et al., 1999; King et al., 2000; Kolko, 1996), but the importance of the therapist working individually with the child to develop coping skills for self-soothing in preparation for trauma narrative construction (Cohen & Mannarino, 2008). Research also suggests that parent involvement in treatment may be salient depending on the type of trauma experienced by the child, such as abuse (Deblinger et al., 1996). Given the development of the trauma narrative is crucial for PTSD symptom reduction (Neurner, Schauer, Klaschik, Karunakara, & Elbert, 2004), and that this depends upon the child reporting their story, the feasibility of conducting a trauma focused treatment in the school setting (without parent involvement in sessions) shows promise.

Further, the small number school based cognitive behavioral treatment studies that have been conducted with samples of disaster-exposed youth indicate effective reduction in PTSD symptoms without including parent sessions (Chemtob et al., 2002; Silverman & Overstreet, 2008). Chemtob and colleagues (2002) conducted a brief cognitive behavioral intervention in youth exposed to Hurricane Iniki (e.g., 4 treatment sessions total; Chemtob et al., 2002). Treatment consisted of four sessions (i.e., Session 1: "Safety and Hopelessness," Session 2: "Loss," Session 3: "Mobilizing Competence and Issues Toward Anger," and Session 4, "Ending and Going Forward"). Youth reported PTSD symptom reduction at post-treatment and at 1-year follow-up.

A more recent school based treatment study has employed less brief intervention strategies for youth hurricane survivors and included development of the trauma narrative. Salloum & Overstreet (2008) conducted a CBT program with a focus and grief and loss issues (10-1 hour sessions focusing on coping with grief and loss issues, youth developing a trauma narrative and learning relaxation skills) in youth survivors of Hurricane Katrina. Youth were assigned to either a group or individual therapy condition and provided psychoeducation relative to grief and losses, taught relaxation techniques and coping skills, and developed an in-depth trauma narrative (Salloum & Overstreet, 2008). Youth in both conditions reported a significant decrease in posttraumatic stress symptoms, depression, traumatic grief, and distress levels from pre- to post-intervention and at follow-up (Salloum & Overstreet, 2008).

While few studies have investigated CBT in disaster exposed youth, extant research supports the efficacy of CBT for traumatized youth in school settings through examining group comparisons and differences (Chemtob et al., 2002; Salloum & Overstreet, 2008). A limitation of these group comparison studies is the inability to identify the potential mechanisms of treatment change through examining the impact of session or component level content (e.g., the development of the trauma narrative) on symptom change (Barlow & Nock, 2009; Kazdin, 2008). Identification of components contributing to session or component level changes in symptoms are necessary to identify the critical and superfluous ingredients to treatment manuals (Barlow & Nock, 2009). Garnering idiographic data regarding the impact

of cognitive behavioral treatment components on posttraumatic stress symptoms and other types of emotional distress symptoms may inform us of how to streamline treatment protocols and to highlight particularly useful components.

The present study adds to childhood intervention research by evaluating the efficacy of a treatment protocol designed specifically for disaster exposed youth. The treatment protocol implemented for this study was developed by a group sponsored by the National Child Traumatic Stress Network (NCTSN) and National Center for PTSD (NCPTSD) and lead by Wendy Silverman, and is a form of trauma-focused cognitive-behavioral therapy specifically designed for youth disaster survivors (*StArT: Strength after Trauma: A modular intervention for children and adolescents affected by hurricanes;* Saltzman et al., 2007). This form of CBT has multiple empirically supported components or modules (Chorpita, Taylor, Francis, Moffitt, & Austin, 2004). While these components have been shown to be effective in reducing PTSD symptoms in other treatment studies (e.g., Salloum & Overstreet, 2008; Silverman, Ortiz et al., 2008; Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003), the *StArT* manual has not undergone systematic evaluation and more process level data is needed about the effectiveness of the specific components in PTSD symptom reduction. The current study will examine initial efficacy these components on symptom reduction through examination of symptom fluctuation during the treatment process.

Beyond taking an idiographic approach to assessing intervention change, the present study aims to assess the feasibility of translating a treatment typically tested and implemented in traditional mental health settings to a school setting. Conducting school based interventions includes the consideration of several different types of concerns such as developing collaborative relationships with school staff (Roberts et al., 2008), determining consent and screening procedures (Masia-Warner et al., 2005), and troubleshooting other school related issues (e.g., when to pull the child for treatment during the school day, and finding available space for the session; Pincus & Friedman, 2004). Research regarding school based interventions offers suggestions for addressing issues related to feasibility. Because relatively few treatment studies have been conducted in disaster exposed youth (Taylor & Chemtob, 2004; Silverman, Ortiz et al., 2008), and few of these studies include description of school based delivery of treatment (e.g., Chemtob et al., 2002;

Salloum & Oversteet, 2008), the investigator of the present study drew broadly from school based intervention literature, as well as from school based intervention studies conducted in traumatized youth, to develop feasibility strategies. The next section presents a review of these studies.

Issues in Conducting School-based Interventions

A more recent development in the field of intervention research includes coordinating mental health services for youth (Hoagwood & Johnson, 2003) and families (Stormshak, Dishion, Light, & Yashui, 2005) through schools. Given that many youth are unlikely to access services for their emotional problems in traditional settings due to financial (Kataoka et al., 2002) and/or contextual factors (lack of childcare for their siblings, transportation, Stephan et al., 2007), school settings offer a viable context for intervention delivery. Further, interventions conducted in school settings have been shown to be effective method for identifying (Severson, Walker, Hope-Doolittle, Kratochwill, & Gresham, 2007) and treating large numbers of youth (Chemtob et al., 2002; Masia-Warner et al., 2005; Pincus & Friedman, 2004; Salloum & Overstreet, 2008; Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003).

Researchers have conducted interventions in school settings through university-school partnerships (e.g., Chemtob et al., 2002; Masia-Warner et al., 2005; Pincus & Friedman, 2004; Salloum & Overstreet, 2008; Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003). However, school based intervention studies may not fully describe the logistics of conducting treatment in school settings (e.g, Chemtob et al., 2002; Salloum & Overstreet, 2008; Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003). Schools are complex systems that have their own policies and procedures relative to addressing mental health issues (Roberts, Vernberg, Biggs, Randall, & Jacobs, 2008). Recognition of systemic and organizational issues unique to school settings has prompted some researchers to call for further investigation of the fit or feasibility of university based treatments into other types of clinical settings, and in particular school settings (Hoagwood & Johnson, 2003).

Researchers who have implemented school-based treatments have shared their strategies for translating university based practices to school settings. Conducting school based treatments involves coordinating efforts with teachers and school administrators and fostering a collaborative relationship among them (Pincus & Friedman, 2004; Roberts et al., 2008). An example of how individuals from outside the school milieu can foster relationships with school staff can be drawn from Roberts et al. (2008) reported experiences in developing a school based mental health

initiative for youth with serious emotional disturbances (SED; a type of special education classification). Roberts et al. (2008) isolated factors contributing to the establishment of a collaborative relationship between school staff and university staff (Roberts et al., 2008). These factors include convincing school staff that interventions are effective, that school staff should consider graduate students implementing treatment professionals, and that in turn, therapists should consider the breadth of training received by school staff over the years and need not be arrogant with them (Roberts et al., 2008).

While findings by Roberts et al., (2008), point toward the importance of establishing collaborative relationships, the ease and methodology for doing so may differ when trying to reach disaster exposed youth as opposed to SED youth. There may be fewer stumbling blocks to convincing school staff that youth with special education classifications need intervention given they may already present learning, intellectual or sensory problems that arise within the context of the classroom. In contrast, given that many disaster survivors experience internalizing symptoms (La Greca et al., 1996; Lonigan et al., 1994; Vernberg, La Greca, Silverman, & Prinstein, 1996), their level of emotional distress may not be as overt or easily identifiable in the classroom. There is also research suggesting that needs perception of youth disaster survivors may not be well understood by school administrators, and that there may be factors related to the post-disaster environment that influence communication difficulties among school staff (Dean et al., 2008). Further information regarding the process of developing collaborative relationships and implementing treatment programs in post disaster schools may help expedite intervention procedures.

Another potential barrier to conducting school based interventions pertains to methods for obtaining parental consent. Researchers have developed methods for performing the consent/assent process. To recruit a sample of Katrina-exposed youth for their school-based intervention, Salloum and Overstreet (2008) had clinicians from their study on campus and available for face to face meetings with parents. Parents were provided with clarification about study procedures before turning in signed consent forms, and this resulted in a 35% (out of 240 eligible youth, 83 parents consented) return rate of consents (Salloum & Overstreet, 2008). However, other strategies for gathering

parental consent (Masia-Warner et al., 2005; Pincus & Friedman, 2004) as these may offer a stronger return rate. For their school-based intervention of youth with social phobia, Masia-Warner and colleagues (2005) used telephone calls to screen potential participants, and gain consent from parents of youth meeting study inclusion criteria. This method allowed for a 47% return rate in parental consent (out of 171 eligible youth, 80 parents consented; Masia-Warner et al., 2005).

In sum, conducting interventions in school settings, while challenging, helps to bridge the gap between research and practice (Hoagwood & Johnson, 2003; Stormshak et al., 2005), and allows for an often underserved population (e.g., youth, minorities, families who cannot afford services; Kataoka et al., 2002; Chavira et al., 2003; Stephan et al., 2007) to receive much needed services. Based on a review of research regarding the feasibility of school based interventions, success of setting up an intervention program can be facilitated by close collaboration with school staff (Roberts et al., 2008), utilizing multiple strategies for obtaining parental consent, and designing a screening process that appropriately identifies intervention candidates (e.g., Levitt et al., 2007; Pincus & Friedman, 2004; Vander Stoep et al., 2005).

While past research suggests procedural strategies for implementing school based intervention studies, qualitative data on the feasibility of conducting disaster related PTSD interventions in the school setting could expand the knowledge base on school based intervention efforts, particularly in the wake of disaster. Published studies regarding school based interventions with disaster exposed youth (e.g., Chemtob et al., 2002; Salloum & Overstreet, 2008) may not include a full description of developing university-school partnerships, the process of implementing the treatment program within the school setting, obtaining parental consent, and unique issues (e.g., time during the school day for treatment sessions; Mufson et al., 2004; Pincus & Friedman, 2004) presented during treatment delivery in school settings.

Qualitative information about the logistics and feasibility of implementing treatment programs in post-disaster school settings may enhance treatment delivery in this context (Dean et al., 2008). In addition, application of the qualitative data gathered from this study has implications for public policy. Logistics and feasibility information might help determine the types of treatments that could and should be delivered in schools and which is line with the New Freedom Commission (2003) recommendation for enhancement of school based mental health services. Further, logistics and feasibility information from this study may demarcate procedures for implementing school based intervention services post disaster. Recent research suggests that school staff may underestimate the impact of disasters on youths psychological functioning, and thus decline intervention services offered to them by outside agencies (Dean et al., 2008). Data from this study will include description of developing collaborative relationships with school staff and setting up the intervention program, providing subsequent interventionists with a prototype of conducting school based intervention programs post disaster.

The Present Study

Though school-based interventions have been shown to be effective in reducing PTSD (Chemtob et al., 2002; Salloum & Overstreet, 2008; Stein, Jaycox, Kataoka, Wong, Tu, Elliot, et al., 2003) and other emotional distress symptoms in traumatized youth (e.g., depression, Salloum & Overstreet; Stein Jaycox, Kataoka, Wong, Tu, Elliot et al., 2003), few school-based treatments have been designed specifically for disaster exposed youth (see Silverman, Ortiz et al., 2008; Taylor & Chemtob, 2004). One promising treatment program for traumatized youth, as noted above is the *StArT* program (Saltzman et al., 2007); however, no studies have specifically tested the *StArT* manual. Evaluating the efficacy of the *StArT* manual (Saltzman et al., 2007) and providing a possible blueprint for transporting this intervention to youth trauma survivors in a school setting has the potential to make an important contribution to the interventions database.

Research is also needed to examine the feasibility and logistics of conducting school based interventions in a post disaster context (Dean et al., 2008). As noted by some researchers, advances in development of efficacious mental health treatment with youth have had minimal translation into school settings (National Advisory Mental Health Council, 2001). An additional goal of the present study is therefore to add knowledge about school based intervention in terms of the feasibility and logistics of implementing a trauma focused intervention program in schools for youth impacted by Hurricane Katrina.

In sum, there are two major aims of this study. The first major aim of this study is to report on the logistics of setting up the program and examine issues in the feasibility of conducting the *StArT* program in a school setting. Four issues will be addressed for the first aim: (1) the process of establishing the project in the school (qualitative description), (2) logistics of conducting the screening for PTSD and working with the school counselors to enroll individual students into the *StArT* program (quantitative and qualitative description), (3) methods for obtaining parental consent for the *StArT* program (qualitative description), and (4) issues in conducting the *StArT* treatment protocol in the school setting (qualitative description).

The second major aim of this study is to provide an initial evaluation of the efficacy of the *StArT* manual using a partially non-concurrent multiple baseline design (MBL) to identify individual and session (and/or manual module) level change in PTSD symptoms. In this type of design (MBL), weekly measures are completed throughout baseline and treatment and for this study weekly assessment of PTSD symptoms will occur. The use of a multiple baseline design helps identify the pattern of PTSD symptom reduction across treatment sessions to further isolate individual differences in treatment response (Feather & Ronan, 2006). Data from multiple baseline designs conducted with traumatized youth suggests reduction of PTSD symptoms following exposures to other traumatic events and have produced important advances in PTSD intervention knowledge (e.g., Feather & Ronan, 2006; Saigh, 1987). It is expected that PTSD symptoms will show a downward trend after construction of trauma narrative (an imaginal exposure technique). Declines in specific types of PTSD symptoms (re-experiencing, hyperarousal, and avoidance symptoms) will also be monitored throughout treatment and fluctuations in symptoms will be inspected as treatment components are introduced. Evaluating the impact of treatments components on specific types of PTSD symptoms may help identify relatively important components of the *StArT* manual.

In addition to examining individual PTSD symptom trajectories over the course of treatment, changes in comorbid symptoms (i.e., anxious and depressive symptoms) will be examined and group level changes will be examined using multi trait (anxiety symptoms, cognitive errors) and multi-informant/method (child and parents clinical interviews) data collection. It is hypothesized that the intervention will reduce PTSD, anxiety, and depression symptom levels and reduce the incidence of PTSD, anxiety and depression diagnoses/impairment. Treatment effects are expected to be greater than normal reductions in symptoms over time (Weems et al., 2009) and similar to those found in other childhood PTSD and anxiety disorder treatment studies (Silverman, Ortiz, et al., 2008; Silverman, Pina, & Chockalingam, 2008). While systematic meta-analyses of normal change over time in PTSD symptoms have not been conducted, the investigator of the current study calculated effect sizes based on change in PTSD from previous studies (youth survivors of the Spitak earthquake, N=89 surveyed at 18 month follow-up, estimated normal change as a

function of Cohen's *d*=.55; Goenjian et al., 2005; youth survivors of Hurricane Andrew, N=442 surveyed at 3- and 10-month follow-up, estimated Cohen's *d*=.58, La Greca et al., 1996). Salloum & Overstreet (2008) conducted a treatment study with youth exposed to Hurricane Katrina and reported a strong effect size for the decrease in posttraumatic stress symptoms from pre-assessment to post-treatment (Cohen's *d* = 1.16; Salloum & Overstreet, 2008), and thus the investigator of this study expects an effect size of greater than .8.

Methods

Participants

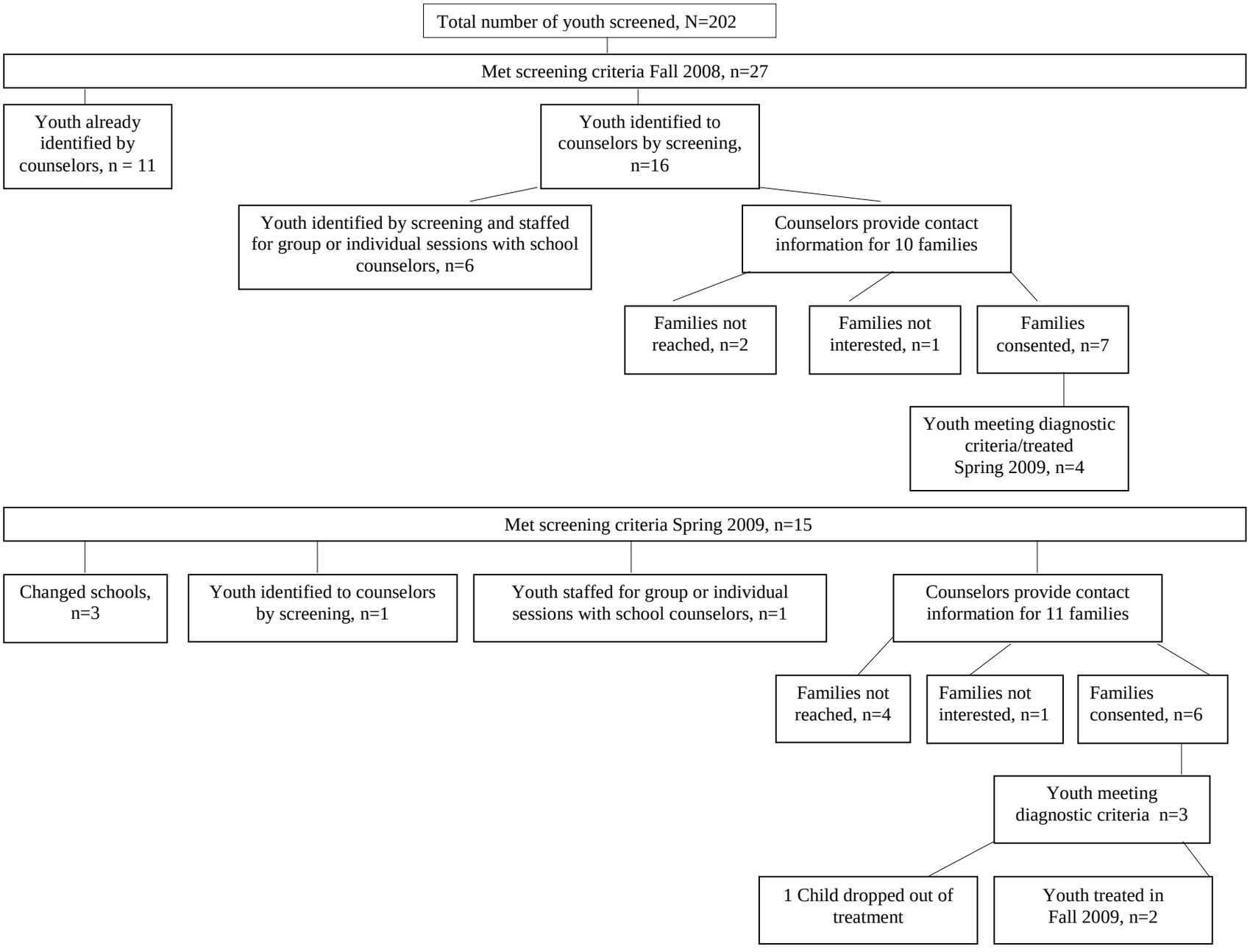
All participants were exposed to Hurricane Katrina and/or its aftermath and are students at University of New Orleans (UNO) Charter Schools. These schools are located in neighborhoods that received massive hurricane damage, almost total flooding, and continue to have a significant amount of disrepair. Post-disaster, the Charter School Network has fostered collaborative relationships with university and other agencies offering a variety of services. Through collaboration with the Charter School Network, the Youth and Family Anxiety, Stress, and Phobia Laboratory has provided a school based test anxiety interventions to the schools within the UNO Charter School Network.

Students were identified for test anxiety interventions through universal screenings methods (i.e., all students at the school are screened; N=202). Data collection is conducted as part of the counseling curriculum at the charter schools. This screening battery also assesses additional emotional distress symptoms that may interfere with school performance and achievement including posttraumatic stress symptoms relative to Hurricane Katrina exposure). Through these screenings youth are identified for counseling services; that is the test anxiety intervention is offered to youth reporting high levels of test anxiety. Students with potential problems in other areas of emotional functioning are discussed with the school counselors for referral to further evaluation. For this study, youth reporting high levels of posttraumatic stress related to Hurricane Katrina were identified and discussed with the school counselors for possible recruitment into this intervention arm of this study.

Screenings for charter schools occurred in Fall 2008 and late Spring 2009 and all youth screened ranged from 8 to 15 years of age The majority of the students at these schools are African American (~97%) and are predominately from low income families (school data suggests that 97% of students receive free lunch, 2% are on reduced payment, and 1% pay for lunch). Youth recruited for the trauma focused intervention reported total scores on the Posttraumatic Stress Disorder Reaction Index (RI) in the severe to very severe range (see measures section for a description of RI cut off scores). The lists of youth reporting scores in this range were provided to school counselors and school counselors gave this study's investigator parent contact information for the youth they deemed would benefit (additional recruitment details are found in results section).

Figure 1 illustrates the screening and intervention process. In the Fall of 2008, 27 youth reported scores on the RI in the severe to very severe range at screening. As shown by Figure 1, counselors had identified 11 of these youth prior to receiving screening results and were providing them with intervention services through groups or in individual sessions. Sixteen screened youth were identified and counselors were provided with the names of these youth in January of 2009. Counselors provided the contact information for youth on their caseloads with the highest RI scores (n=10) and their rationale for providing contact information for these particular youth, as well as detailed qualitative information regarding collaboration with the school counselors to enroll individual students into the *StArT* program will be provided in the results section.

Figure 1. Logistics of the school based screening and intervention process



Of those youth screened during the second wave (Spring 2009), 15 met recruitment criteria. Counselors were provided with the list these 15 youth in August 2009 (the beginning of the school year). Three of these youth had changed schools and thus were no longer at the school. Counselors had identified the 11 out of 12 of youth meeting recruitment criteria prior to receiving screening results. Counselors provided the contact information for 11 of these youth. Parent contact information could not be obtained for the 1 of the 12 children and this child was staffed for treatment with school counselors. As shown by Figure 1, the trauma focused intervention was implemented with four youth in Spring 2009 and three youth in Fall of 2009. One child left treatment after the first session (Fall 2009) and is not included in this study. The child decided he did not want to participant the treatment program and referral information was provided to the family. The demographic information and presenting problems of youth participating in the trauma-focused intervention are presented in the proceeding section. To maintain anonymity and for convenience of description, common first names were assigned to each participant.

Treated Sample Child and Family Characteristics

"*Jennifer."* Jennifer is a thirteen year old African American girl who resides with her mother, stepfather, and four younger siblings. She fled the city with her mother and extended family, leaving family pets behind. The family reports a prolonged evacuation experience in that they encountered several hours of traffic upon leaving the city. Once 200 miles outside the city, they sought accommodations at restaurants and hotels, but believe they were denied services due to discrimination. With no place to stay, they traveled another 800 miles and ultimately pulled over in a parking lot and spread out blankets so they could sleep. They stayed and resided in this area for nine months, initially by living in an abandoned home, and then by living in a home donated to the family by a local church. The family returned to the city in June of 2006. During the assessment, she reported that she missed the possessions she had lost due to the hurricane, her cats who were left behind, and her friends from her old school. She was interested in treatment to address trauma related issues and further learn to control her anger and received treatment during Spring 2009.

"*John.*" John is a 9 year old African American boy. He and his younger sister reside with his cousin, who is their legal guardian. He came into his cousin's custody the year of Hurricane Katrina. He, his sister, and his cousin did not evacuate for the storm. They witnessed rising floodwaters and he reports seeing someone drown. The family's home flooded, but they managed to escape to one of the interstate bridges and were rescued by helicopter. They have since rebuilt their home. John's cousin reports that he frequently cries in his sleep. He states that he has bad dreams and often worries about his cousin's welfare and worries about her getting hurt or dying, or about his own personal safety. He received treatment during Spring 2009.

"*Michael.*" Michael is an eight year old African American boy residing with his mother and older brother. The family was able to evacuate for the hurricane, but their home was severely damaged and their possessions were destroyed. He reports disturbing memories of the television coverage and also of seeing the city for the first time after the storm. When his family returned to assess home damages after the storm, he saw the decomposed remains of his grandmother's dog. According to his mother, Michael worries and is fearful of being separated from her and often sleeps with her at night. He received treatment during Spring 2009.

"*Sarah.*" Sarah is a 12 year old African American girl who resides with her older sister and her legal guardians (her paternal aunt and uncle). When the hurricane came, she evacuated with her sister and her Aunt to the northern part of the state. They left behind most of their possessions and pets. Her uncle left a day later than the rest of the family and they were unable to reach him and were unsure of his whereabouts for four days after the storm. While her guardian reports that she and her siblings handled the evacuation "well," Sarah reports being very upset by news coverage of the storm and feels grief over lost possessions. The family home took four feet of water and rebuilding began when the family moved back to the city, six months after the storm. She received treatment during Fall 2009.

"*Elizabeth.*" Elizabeth is a nine year old African American girl who resides with her mother and older half sister. When the hurricane came, she and her family evacuated to the northern part of the state and remained there for a month before moving back to the greater New Orleans area. In the aftermath of the storm and her losses, she became extremely ill and was in and out of the emergency room. Her mother states that Elizabeth complained of heart attack like symptoms and other types of somatic symptoms (i.e., stomach and headaches). She continues to report somatic complaints as well as difficulty sleeping. She received treatment during Fall 2009.

"Kelly." Kelly is eight year old African American girl who resides with her mother. They evacuated New Orleans with a car full of their belongings. Their remaining possessions, including the child's fish, were destroyed during the storm. She experienced prolonged evacuation from the city. She and her relatives did not return to the city until nine months after the storm. During this time, she reported being lonely, not having many friends at her new school, and missing friends from her old schools. At pre-treatment assessment, she became tearful when talking about Katrina, and reported worrying that her grandmother would lose her home again when Gustav came. Kelly reports worries relative to her family's safety should another natural disaster occur and states that when she sees homes still damaged by the hurricane can't stop thinking about what happened. She received treatment during Spring of 2009.

Measures

Assessment of Posttraumatic Stress Symptoms. PTSD symptoms were measured through the *Reaction Index for Children* (PTSD-RI; Frederick, Pynoos, & Nadar, 1992). The RI was developed as an interview for the diagnosis of PTSD, and has been adapted into a self report questionnaire (Frederick et al., 1992) and strong test-retest reliability estimates have been reported in disaster survivors (r=.93, $p < .05$; Goenjian et al., 2001). Similar to previous research (Vernberg et al., 1996) the RI used for this study contains 20 items, with answer choices modified for ease of administration from the original five options to three options (none of the time, some of the time, most of the time – coded as 0, 2, 4 respectively). Total RI scores thus range from 0 to 80. To foster comparisons with previous studies using the RI (e.g., La Greca et al., 1996; Vernberg et al., 1996) and create PTS severity groups, classification of the sample by severity of symptoms are line with work by Frederick et al. (1992) which includes the categories: Doubtful (score of 0-11), Mild (12 -24), Moderate (25-39), Severe (40-59), and Very Severe (60-80). Youth reporting scores in the Moderate, Severe, or Very Severe range were screened for inclusion criteria. The RI is sensitive to treatment effects in samples of youth hurricane survivors (Cohen's d = 1.16; Salloum & Overstreet, 2008). Youth were administered the PTSD RI as part of the pre-treatment screening assessment, weekly at the baseline assessments, weekly during treatment, and at the post-treatment assessment.

Diagnostic Interviewing. The *Anxiety Disorder Interview Schedule-IV* (ADIS-C and ADIS-P; Silverman & Albano, 1996) was administered to children and their parents to determine initial diagnosis and as part of post-treatment assessment. The ADIS-IV is a semi-structured interview designed for youth aged 7 to 17and their parents. The ADIS-IV provides assessment of childhood anxiety disorders, affective disorders (i.e., Dysthmia, Major Depressive Disorder) and externalizing disorders (i.e., ADHD, Conduct Disorder, Oppositional Defiant Disorder), and also provides sections for the assessment of other symptoms and impairment commonly experienced in childhood such as school refusal behavior, psychosis, selective mutism, eating disorders, and somatoform disorders.

The parent and child versions of the ADIS-IV have been evaluated for test-retest reliability. For the child version, intraclass coefficients (ICCs) were reported in the excellent range (ICC = 0.85-0.92) for children ages 7 to 11 and for youth aged 12 to 16 (ICC = 0.81-0.99; Silverman, Saavedra, & Pina, 2001). For the parent version, reliability estimates have been reported in the excellent range for the younger group (ICC = 0.86-0.99), and in the good to excellent range for the older group (ICC=0.52-0.94; Silverman et al., 2001). Parent and child interview schedules are sensitive to treatment effects (Kendall, 1994; Silverman et al., 1999a). At pre-treatment, the therapist (the first author; a doctoral level graduate student) conducted the ADIS-IV with children at their schools.

Conducting an ADIS-IV with parents would be difficult in a school setting (e.g., scheduling, administration of the parent version can take a couple of hours). Thus, the therapist administered the PTSD scale of the ADIS-IV to parents over the phone. The phone interview with parents also included the *Diagnostic Interview Schedule for Children-Predictive Scales* (DISC-PS; Lucas et al., 2001). The DISC-PS was used to measure and identify the presence of other anxious and depressive symptoms (i.e., Simple Phobia, Social Phobia, Agoraphobia, Panic Disorder, Generalized Anxiety Disorder, Obsessive-Compulsive Disorder, and Major Depressive Disorder) and other types of psychopathology (i.e., Schizophrenia, Attention Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, Conduct Disorder, and Substance Use). Parents respond to DISC-PS items by choosing (0) no or (1) yes. Findings comparing the DISC-PS to the full *Diagnostic Interview Schedule for Children* indicate excellent specificity and

sensitivity of the predictive scales (Lucas et al., 2001). DISC-PS parent scales evidence good test-rest reliability (parent report of children's anxious symptoms, α = .86-.89 and depressive symptoms, α = .78-.82; Lucas et al., 2001). The total number of DISC-PS items measuring anxious symptoms was summed separately to derive total scores and total anxiety scores at pre- and post-treatment.

ADIS PTSD scale information obtained from children and their parents was used to assign a Clinical Severity Rating (CSR) for PTSD diagnoses. CSRs range from 0 to 8, and ratings of 4 or greater are indicative of clinical diagnosis. Thus youth and parents reporting CSRs of 4 or greater on the PTSD scale were included in this study. Because parents were not administered the entire ADIS, parent report could not be used when assigning CSRs for diagnoses other than PTSD. CSRs were assigned to non-PTSD diagnoses based on child report only.

Youth reporting additional diagnoses, and/or who did not report PTSD as their primary diagnoses were not excluded from this study. Given the aim of our study is investigate the effectiveness and feasibility of treatment in a school setting, and research suggesting that youth trauma survivors typically present with a constellation of emotional problems (Bolton et el., 2000; Cortes et al., 2005; Kiser et al., 1991; Ruchkin et al., 2002; Yule et al., 2000), it was decided to include youth with multiple diagnoses. Further, there is a gap between intervention research and its application in practical settings, in part because clinicians do not feel that results from treatment studies generalize to their clients (Barlow & Nock, 2009). We thought that youth with multiple diagnoses might be more exemplary of what would be seen in an applied or school settings post-disaster, and we wanted our findings to reflect the treatment process in this type of client; however, referral for additional problems was considered when staffing the child with school counselors and for youth still meeting criteria for other problems after completion the *StArT* program appropriate referral was made (see below).

Given demand characteristics may influence children's responses to interview items, pre- and post-treatment interviews with children were not be conducted by the initial interviewer. Post-treatment ADIS-IV interviews were conducted by master's level graduate students with experience in clinical interviewing. If youth still met criteria for diagnoses post treatment, their families were provided with referral information for local agencies.

Additional Treatment Outcome Measures. Changes in factors associated with anxiety disorders such as negative cognitions (i.e., cognitive errors, control beliefs) and anxiety sensitivity were also assessed at pre- and post-treatment. Administration of the *Childhood Anxiety Sensitivity Index* (CASI; Silverman, Fleisig, Rabian, & Peterson, 1991) occurred at pre- and post-treatment as a part of a comprehensive battery assessing change in functioning. High levels of anxiety sensitivity may serve as vulnerabilities for the development of posttraumatic stress symptoms in traumatized youth (see Hensley & Varela, 2008). Anxiety sensitivity is the fear that anxious symptoms (e.g., racing heart beat) will result in severe, negative consequences (e.g., heart attack; Reiss, 1991). Re-experiencing symptoms of PTSD may manifest through fear responses (e.g., racing heart beat, feeling shaky, wanting to escape) to traumatic cues. Individuals with high levels of anxiety sensitivity are likely to interpret these symptoms catastrophically and avoid situations that remind them of the traumatic event they experienced (e.g., Lang, Kennedy, & Stein, 2002). Thus, high levels of anxiety sensitivity may serve to exacerbate and maintain posttraumatic stress in traumatized youth.

The CASI is an 18-item measure designed to assess children's fear of different symptoms of anxiety. Children rate each question by selecting one of three choices: None (1), Some (2) or A lot (3). Example questions are "It scares me when I feel shaky" and "It scares me when I feel nervous." Responses to items are summed to create a total score. The CASI evidences good test-retest reliability estimates (r = .76, p < .001) in predominately Caucasian (Silverman et al., 1991) and African American youth (r = .76-.83, p < .001; Ginsburg & Drake, 2002; Lambert, Cooley, Campbell, Benoit, & Stansbury, 2004). The CASI is sensitive to treatment effects in anxiety disordered youth (Ollendick, 1995). Upon completion of treatment, it is hypothesized that youth would report decreases in CASI total scores.

The *Children's Negative Cognitive Error Questionnaire* (CNCEQ; Leitenberg et al., 1986) was used for assessment of cognitive errors pre- and post-treatment. In addition to teaching relaxation techniques, the treatment program targets maladaptive cognitive processes that serve to maintain anxiety. Anxious youth are prone to negative cognitive errors (Leitenberg et al., 1986, Leung & Poon, 2001: Weems, Berman, Silverman, & Saavedra, 2001; Weems, Costa, et al., 2007). In particular, findings indicate symptoms of childhood anxiety are related to

catastrophizing (i.e., expecting the worst possible outcome in any given situation), overgeneralizing (i.e., a single negative outcome will be representative of future events) and personalizing (i.e., thinking one is cause of outcomes resulting from negative events; Leung & Poon, 2001; Weems et al., 2001; Weems, Costa, et al., 2007).

The CNCEQ is a 24-item questionnaire that measures four types of cognitive errors: catastrophizing, overgeneralization, personalizing, and selective abstraction. Items on the questionnaire are composed of hypothetical vignettes as well as a possible negative interpretation of events described in the vignette. For example, one of the questions is: "You invite one of your friends to stay overnight at your house. Another one of your friends finds out about it. You think, 'he/she will be real mad at me for not asking them and never want to be friends again." Individuals indicate how closely events described coincide with their own thought processes by responding with one of five answer choices: (1) not at all like I would think, (2) only a little like how I would think, (3) somewhat like how I think, (4) a lot like I would think, or (5) almost exactly like I would think. Good test-retest reliability and construct validity estimates have been reported for CNCEQ Total scores and Subscale Scores, and the CNCEQ also evidences good internal consistency estimates (α = .71-.60; Leitenberg et al., 1986; Thurber, Crow, Thurber, & Woffington, 1990). Findings also suggest that the CNCEQ is sensitive to treatment effects in anxiety disordered youth from pre- to post-treatment (Cohen's *d* = .58; Silverman et al., 1999b). Total and subscale scores were examined at pre- and post-treatment.

Children's control beliefs were measured pre- and post-treatment using The *Anxiety Control Questionnaire for Children* (ACQ-C; Weems et al., 2003). Perceived control may serve as a risk factor for poor stress responses, as control beliefs impact the way youth attempt to cope with uncontrollable events. Uncertainty about controlling events or believing that nothing can be done to prevent negative outcomes from occurring are at risk for developing high levels of anxiety (Muris et al., 2003). A focus of the treatment program is to teach youth how to control and regulate their feelings as well as delineating what problems children, as opposed to adults, should worry about (e.g., it's not the child's responsibility to worry about arguments among relatives, money, etc; see Appendix 1 for descriptions of treatment sessions). Items on the ACQ-C measure perceived lack of control over external (e.g., fear evoking

events/situations) and internal events (e.g., negative internal, emotional, or bodily reactions associated with anxiety such as feeling shaky or breathing too hard). Examples of questions are: "I am able to change how much nervousness or fear I feel" and "When I am scared or nervous, I can still think about things other than my feelings of anxiety." Children rate their agreement with these items by choosing one of the following responses: "None (0)," "A little (1)," "Some (1)," "A lot (3)," "Very, very much (4)." A total control belief score is derived from the responses. Findings suggest that the ACQ-C is sensitive to treatment effects in anxiety disordered youth (Cohen's *d*=.41); increases in ACQ-C scores have been associated with decreases in negative thought patterns from pre- to post-treatment (Muris, Mayer, Den Adel, Roos, & van Wamelen, 2009). A briefer version of the ACQ-C has been developed and consists of ten ACQ-C items. The ACQ-Short form evidences a pattern of test-retest correlations similar to that of the full form (ACQ-C 1-year test retest reliability, r = .59; ACQ-C Short Form 1-year test-retest reliability, r = .58), and has good internal consistency estimates (α = .85; Taylor, Costa, Cannon, Adams, & Weems, 2006). Given youth participating in the intervention underwent an extensive assessment battery, the ACQ-C Short Form was administered to reduce time burden. Total control belief scores were examined pre- and post-treatment.

Evaluating Clinically Significant Change. Evidence of clinically significant change has typically been assessed through showing real life change in functioning (e.g., return to attending school/work regularly, improvement in school grades, no longer behaviorally avoiding feared object, etc.) or through reduction in symptoms from non-normative to normative levels at the end of therapy (Kendall & Norton-Ford, 1982; Nietzel & Trull 1988). For this study, clinically significant change was indexed by no longer meeting diagnostic criteria for PTSD on the ADIS-C/P PTSD interview and by reduction of PTSD symptoms on RI into normative range at post-treatment assessment (i.e., an RI score in the Doubtful range (0-11).

Procedures and Intervention Design

This project received approval from the Institutional Review Board at the University of New Orleans. In order for youth to participate in treatment, parents provided consent for their children's participation in treatment; youth were asked to provide their assent. The lead investigator called parents and obtained consent, and administered the PTSD scale of the ADIS-IV and DISC Predictive Scales over the phone. After consent has been obtained, youth were asked to provide assent, and the child pre treatment assessment session was scheduled. Pre- and post-treatment assessment was conducted by a master's level graduate student and included the ADIS-IV and other measures pre-treatment measures (the CASI, CNCEQ, ACQ-C).

Therapist. Treatment sessions were conducted by a doctoral level graduate student (the lead investigator) with experience in clinical interviewing, assessment, and therapy with children and adolescents. She has been collaborating with faculty and students at the UNO Charter schools to facilitate the counseling project. She has also established rapport with school staff, and is aware the school's infrastructure and schedule, which contributes to the feasibility of the current study. She traveled to children's schools and conducted treatment sessions in private rooms.

Treatment. The *StArT* treatment protocol used for this study is designed for traumatized youth and consists of 10-weekly sessions lasting approximately an hour each (Saltzman et al., 2007). The treatment program is cognitive-behavioral in orientation, and in the tradition of cognitive behavioral therapies, youth were assigned therapeutic homework tasks at the end of each session. A typical session began with the therapist reviewing the main points of the previous session, going over homework assigned during the previous session, and setting the agenda for the current session (e.g., describes the session objectives). After introducing session objectives, the therapist discussed prescribed session material with the child. The therapist facilitated child engagement in sessions through the use of handouts and other therapeutic activities (e.g., writing and art activities). Treatment modules and an abbreviated description of session by session material is provided below (for additional description, see Appendix1).

Psychoeducation. The therapist builds rapport with the child through normalization of symptoms and problems (e.g., lots of kids and adults change after they have gone through scary things). In session 1, children are provided psychoeducation regarding posttraumatic stress symptoms and responses. Children are given homework designed to track distressing, trauma-related reactions/behaviors that are most problematic to them for session 2. Session 2 begins

with a review of session 1 homework and the introduction of psychoeducation regarding the cognitive behavioral conceptualization of anxiety and the importance of approach behavior. To encourage approach behavior, youth are taught to use the acronym "STIC," or to Show That I Can face my fears. During session 2, youth are also taught breathing and muscle relaxation skills and how to identify other activities that can be done to reduce anxiety (e.g., read a book, play outside, go for a bike ride). At the end of session 2, the therapist assigns STIC tasks and use of relaxation techniques for homework.

Cognitive Restructuring. In session 3, cognitive restructuring strategies are introduced to help youth cope with troubling, trauma-related thoughts. The first strategy is called "STOP" (recognize you feel Scared, you look at the Thoughts that make you feel scared, you try to come up with Other thoughts, you Praise yourself**)**.The child and therapist practice using STOP in session. Youth are asked to use the STOP technique for homework. In session 4, the therapist teaches the child other types of cognitive restructuring methods for coping with distressing thoughts and feelings. Youth are taught to monitor fearful thoughts and reframe them through use of "it is possible vs. it is likely" (e.g., it is possible that a storm in the Atlantic may turn into a hurricane, but it is not necessarily likely).

Exposure. Exposure begins in session 5.The therapist introduces and helps the child to define and discuss trauma and loss reminders and assign fear ratings to the reminders. The therapist and child develop a list of coping skills that will be helpful to the child when confronted by trauma and/or loss cues. In session 6, the overarching goal of this session is to help the child begin to construct a trauma narrative. The therapist begins by providing the child with a rationale for narrative development (i.e., it helps gain control of memories so that reminders are not so painful) and then helps the child choose an event for narrative construction. The narrative can be an event that the child directly witnessed, or is currently causing a lot of distress/problems. The role of the therapist is to know when and how to increase and decrease the child's level of engagement during the narrative (i.e., going fast vs. slow through some parts of the narrative, keeping the child grounded, and helping them relax when the process gets intense). During session 6, the child constructs a timeline for the narrative that includes demarcation of event intensity.

In session 7, the child retells the narrative, and the therapist and child identify hurtful or non-helpful thoughts about things that occurred during the traumatic event. The therapist helps the child challenge and cognitively reframe feelings of loss, shame, or blame through cognitive restructuring strategies covered in sessions 3 and 4. In session 8, the

narrative is retold to address the child's misunderstandings of what happened (e.g., child's feelings of self-blame or shame) in terms of other people's actions during the storm. For example, the therapist helps the child process anger or sadness toward their parent for refusing to allow them to evacuate with all their toys (e.g., there was not enough room for all the child's toys in the family car). It is recommended that session be held with both the child and the parent; however, parents from this study were unable to attend this session due to work and transportation issues.

Problem Solving. In session 9, the therapist teaches the child problem solving skills. First, the therapist facilitates development of a problem list with the child by helping s/he identify and prioritize current problems. Then, the therapist introduces the ABCs of problem solving (i.e., Ask if the problem belongs to you, Brainstorm many possible solutions, and Choose the best ones). The therapist also helps the child identify things on the list that *are not* a kid's responsibility to fix (e.g., parents arguing with relatives, parents not having enough money). Then, therapist identifies one or two problem situations the child may encounter during the next week. For homework, the child is asked to implement the problem solving model when problem situations occur.

Relapse Prevention. In session 10, the last session, the therapist teaches the child relapse prevention techniques and discusses the child's treatment experience with him/her. The therapist begins session by reviewing the child's the treatment experience and asking the child how their life has changed over the course of treatment different. Then, the therapist asks what challenges the child anticipates having in the next few months (e.g., anniversaries, holidays, hurricane season). The therapist helps the child create a list of challenging events that may occur in the next 6 months and initiates a discussion with the child regarding effective ways of coping with these events. Upon completion of the list, the therapist introduces the concept of "slipping," (e.g., times when the child may feel they have fall back to where they were pre-treatment) and how "slips" do not mean that the child is back where s/he started. When slips occur, the child should pick him/herself back up, try not to get frustrated and give up, and continue to make progress. At the close of the session, the therapist facilitates the goodbye process by reminding the child of all the positive changes they have made, and expresses their admiration for the child's courage and hard work.

Treatment Fidelity. A checklist of session by session objectives has been developed based on the treatment manual. The therapist used these checklists as guidelines for sessions to ensure treatment fidelity (see Appendix 1 for a copy). Two parents consented to having their children's treatment sessions audiotaped and assessment of treatment fidelity was examined by comparing session manual content (through fidelity checklists) with information covered in the audio-taped sessions. Two trained observers listened to all treatment sessions. Observer agreement was measured through calculation of percent agreement between raters (i.e., the number of times raters agreed on fidelity checklist items was divided by the total number of checklist items). Across all sessions fidelity to treatment content and session goals were 98% for Sarah and 94% for Elizabeth, suggesting adherence to the manual content.

Intervention Design. This study employed a partially non-concurrent multiple baseline design (MBL; see also Lumpkin, Silverman, Weems, Markham, & Kurtines, 2002). This type of design was selected for a number of reasons. For one, it would be difficult and impractical to conduct a 10-session treatment with an ABAB design in a school setting (offering individual sessions with youth need to comply with the school year calendar). Moreover, multiple baseline designs do not share the practical, ethical, or clinical concerns of ABAB designs (Kazdin, 1982). Given the target behavior (e.g., posttraumatic stress symptoms) is altered upon implementation of the intervention, there is conceptual difficulty in terms of withdrawing the intervention in the ABAB design. Further, in contrast with randomized control designs, a multiple baseline design provides for in-depth examination of the change processes during treatment. Use of a multiple baseline design enables the investigator of this study to examine symptom fluctuations across treatment; informing us of children's progress during the course of treatment, and perhaps the process of therapeutic change.

There are different variations of the multiple baseline design. Thus study employs the partially non-concurrent (as opposed to the concurrent) variation. Whereas a concurrent MBL calls for beginning the baseline assessment of all participants at a single time point with differing baseline lengths (for each participant or behavior of interest) thereafter, the non-concurrent alternative allows for the continuous assessment of participants as consents are obtained. After pre-treatment assessment, participants were assigned a baseline length to treatment. Given youths participation in treatment

depends upon obtaining parental consent, and that only one therapist conducted treatment sessions, the partially non-concurrent alternative is a more viable option in actual treatment settings. Beyond convenience, the partially non-concurrent variation more closely resembles treatment in real world settings (Lumpkin et al., 2002). However, an issue with using a purely non-concurrent MBL is that it does not control for the effects of history. Thus, when possible, two participants were assigned to start baseline at the same time (i.e., for some sets of participants the baseline periods were concurrent) to control for historical factors and to demonstrate replication of findings across participants. In this sample, Jennifer was assigned a 2-week wait, John and Michael were concurrently paired together for a 3-week wait, and Kelly was assigned a 4-week wait to intervention in Spring 2009. Fewer youth were recruited for treatment in Fall 2009 and participants were unpaired; Sarah was assigned a 3-week wait period and Elizabeth was assigned a 4-week wait. Thus, John and Michael were the only pair of concurrent participants.

Results

Establishing the StArT program in the target schools

Screening began in the Fall 2008 and 13% of youth screened (27 out of 207 youth) reported RI scores in the severe to very severe range for posttraumatic symptoms relative to Hurricane Katrina. UNO IRB approval for conducting a trauma focused school based intervention was obtained in Fall 2008. Proceeding IRB approval, the chief operating officer (C.O.O.) of the UNO Charter School network and school counselors were provided with, a brief review of the treatment model, research regarding the effectiveness of trauma focused interventions in youth, IRB approved consent procedures, and illustrative data on the number of youth who were likely to qualify for inclusion. The C.O.O. approved of the project, but required the lead investigator to get signed approval from school principals before implementing the intervention. Meetings were arranged with school principals and project approval was obtained. Meetings were arranged with school counselors at one school but could not be established at another school despite multiple attempts. Therefore, one school was not part of this intervention project.

Logistics of using the screening data to provide additional assessment and enrollment in the treatment

Once the program was established in a school, meetings were held with the school counselors to review the list of students reporting RI scores that would qualify them for inclusion in treatment evaluation aspect of the study. As shown by Figure 1, counselors had not identified 60% (16 out of 27) of youth detected by the screening. Counselors reported knowledge of daily stressors in the lives of the 11 youth for whom the school counselors had already identified as needing "counseling" through teacher, self- (e.g., children coming to the counseling office and asking for services) or parent communication/referral. The 16 youth identified by the screening had not been previously identified by the counselors. There were no significant differences in RI scores for youth already identified as in need of counseling (11) and those who has not been previously identified [16; t (25)=-1.68, p=.10]. Counselors mediated all identified youths' participation in the trauma focused intervention by providing contact information for only 10 youth (of the 16 who they had not previously identified as in need). There were many reasons for limiting the number of individuals for who contact information was given, and stated reasons included plans for the school counselors to work with the children

individually themselves, and prior knowledge of the children's families. Further, there were no significant differences in RI scores for provided (10) and non-provided youths (6) contact information, $t(14)=1.97$, $p=.07$.

There were two counselors and their caseloads were assigned by grade. One counselor was assigned to lower grades (kindergarten through 4th grade) and one counselor assigned to upper grades (5th-8th grade). Ultimately, a compromise plan was devised with these two counselors and contact information was provided for youth with the highest RI scores on each counselor's caseload (6 lower grades youth and 4 upper grades youth). The 6 remaining identified youth were further discussed with counselors for group or individual services and were rescreened in Spring 2009. Only one child (Elizabeth) met recruitment criteria at initial screening (Fall 2008) and rescreening (Spring 2009). She received treatment in Fall 2009.

As shown by Figure 1, 15 youth were identified by the Spring 2009 screening; by the time of potential assessment for inclusion in this treatment study in Fall 2009, 3 of these were no longer enrolled in the school. Counselors had already identified 92% (11 out of 12) of youth detected by the screening. Only one child was identified to counselors through screening results. However, this time counselors provided contact information for greater portion of identified youth for the wave 2 screening (11 out of 12) in comparison to the wave 1 screening (10 out of 16 youth). During wave 2, a new school counselor was hired. Counselors reported having heavier caseloads while the new counselor became acclimated to the school and indicated difficulties in reaching and providing treatment to all identified youth. Eleven families were contacted during wave 2. Counselors were unable to obtain contact information on the remaining child and because of this she was staffed with counselors to begin receiving counseling services school by the school counselors.

Obtaining parental consent for the StArT program

As shown by Figure 1, a many parents consented to their child's participation in the trauma focused intervention. Though 2 of the 10 families contacted in first wave of treatment (youth screened in Fall 2008) could not be reached, 7 out of the 8 families contacted consented to treatment. Across both waves, parents consenting to the intervention indicated concerns for their children's mental health and often provided descriptions of youths emotional and behavioral problems. One parent did not consent to treatment during the first wave of treatment. This parent reported that her child was not interested in participating in the intervention and was provided with referral information. During the second wave of treatment (youth screened in the Spring of 2009), similar rates of consent were obtained. As shown by Figure 1, out of 11 families contacted, 4 could not be reached. From the 7 families that were reached, 6 consented to treatment. One parent did not consent to the intervention. This parent reported that her child was already receiving psychiatric services in a clinic setting and that she was not interested in her child receiving school based services.

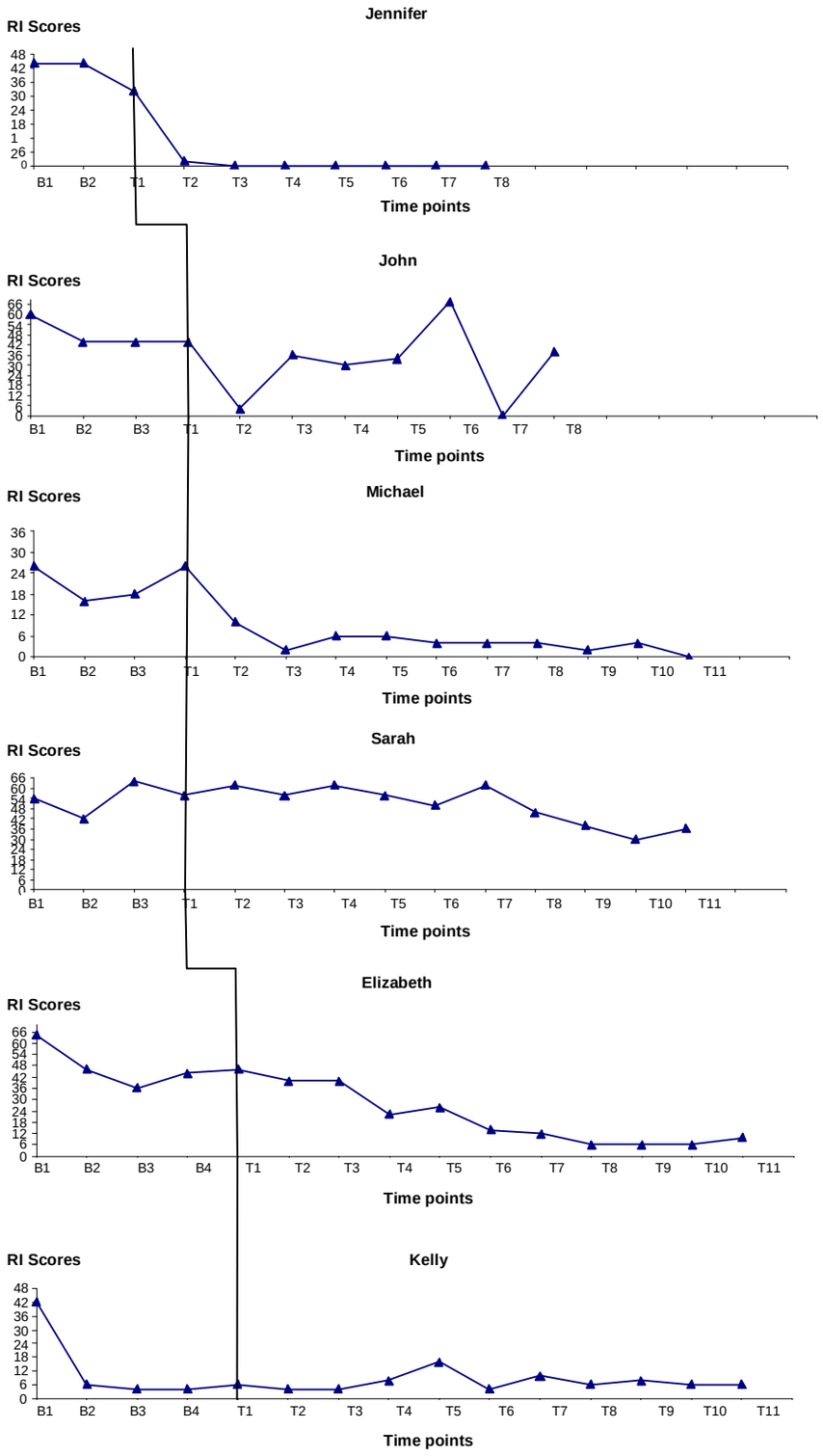
Issues in conducting the StArT program in schools

Conducting treatment in the school setting presented with time and space issues. Treatment sessions were scheduled during elective periods (youth attend elective courses, such as music, physical education, and art for approximately an hour each day.). When possible, the time was decided by the child (i.e., youth choose which elective to miss for treatment). However, space for sessions was an ongoing issue over the course of the intervention project. Treatment sessions conducted during the Spring 2009 were held in a storage area adjoining a bathroom that was out of order. There was barely enough room for two chairs in the storage area, but no other rooms were available. There was some resolution to these issues for sessions conducted in the Fall 2009. The school was reorganized, and a meeting room was made available for adjunct services (e.g., speech therapy or other mental health services). Toward the end of the semester, this room was typically in use, and the lead investigator would have to find other locations to conduct sessions. Despite communication with school staff, scheduling conflicts were unavoidable. However, school counselors made efforts to address space issues by offering their own offices for sessions as often as possible.

Evaluation of treatment efficacy

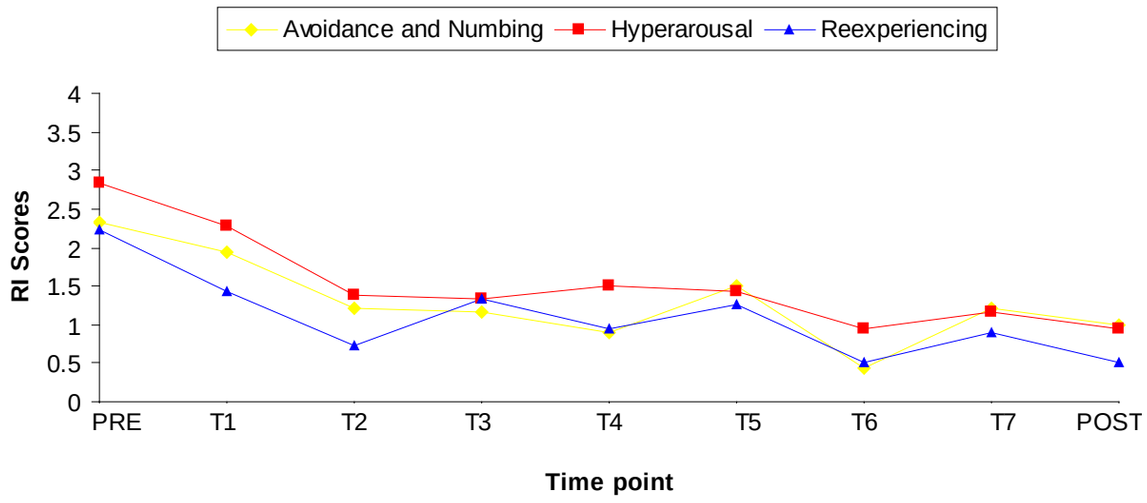
Weekly RI scores were graphed and visually inspected for trends as one method of evaluating treatment efficacy (see Figure 2). Overall, the pattern of results suggests declines in PTSD symptoms over time, which is consistent with the expectation of reductions in symptoms following initiation of the intervention. However, there was substantial individual variation in both treatment response and baseline stability. The pattern of results from Jennifer, Michael, and Elizabeth were highly consistent with expectations that the initiation of therapy would be associated with decreases preceeded by a stable baseline. Sarah's declines occurred later in the intervention, Kelly's occurred at the second baseline assessment, and a consistent pattern of treatment response is difficult to discern from John's data but a conservative view would suggest that he was either inconsistent in his treatment ratings or did not benefit from the intervention. This interpretation is consistent with his termination of therapy at session 7. A stable baseline is characterized by relatively little variability and the absence of slope (Kazdin, 2003), however assessments using self report of symptoms often show more variation in behavioral observations (Lumpkin et al., 2002). Visual inspection of data indicates unique variation in baseline PTSD symptoms. However, Jennifer, John, Michael, Elizabeth and Sarah reported RI scores ranging from Moderate to Very Severe across baseline assessments indicative of general stability in baseline symptoms. In sum, visual inspection of the data in Figure 2 suggests that for Jennifer, Michael, Sarah, and Elizabeth the downward trends in RI scores across treatment (T1 to T10) and at post treatment assessment (T11), indicating possible treatment efficacy. John showed stability in RI scores until intervention and symptom fluctuation with no identifiable trend during intervention. Visual inspection of John's intervention data did not indicate treatment efficacy at the individual level. Kelly reported scores ranging from the Severe to Doubtful across baselines and thus her baseline data was not stable enough to make the prediction that, without intervention, she would report RI scores in the Moderate range. Often assessment and the interaction it entails results in declines in symptomology from non-specific factors (Lumpkin et al., 2002).

Figure 2. Individual PTSD symptom fluctuation across treatment sessions



Use of the multiple baseline design not only informs us of an individual's progress over the course of treatment (see Figure 2), but also allows for the evaluation of symptom level data as treatment components are introduced. There are five treatment components: psychoeducation (about trauma, fear reactions PTSD symptoms, the cognitive behavioral model and importance of approach behavior, relaxation training), cognitive restructuring, exposures (identification of trauma and loss reminders related to hurricanes, development of the trauma narrative), problem solving, and relapse prevention. To evaluate the impact of treatment components on specific types of PTSD symptom cluster symptoms (avoidance and numbing, hyperarousal, and reexperiencing symptoms), two techniques were employed. In the first, participants mean scores for the symptom clusters (avoidance and numbing, hyperarousal, and reexperiencing) were computed from the RI scores at shared time points (baseline RI scores, RI scores reported at sessions 1-7, and at post treatment) as a group of 6 and are shown graphically in Figure 3. Visual inspection of this data indicates a downward trend in all symptom cluster types across treatment. Trends in symptom cluster scores across treatment show an upward trend in re-experiencing symptoms at sessions 3 (session 2, coverage of the cognitive behavioral model and the STOP method for cognitive restructuring) and 5 (session 4, discussion and helpful and non-helpful ways to cope). Visual inspection of data suggests the possible efficacy of components on total PTSD symptoms but does not indicate specificity of components in reduction of PTSD symptom types.

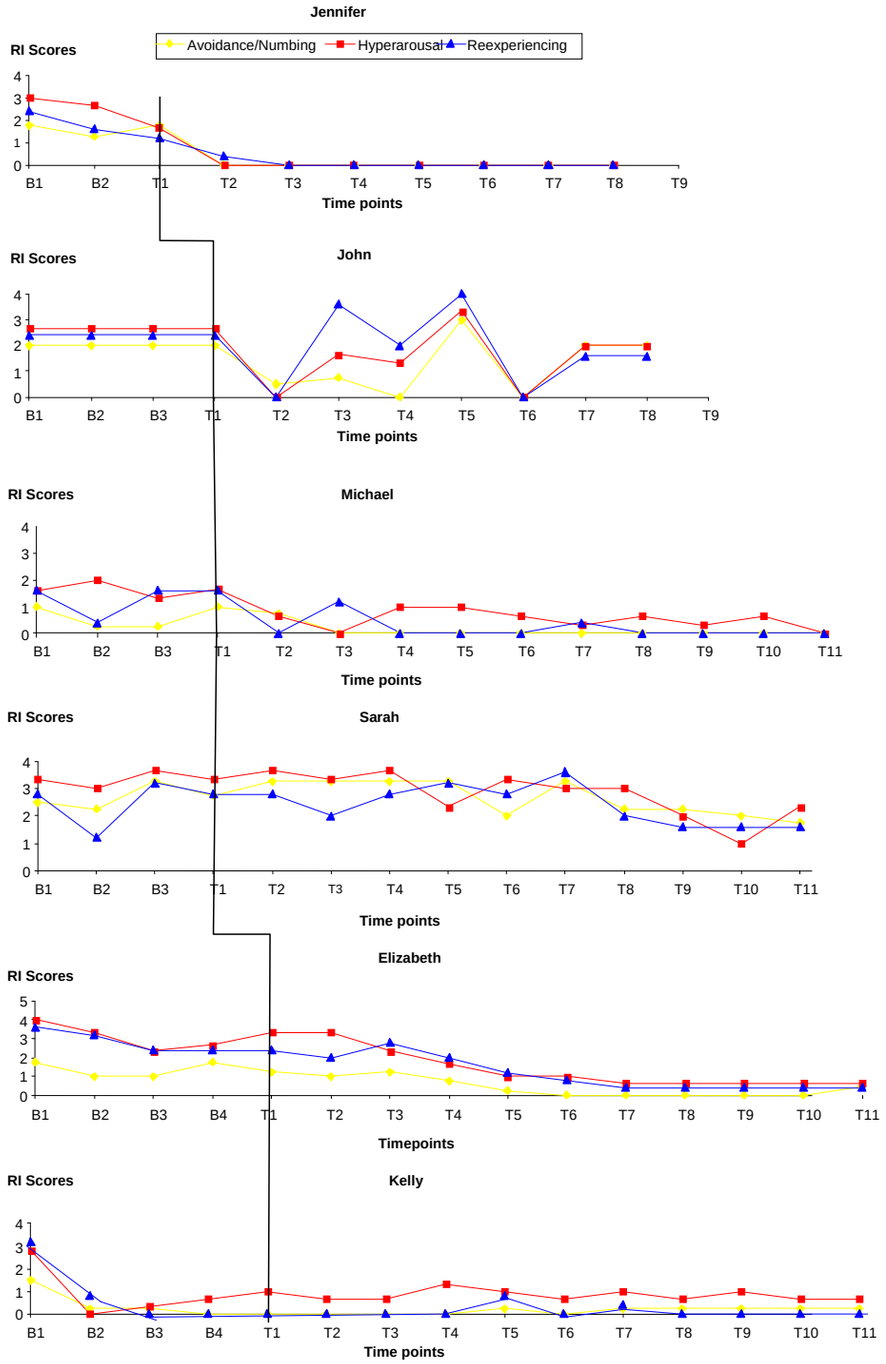
Figure 3. Group fluctuation in types of PTSD symptoms across treatment sessions.



In the second technique, individual responses to treatment components of each of the three PTSD symptom cluster scores (i.e., avoidance and numbing, reexperiencing, and hyperarousal symptom clusters) were computed from the RI across time points and were visually inspected individually. Graphic representation of individual reduction patterns for PTSD symptom clusters are shown in Figure 4. Visual inspection of data indicates unique fluctuation in symptom patterns for each child. Visual inspection of data for Jennifer, Sarah, Elizabeth, and Kelly indicates downward trends in each RI symptoms cluster scores across treatment (T1 to T10) and at post treatment assessment (T11).

Visual inspection of Michael's data indicates downward trends in RI scores across treatment with an upward trend in re-experiencing symptoms at session 3 (session 2, coverage of the cognitive behavioral model and the STOP method for cognitive restructuring) and in hyperarousal symptoms at sessions 4, 5, and 6 (session 4, discussion and helpful and non-helpful ways to cope; session 5, identification of trauma reminders; session 6, development of the narrative). Thus, visual inspection of Michael's data does seem to suggest a linkage between specific treatment components and upward trends in types of PTSD symptoms. Visual inspection of John's data indicates an upward trend in reexperiencing symptoms at sessions 3 and 5, in hyperarousal symptoms from sessions 2 to 6, and in avoidance and numbing symptoms from sessions 4 to 6.

Figure 4. Individual fluctuation in types of PTSD symptoms across treatment sessions.



Clinically Significant Change

Clinically significant change was defined as no longer reporting diagnosis of PTSD at post-treatment assessment and reduction in symptoms on the RI to the Doubtful range. Table 1 displays pre-treatment and post-treatment diagnoses and symptom levels. As shown by Table 1, all six participants no longer met criteria for PTSD at post treatment assessment. Fifty percent of youth (Jennifer, John, and Kelly) did not meet criteria for any diagnoses upon concluding treatment. Michael, Sarah, and Elizabeth reported diagnoses at post treatment assessment. Michael reported reductions in severity of diagnosis for Social Phobia (at pre-treatment, 7; at post-treatment, 4). Sarah also indicated reductions in severity of diagnoses for Dysthymia (at pre-treatment, 7; at post-treatment, 5) and for GAD (at pre-treatment, 7; at post-treatment, 4). Report of diagnoses for Michael and Sarah were not consistent across ADIS-C administrations in that Michael reported diagnoses of Social Phobia and Sarah reported Specific Phobia at post-treatment assessment.

Table 1. Pre and Post treatment ADIS Data.

Pre-treatment			Post-treatment	
Child Diagnosis		CSR	Child Diagnosis	CSR
Jennifer	OCD[1]	7	None	N/A
	SP[2]	7		
	GAD[3]	6		
	PTSD[4]	4		
	SAD[5]	4		
John	PTSD[4]	8	None	N/A
	GAD[3]	8		
	Dysthymia	8		
	OCD[1]	6		
	ADHD[7]	4		
Michael	SAD[5]	7	SP[2]	7
	SP[2]	7	Social[6]	4
	GAD[3]	7		
	PTSD[4]	4		
	ADHD[7]	4		
Sarah	PTSD[4]	7	SP[2]	7
	GAD[3]	7	Dysthymia	5
	Dysthymia	7	GAD[3]	4
	ADHD[7]	7		
Elizabeth	SR[8]	8	GAD[3]	8
	ADHD[7]	8	ADHD[7]	8
	GAD[3]	7	Social[6]	4
	Social [6]	7		
	SAD[5]	5		
	PTSD[4]	4		
Kelly	Dysthymia	8	None	N/A
	SAD[5]	6		
	SP[2]	6		
	GAD[3]	6		
	PTSD[4]	4		

[1] Obsessive Compulsive Disorder; [2]Specific Phobia; [3]Generalized Anxiety Disorder; [4]Posttraumatic Stress Disorder; [5]Separation Anxiety Disorder; [6] Social Phobia; [7] Attention Deficit Disorder; [8]School Refusal diagnosis.

Table 2 also shows score categories (Doubtful, 0-11; Mild, 12 -24; Moderate, 25-39; Severe, 40-59; and Very Severe, 60-80) for individual RI scores reported at pre and post-treatment assessment. Four children went from reporting RI scores in the Moderate range (Michael) and Severe ranges (Jennifer, Elizabeth, Kelly) at pre-treatment to reporting scores in the Doubtful range at post-treatment. While not all youth reported scores in Doubtful range after treatment, all youth reported reductions in PTSD symptoms. John reported RI scores in the Severe range at pre-treatment and in the Moderate range at post-treatment (a six point reduction). Sarah reported RI scores in the Severe range at pre-treatment and in the Moderate range at post-treatment (an 18 point reduction).

Table 2. Reductions in PTSD-RI and Treatment Outcome scores and Treatment Effects.

	Pre-treatment Scores	Post-treatment Scores	*t*	*z*	*D*
PTSD-RI[1] (M, SD)	45.0(11.6)	15.0(17.5)	4.44**	-2.20**	2.00
Jennifer	44[4]	0[2]			
John	44[4]	38[3]			
Michael*	26[3]	0[2]			
Sarah	54[4]	36[3]			
Elizabeth	60[5]	10[2]			
Kelly	42[4]	6[2]			
CASI[6] (M, SD)	30.8(8.10)	26.0 (7.22)	1.29	-1.36	.625
Jennifer	22	21			
John	26	36			
Michael	24	20			
Sarah	38	33			
Elizabeth	42	27			
Kelly	33	19			
ACQ-C[7] (M, SD)	14.5(10.2)	23.0(10.6)	-1.81	-1.59	-.817
Jennifer	30	23			
John	13	20			
Michael	21	28			
Sarah	1	19			
Elizabeth	7	8			
Kelly	15	40			
CNCEQ[8] (M, SD)	47.0(25.1)	31.7(7.39)	2.01	-2.20**	.826
Jennifer	44	36			
John	41	32			
Michael	37	25			
Sarah	97	44			
Elizabeth	35	28			
Kelly	28	25			
DISC[9] (M, SD)	26.8(21.6)	21.6(19.2)	1.90	-1.48	.254
Jennifer	13				
John	9	12			
Michael	30	18			
Sarah	33	23			
Elizabeth	58	53			
Kelly	4	2			
ANX[10] (M, SD)	11.2(9.54)	7.40(7.70)	2.07	-1.63	.438
Jennifer	5				
John	1	2			
Michael	13	5			
Elizabeth	23	20			
Sarah	17	9			
Kelly	2	1			

[1]Reaction Index total scores; RI categories: [2]Doubtful; [3]Moderate; [4]Severe; [5]Very Severe; [6]Childhood Anxiety Sensitivity Index; [7] Anxiety Control Questionnaire for Children; [8]Children's Negative Cognitive Error Questionnaire; [9]DISC-PS total scores; [10]DISC-PS total anxiety scores; *reported an RI score of 40 at screening; ** $p < .05$

Group Level Reductions

Reduction in PTSD symptoms. To further investigate clinical improvement, paired samples t-tests, Wilcoxon signed rank tests, and calculation of Cohen's *d* were conducted separately to compare average pre-treatment and post-treatment scores on the RI and treatment outcome measures and results are shown in Table 2. As shown by Table 2, the RI scores from pre-treatment were significantly greater than post-treatment (M=15, SD=17.5); $t(5)= 4.4$, $p=.007$. Given an assumption of the t-statistic includes a normally distributed sample, and our sample is skewed, a non-parametric alternative, the Wilcoxon signed-rank test, was also conducted to show pre- and post-treatment differences. As shown by Table 2, results indicate a significant difference in RI scores from pre- to post-treatment, $z=-2.20$, $p =.028$.

Reduction in scores on additional treatment outcome measures. As shown by Table 2, Group based statistics suggest reductions in CNCEQ scores from pre (M=47.0, SD=25.1) to post-treatment (M=31.7, SD=7.39; $z=-2.20$, $p=.028$). There were no significant differences in CASI, ACQ-C, DISC-PS total scores and DISC-PS total anxiety scores from pre- to post-treatment. However, reductions in CASI scores are indicated by pre- (M=30.8, SD=8.10) and post-treatment means (M=26, SD=7.22). Results also show increases in ACQ-C scores from pre- (M=14.5, SD=10.2) to post-treatment (M=23, SD=10.6). There were no significant differences in pre- and post-treatment total or total anxiety scores; but reductions in score means from pre-treatment [DISC-PS total scores (M=26.8; SD=21.6), DISC-PS anxiety (M=11.2; SD=9.50)] to post-treament [DISC-PS (M=21.6; SD=19.2), DISC-PS anxiety (M=7.40; SD=7.70)] suggest reduction in total and anxious symptoms. However, examination of means and standard deviations for the CASI, ACQ-C, DISC-PS Anxiety and DISC-PS Total scores suggest that non-significant pre-post comparisons may be due to one score moving in an unexpected direction (John's CASI, DISC-PS Anxiety and total scores increased; Jennifer's ACQ-C score decreased) from the other participants.

Finally, and to further investigate treatment effects, Cohen's *d* were calculated separately for the PTSD-RI, CASI, ACQ-C, CNCEQ, DISC-PS total scores and DISC-PS anxiety total scores by subtracting the pre-treatment mean from the post-treatment mean and dividing the difference by the standard deviation. Results indicate a strong effect for treatment of PTSD symptoms (Cohen's $d= 2.00$) and CNCEQ scores (Cohen's $d=.826$), medium effects for anxiety sensitivity (Cohen's $d=.625$), and small effects parent report of symptom reduction (DISC-PS total scores, Cohen's $d=.254$; DISC-PS total anxiety scores, Cohen's $d=.438$).

Case by Case Qualitative Treatment Information

The following sections present information about treatment components through qualitative examination of individual case responses (and review of quantitative information as appropriate and illustrative of individual treatment response). In particular, these sections highlight the issues children had in understanding the utility and application of skills presented during specific components. This section also highlights where and how manual session or component/module content was tailored to help aid in children's understanding of treatment components (e.g., Jennifer, modification of psychoeducation techniques and cognitive restructuring techniques; Michael, modification of cognitive restructuring techniques) or children's participation in treatment (John, construction of the trauma narrative). In order to pair down the enormous amount of session level qualitative information, descriptions of individual tailoring of various treatment components are emphasized in the proceeding sections for Jennifer, John, and Michael as this was a salient part of either trying to engage these individuals in treatment or in communicating specific session content to these youth. For the three other children in this study, illustrative examples of the application of 3 major components to children's presenting problems are emphasized (i.e., Sarah, the trauma narrative; Kelly cognitive restructuring; Elizabeth, coping with loss reminders).

"Jennifer." As shown by Table 1, at pre-treatment assessment, Jennifer reported diagnoses of Obsessive Compulsive Disorder (OCD), Specific Phobia (Animal and Transportation Type), Generalized Anxiety Disorder (GAD), Posttraumatic Stress Disorder (PTSD), and Separation Anxiety Disorder. At initial interview, Jennifer stated that she frequently worries about her school performance, family health issues, hurricanes, and endorsed obsessions and compulsions. When queried, she indicated obsessions and anger resulting from things done "the wrong way" and reported gaining control of her emotions as a treatment goal. Controlling emotions is discussed throughout the *StArT* treatment program and begins with identification of posttraumatic stress and anxious emotions during session 1. The rationale for identifying emotions (to learn to control them) is part of the psychoeducation component (sessions 1 and 2).

Coverage of the psychoeducation component (i.e., discussion of the cognitive behavioral model and use of cognitive restructuring techniques) presented difficulties for Jennifer. During session 1, the therapist provided Jennifer with trauma symptom psychoeducation and assigned homework (tracking trauma symptoms and emotional reactions to them). Jennifer failed to complete this homework, and during session 2, through querying, the therapist found that Jennifer's ability to define and differentiate her emotions was poor. To help teach Jennifer session 2 material (the cognitive behavioral model of anxiety) the therapist worked with Jennifer to develop personalized definitions for her anxiety and anxiety related cues (i.e., "butterflies in my stomach"). Jennifer was able to work with the therapist to identify the context in which these cues occur (i.e., seeing hurricane related devastation). Working with Jennifer to create these definitions for her emotions may have helped her develop an understanding of the cognitive behavioral model.

In session 3, when the therapist began teaching Jennifer to use cognitive restructuring components, Jennifer had difficulty remembering all of the steps for the cognitive restructuring technique, "STOP" (recognize you feel Scared, you look at the Thoughts that make you feel scared, you try to come up with Other thoughts, you Praise yourself). The therapist worked with Jennifer to develop a personal method for thoughts and feelings reframing regarding hurricane devastation (e.g., "We lost our house, but because our family grew soon after the storm, we probably would have had to move any way," and "I lost all my good stuff and clothes, but even if I had them back now, they wouldn't fit me"). Developing personalized cognitive reframes may have helped Jennifer better cope with her reactions to hurricane related losses.

During narrative construction, Jennifer reported winning an essay contest for a short story she had written about the hurricane. While retelling the narrative she was very articulate about the sequences of events that occurred before, during, and after the storm. After constructing the narrative in session 7, she confided in her school counselor and in this therapist the decision to terminate treatment. Jennifer reported that she felt better; and, this was further evidenced by non-report of PTSD symptoms and discomfort from trauma related symptoms. The therapist felt that Jennifer had processed the trauma and met treatment goals. Thus, a joint decision was made between Jennifer and her therapist to terminate treatment. As shown by Figure 2, Jennifer's posttraumatic stress symptoms show a downward trend from session 2 (T1) to construction of the trauma narrative (T5-T7). Taken together with her post-treatment assessment data,

Jennifer's symptom profile suggests the intervention was effective in reducing her PTSD and anxiety disorder symptoms (see Table 1).

"John." As shown by Table 1, John reports PTSD, GAD, OCD, Dysthymia, and Attention Deficit Hyperactivity Disorder (ADHD, Combined Type) diagnoses at pre-treatment assessment. He also reported severe depressive symptoms, worry, nightmares, and obsessions and compulsions about his family member's health and safety (e.g., constantly checking to make sure windows and doors are locked) during initial interview. John's main treatment goal was to overcome his anxiety through confronting (rather than avoiding) his fears. John became oppositional at treatment inception and despite treatment modifications, did not achieve his treatment goal (i.e., constructing the trauma narrative).

Though compliant and enthusiastic during pre-treatment assessment and during weekly administration of the Reaction Index, he became oppositional at treatment inception (i.e., he would act as if he was going to rip up therapy handouts; stand by the door as if he was going to walk out of session; state he wanted to quit meeting with the therapist). While in session, John reported enjoying writing and keeping a journal. Thus, to minimize behavior problems, the therapist incorporated several drawing and writing activities into sessions 1-5 (coverage of psychoeducation, cognitive restructuring, and identification of trauma reminders). John often preferred to communicate with the therapist through writing, and through notes to the therapist, he promised to share a story he wrote about Hurricane Katrina.

John brought his journal to session 6 (when narrative construction begins) but refused to share his Hurricane Katrina story. The therapist explained the rationale for narrative development (i.e., it is important to share our stories about scary things, even if they were hard to talk about, because talking about these things gives us a sense of control over what happened, and helps us to control our feelings about it). Though provided writing materials, John refused to talk or write about the hurricane, and walked out of session without coming back. The therapist contacted John's guardian about his behavior in session, and reportedly, his guardian spoke with John and encouraged him to continue treatment.

At the next session (T7), an attempt was made to re-administer session 6 material. John turned his back to the therapist and would not engage in conversation. Then he stated that did not like meeting with this therapist, walked out

of session, and refused to come back. At the following session, another attempt was made to cover session 6 material. John was administered the Reaction Index at the beginning of session but would not complete the RI. He stated that he was not comfortable sharing information with her and spent the remainder of the session ignoring engagement attempts. The following week, a final attempt was made to meet with John; however, he refused. Given John's growing oppositionality and continued expression to terminate therapy, the decision was made to discontinue sessions with him. His guardian was contacted, John's behavior was discussed, and the decision was made to terminate therapy. John's guardian was provided with referral information

As shown by Figure 2, his symptom report at two time points (T2; T6) may be questionable given his oppositionality, avoidance, and thus evaluation of symptoms through visual inspection of RI scores shown in Figure 2 may not accurately depict his actual treatment improvement. However, he did seem to comprehend and recall material from sessions 1-5 when queried (psychoeducation, cognitive restructuring, and limited exposures) and thus may have benefited from these modules. The intervention might have allowed John to process the traumatic event on some level, and while he may not have improved as greatly as the other children, his data suggests some positive changes (i.e., John did not report diagnoses at the post-treatment interview; see Table 1).

"Michael." As shown by Table 1, Michael reported Separation Anxiety Disorder, Specific Phobia (Natural Environment, Situational, Other Type), GAD, PTSD, and ADHD (Combined Type) diagnoses at pre-treatment assessment. He reported severe worry and fear for his family's health/safety and endorsed avoidant coping methods (i.e., staying away from hurricane reminders and trying not to think about them) at initial interview. His treatment goals included developing effective coping methods for thoughts related to hurricane events (i.e., thoughts about the death of a family pet).

The cognitive restructuring component teaches youth to reframe distressing thoughts through use of specific cognitive restructuring strategies (i.e., "STOP"). Michael had difficulty learning and remembering all of 4 steps of "STOP," (1-recognize you feel Scared, 2-you look at the Thoughts that make you feel scared, 3-you try to come up with Other thoughts, 4-you Praise yourself). The therapist modified the "STOP" technique to 2 steps (1) catch negative thoughts and (2) replacing them with more positive thoughts.

This modified version of “STOP” was helpful to Michael during coverage of session 5 material (i.e., identifying trauma reminders). Michael was strongly reminded of the storm when encountering dogs that looked similar to his deceased pets. The therapist worked with Michael to develop a list of negative thoughts (e.g., sadness over the loss of his dogs being gone, feeling bad he couldn’t help them) and “replacement” thoughts (e.g., I loved them and took good care of them when I was with them) for his loss reminders. Developing a cognitive reframing strategy that worked for him may have contributed to Michael’s symptom reduction during treatment.

As shown by Figure 2, Michael’s RI scores show a downward trend in symptoms from session 1 (T1) to post treatment assessment (T11), indicating PTSD symptom reduction. As shown by Table 1, at post-treatment assessment showed clinical improvement, reporting non-PTSD diagnoses. Moreover, he reported decreased worry and anxiety generally and began to use approach methods for coping (using “STOP” when confronted with trauma reminders) rather than avoiding fearful situations. Although the severity of his phobias (i.e., Specific Phobia and Social Phobia) remained constant (his family was provided with referral information for this), he is considered to have benefited from the intervention. Michael reported consistent reduction in PTSD symptoms across treatment and engaging in once feared activities (i.e., going to a nearby park, and not leaving when “reminder” dogs were there) upon treatment conclusion.

“*Sarah*.” As shown by Table 1, Sarah reported PTSD, GAD, Dysthymia, and ADHD (Inattentive Type) diagnoses at pre-treatment assessment. Sarah reported high levels of posttraumatic stress relative to the hurricane, hurricane related nightmares, and pervasive depression since the death of her mother in 2002 at initial interview. She also experienced a number of stressors over the course of treatment (her Aunt threatened to send her to live elsewhere, B3; Sarah got into an argument about her deceased mother with a girl at school, T4; she got in trouble at school for throwing her notebook on the floor during a math test, T7; she was suspended from school for kissing a boy in the hallway, T8). Sarah’s treatment goals included reconciling hurricane related losses, and feelings of abandonment during the storm. Narrative construction was used to help Sarah process hurricane losses, and feelings toward her caregivers.

Sarah had difficulty developing a cohesive narrative and timeline of events. She reported a series of frightening events occurring during and within months of the hurricane (no consolation from her caregivers over losses, witnessing a horrible car accident). During session 8, these events were discussed in further detail. Session 8 material includes examining personal actions and the actions of others during frightening events, reframing and challenging hurtful thoughts, and learning to seek support from others. Sarah reported common themes among scary experiences (no consolation from her caregivers over losses, witnessing a horrible car accident in the absence of her caregivers). Reminders of scary events prompted feelings of anger and sadness in addition to negative thoughts about her guardians (i.e., they didn't protect me). The therapist worked with Sarah to challenge and reframe hurtful thoughts about her caregivers. Challenging these thoughts about adults in her life ultimately helped Sarah trust and confide in her caregivers during a difficult time (between T8 and T9; she got in trouble at school and sought family support).

As shown by Figure 2, her RI scores show a downward trend from sessions 8 to post-treatment assessment (T8-T11) and thus it seems she benefited from examination of hurtful thoughts associated with the trauma. She also began to develop a positive relationship with a relative to increase her support network. Further, her report of trauma related sleep problems (e.g., nightmares) lessened. As shown by Table 1, she did not report a PTSD diagnosis at post-treatment assessment. Though Sarah continued to report feelings of sadness and worry (i.e., Dysthymia and GAD; the severity of these diagnoses decreased over treatment) at post-treatment assessment (her family was provided with referral information for this), this need not underscore her progress in therapy. She began reported reductions in PTSD symptoms, particularly toward the end of treatment, and fewer sleep problems (i.e., nightmares) across treatment. Further, Sarah's efforts to seek social support in the wake of stressful events were reinforced, and continued support seeking may help her cope with future stressors.

"*Elizabeth.*" A shown by Table 1, Elizabeth reported School Refusal, ADHD (Inattentive Type), Social Anxiety Disorder, Separation Anxiety Disorder, and PTSD diagnoses at pre-treatment assessment. Elizabeth described experiencing frequent somatic symptoms (racing heartbeat, stomachaches, headaches) along with the belief that her symptoms suggest some sort of serious health problem. She indicated sleep problems (i.e., bad dreams about the storm, trouble falling and staying asleep), severe re-experiencing symptoms, and fears that the hurricane will happen again.

Elizabeth's treatment goal was to learn to cope with hyperarousal and reexperiencing symptoms cued by trauma and loss reminders. Thus, coverage of trauma and loss reminder material in session 5 was salient to her case.

During session 5 (i.e., identification of trauma and loss reminders), Elizabeth reported several traumatic losses occurring within months of Hurricane Katrina (her father died within months of the storm, and because the family home was destroyed, she also lost many gifts and mementos from him, including her bicycle). Elizabeth blamed herself for these losses (i.e., leaving her bicycle outside and not bringing it in the garage before evacuating the city) and felt guilty for them (i.e., she felt guilty about leaving her dad's dog, Diva, behind to face the storm alone). Discussion of why and how these losses are upsetting, and the development of a reminder coping skill list, helped Elizabeth process loss events. The therapist encouraged Elizabeth to focus on positive memories of her father (through doing certain activities, such as reworking a puzzle her father had given her before he passed away, or through replacing sad thoughts about losses with positive memories from the past) when confronted with negative reminders.

As shown by Figure 2, Elizabeth reports a downward trend in symptoms after coverage of session 5 (T6), and visual inspection of data suggests the intervention reduced her PTSD symptoms. Elizabeth experienced another loss event as therapy concluded (i.e., a friend's grandparent passed away, triggering loss memories), but seemed to show improvement in coping. As shown by Table 1, she reported reduction in somatic complaints and anxious sensations, school refusal behavior, and separation anxiety at post-treatment assessment, but continued to experience severe worry and social anxiety (the family was provided with referral information) at the conclusion of treatment. However, her consistent decline in PTSD symptoms suggests the intervention was effective in helping her process and learn to cope with her trauma related symptoms. Further, Elizabeth was able to gain a sense of control over her loss reminders through development of reminder specific coping skills during her participation in the intervention.

"*Kelly*." At pre-treatment assessment, Kelly reported Separation Anxiety Disorder, Specific Phobia (Injury Type), GAD, PTSD, and Dysthymia diagnoses. Kelly indicated feelings of extreme sadness, and reports frequent worry (worry that a natural disaster will reoccur; sickness or injury of family members) and phobic symptoms tied to wellness (fear of being sick, of family members being sick) at initial interview. Her treatment goals included decreasing fear severity through approach behavior. During treatment, she experienced an interpersonal issue that offered in-vivo application of cognitive restructuring and approach strategies encouraged in treatment.

As session 6 began, Kelly reluctantly confided that she was upset about a peer calling her a name. The therapist helped Kelly work through her thoughts and feelings about the incident through use of a cognitive coping strategies (session 3, “it is possible vs. it is likely”; it is *possible* that my friend really believes I’m a “stalker,” and other people believe it, but is it *likely*? No). Kelly reported that she was afraid to talk to her friend about what happened. The therapist assigned Kelly a Show That I Can (STIC; this is how the *StArT* program refers to tasks that encourage approach behavior) and facilitated a meeting between Kelly and her friend. As a result of this meeting the girls resolved their problem, reinforcing the benefits of approach behavior for Kelly.

As shown by Table 1, Kelly did not report any diagnoses at post-treatment and reports a downward trend in posttraumatic stress symptoms during baseline and treatment (see Figure 2), thus it is difficult to evaluate an intervention effect. However, through approach activities, Kelly developed an understanding of facing her fears and greater control over her emotions (i.e., she no longer became tearful when discussing the hurricane). While it is not discernable if Kelly’s PTSD symptom reductions occurred as a result of the intervention or as a result of non-specific factors, she seems to have benefited from processing hurricane related events in therapy, and learning intervention coping skills.

Discussion

Overview

This study adds to the PTSD therapeutic research literature by (1) providing important roadmap information for conducting a trauma focused cognitive behavioral intervention in schools for disaster exposed youth and (2) by providing the first empirical data on the efficacy of the *StArT* program manual (Saltzman et al., 2007).

Establishing the roadmap

In terms of providing feasibility and logistics roadmap information for future work, the first goal was to provide a qualitative description of the process of setting up the *StArT* program in schools. Though permission from school administrators (C.O.O. and school principals) was necessary for establishing this program in schools, after permission was obtained, school counselors mediated student enrollment in the program through meeting with and providing family contact information to the lead investigator. The qualitative data obtained from setting up the program adds to the intervention research literature and has implications for public policy. Results from this study highlight the role of school counselors in implementing mental health programs through university-school partnerships. The New Freedom Commission (2003) implicates schools as a context to provide mental health screenings and recommends the improvement and expansion of school mental health programs. Thus, findings from this study suggest that, for expansion of mental health services through university-school partnerships to occur, not only do relationships with school administrators need to be developed, but strong relationships with school counselors need to be developed and utilized.

The second goal of this study's feasibility examination was to provide qualitative and quantitative data about the logistics of a screening and enrolling youth into the *StArT* program. Scheduling the screening was modulated by school counselors and the results of this study suggest the need for universal screenings for posttraumatic stress, especially in communities recovering from disaster. In wave 1 of this study, approximately 60% of youth reporting high levels of posttraumatic stress were unidentified to counselors prior to the screening (16 out of 27 youth were identified, see Figure 1), and counselors provided contact information for 10 youth. Though fewer youth were identified in wave 2, counselors provided contact information for all youth (with the exception of the one child whose information could not be obtained). Between waves 1 and 2, it should be noted that counselors might have felt more

comfortable with the therapist and her capabilities, suggesting the need for rapport building with school counselors when providing interventions through university-school partnerships. Further, during Wave 2 counselors indicated difficulty in reaching all students in need of services as well as the benefit of having help in treating students. Thus, results from this study not only highlight the need for frequent mental health screenings, but for expanding university-school partnerships to deliver mental health services given that school counselors may be too overburdened to do so.

The third goal of this study's feasibility examination was to report qualitative and quantitative data regarding the parental consent process. Results from this examination add to intervention research by pointing toward effective methods for obtaining parental consent when conducting a school based treatment program, and suggest that a proficient method for obtaining parental consent is through phone contact. Through phoning parents, relatively high consent rates were obtained compared to those reported by other school based intervention studies (47% Masia-Warner et al., 2005; 35%, Salloum & Overstreet, 2008). In wave 1 of data collection, 70% of the parents reached consented to their children's participation in treatment (7 out 10), and in wave 2, 55% of parents reached provided consent (6 out 11). This method generated a higher consent rate than those reported by school intervention studies using recruitment fliers and face to face procedures (e.g., Salloum & Overstreet, 2008). Further, given this study's sample composition of minority youth, the consent rate from this study might also suggest differences in parent perception of treatment in clinic as opposed to school settings. Research suggests that minority youth may experience obstacles to receiving treatment in that their parents are less likely to accept the feasibility and benefits of mental health services in clinic settings (Chavira, Stein, Bailey, & Stein, 2003). Perhaps the school setting provides a more viable context for minority youth to receive treatment.

The fourth and final goal of this study's feasibility examination was to report unique issues that occurred during treatment delivery in the school setting. An issue that presented itself in this study, and that has been implicated by other school based interventionists, is space to conduct treatment sessions (Mufson et al, 2004; Pincus & Friedman, 2004). For schools participating in this study, finding a private space to have sessions was difficult due to limited space for adjunct services (e.g., speech therapy, other school based services). In order to expand mental health services within the school setting, it might be more effective to implement the program in group format rather than individual. Reserving one location within school for a weekly group may be easier to achieve than coordinating several individual

sessions during the week. Research indicates that traumatized youth who receive school based treatments in either group or individual format show substantial and significant reductions in PTSD symptoms (Chemtob et al., 2002; Salloum & Overstreet, 2008). Thus, group treatment sessions may be more feasible in school settings. Further, in addition to treatment delivery in group format, explaining to other school staff (i.e., teachers) the purpose of the groups may help facilitate generalization of treatment material. For example, having teachers post cues to skills learned in treatment (e.g., a poster in the class room with "STOP" written on it or reminding youth to use their relaxation exercises, deep breathing) or even having teachers remind youth to use these techniques when they see them experiencing distress, might facilitate stronger internalization of material.

Efficacy of the StArT Program

The second major aim of this study was to conduct the first evaluation of the efficacy of the *StArT* manual using a partially non-concurrent multiple baseline design. Results indicate improvement in PTSD symptoms of the youth involved with general outcomes largely in a positive direction. At post-treatment assessment, none of the youth from this sample reported a diagnosis of PTSD, and half of youth reported no anxiety disorder diagnoses. Though half of our sample reported anxiety disorder diagnoses or depression diagnoses at post-treatment assessment, the severity of most of these diagnoses decreased (e.g., ADIS-C functional impairment ratings indicate a 3-point reduction in the severity of Elizabeth's Social phobia, and detection of a 2-point reduction in Sarah's GAD and Dysthymia severity ratings, see Table 1). Findings from this study indicate a large reduction of PTSD symptoms from pre- to post-treatment (Cohen's *d* = 2.00). Symptom level changes were also noted by children's parents as indicated by reduction in youth's DISC-PS Anxiety and Total scores from pre- to post-treatment (see Table 2).

The use of multiple baseline design indicated that the *StArT* program can be helpful in reduction of PTSD symptoms. However, a conclusion that the intervention was solely responsible for reductions in symptoms does not seem justified given at least one participant reported significant reductions at baseline, and implementation of the intervention failed to produce systematic decrease in one other case. The pattern of results from Jennifer, Michael, and Elizabeth were highly consistent with expectations that the initiation of therapy would be associated with decreases preceeded by a stable baseline. Sarah's declines occurred later in the intervention, Kelly's occurred at the second baseline assessment and a consistent pattern of treatment response is difficult to discern from John's data but a

conservative view would suggest that he was either inconsistent in his treatment ratings or did not benefit from the intervention. Visual inspection of data indicates intersubject reduction in PTSD symptoms across treatment sessions though some youth reported greater intrasubject reductions than others[1].

The use of multiple baseline design also allowed for evaluation of the specific treatment components of the *StArT* program on types of PTSD symptoms. Each child reported unique variation in types of PTSD symptoms as components were introduced, but generally youth reported an upward trend in symptom clusters as exposures began (Michael, hyperarousal; Sarah, hyperarousal and re-experiencing; John, each symptom type) and this is consistent with extant research regarding the introduction of exposure sessions when treating traumatized youth (Feather & Ronan, 2006; Saigh, 1987). Future examination of the *StArT* program might include separate multiple baseline evaluations of PTSD symptoms and treatment components (e.g., through assessment of skills learned during modules, such as cognitive coping skills) for each subject. Use of multiple baseline evaluations has been used to further untangle session levels changes in PTSD symptoms relative to treatment components by showing that skills learned upon component introduction increased while trauma symptoms decreased (Feather & Ronan, 2006). Additional multiple baseline evaluations of the *StArT* program might include assessment of skills learned during treatment components and this could provide further efficacy for the *StArT* program.

The results of this study were generally positive; however, there are findings from this study that warrant further consideration. Firstly, one child from this sample (Kelly) did not maintain symptom stability at baseline. When baseline data shows great variability, it is difficult is to draw conclusions about intervention effect. For cases in which baseline data is not stable, the causal role of the intervention cannot be assumed given symptom reduction might be occurring for other reasons (e.g., history or maturation; Kazdin, 2003). Thus, downward trends in Kelly's baseline data could suggest that symptom reduction would have occurred over time, without intervention. However, this need not underscore the possible efficacy of the *StArT* program. Visual inspection of data from other youth in this sample (Jennifer, Michael, Elizabeth) indicates intervention effects. In addition, statistical analyses, which have been proposed to supplement visual inspection of data (Kazdin, 1982), were conducted and indicate statistically significant reductions in PTSD symptoms from pre- to post-treatment.

Secondly, though some of the pre- to post-treatment results on treatment outcome measures were not statistically significant, data obtained from youth in this sample suggests reduction in symptoms commonly experienced by traumatized youth (negative cognitive errors, CNCEQ scores; anxiety sensitivity, CASI scores) the increase of anxiety control beliefs (ACQ-C scores). All youth reported reductions in CNCEQ scores and 4 cases reported increases in ACQ-C scores and decreases in CASI scores. Two cases in this sample reported changes in an unexpected direction at post-treatment (Jennifer, reduction in ACQ-C scores; John, increases in CASI scores, DISC-PS Total and Anxiety scores; see Table 2). Score movement in the opposite direction for one case can result in non-significant findings in small sample sizes. Thus, this study's small sample size (N=6) may be the reason pre-treatment and post-treatment scores on the ACQ-C, CASI, and DISC-PS Total and Anxiety scores were not statistically significant. Further, it is notable that most youth in this sample reported expected changes in scores post-intervention.

Clinical Implications

Case level qualitative data from this study adds to intervention research by demarcating individual difference factors potentially contributing to treatment responses (e.g., John's anger), and through the identification of potential alterations to treatment material. Thus, qualitative data from this study provides clinical implications for treating traumatized youth through two main contributions. Firstly, findings from this study identify affective factors influencing individual differences to the treatment program generally. Secondly, data from this study suggests possible session level modifications that could be made to the *StArT* program to enhance youths understanding of treatment components as well as help identify critical ingredients of the treatment program.

Beginning with affective factors influencing treatment responses, John presented with unique emotional vulnerabilities that may have impacted their symptom trajectories. For John, his anger interfered with coverage of treatment material. Anger has been implicated as a predictor of PTSD symptoms development (Ehlers et al., 2003) and research suggests that traumatized youth with PTSD are prone to expressing anger without specific provocation (Saigh, Yasik, Oberfield, & Halamandaris, 2007). Qualitative data regarding John's behavior in treatment sessions suggests the relevance of this research (i.e., Ehlers et al., 2003; Saigh et al., 2007) to making alterations to treatment interventions for traumatized youth broadly and perhaps specifically to the *StArT* program. John's anger seems to have been

frequently provoked during the therapist's attempts to discuss hurricane related events. His anger may have been a reaction to feeling the therapist's requests were too probing, and this may have compromised the development of a therapeutic alliance. Children who report "feeling pushed to talk" early in treatment also report decreased ratings of the therapeutic alliance over the course of treatment (Creed & Kendall, 2005), and this can be detrimental to intervention effects. The development of a strong therapeutic alliance early in treatment may facilitate client engagement in therapy tasks (Chu et al., 2004). In John's case, the development of a strong therapeutic alliance may have facilitated his participation in exposure tasks (trauma narrative construction). Thus, future interventions for traumatized youth might include strategies for developing a strong therapeutic alliance, particularly in youth presenting with anger problems, and for addressing anger management.

In terms of possible session level alterations that could be made to the *StArT* program, there are three main modifications that might enhance youth's responses to treatment. The first possible program modification includes revision to the cognitive restructuring module. This might help youth better understand cognitive coping skills introduced during treatment. Youth from this sample were between the ages of 8-13. Youth in this age group are typically more concrete in their thought processes and thus may need more concrete tools for identifying the role of cognitions in their emotions (Kingery et al., 2006). For example, some authors recommend using visual aids or developing lists of coping statements to help youth in this age range for identification and replacement of maladaptive cognitions (Kingery et al., 2006). Thus, the *StArT* program might further benefit youth by including more concrete methods for teaching cognitive restructuring tools. In the *StArT* program, cognitive restructuring methods span two sessions, and relaxation training is a small portion of one session. As shown by Figure 1, many youth from this sample consistently reported elevated hyperarousal symptoms across treatment sessions (John Michael, Sarah, and Kelly). Given youth aged 8-13 tend to more concrete in their thinking patterns, future editions of the *StArT* program might include a stronger emphasis on behavioral coping strategies for patients in middle childhood. Further, introduction to greater variety of coping strategies might be more helpful to youth (e.g., Clarke, 2006).

A second possible modification to the *StArT* program includes the incorporation of concrete exposure tasks. Research in disaster exposed youth points toward the effectiveness of relaxation training and concrete exposure

experiences, in addition to narrative development, for PTSD symptom reduction (e.g., Scheeringa, Salloum, Arnberger, Weems, Amaya-Jackson, & Cohen, 2007). A shared trauma-related cue among youth in this sample involves seeing Hurricane Katrina related devastation near their schools and in their neighborhoods. Adding exposure activities for hurricane destruction to the *StArT* program might allow for further reduction of anxiety levels, especially in youth surviving large scale disasters, such as Hurricane Katrina, where destruction remains for several months, or even years, after the disaster. Moreover, exposure procedures could feasibly be implemented while conducting the *StArT* program in schools given schools are located in devastated areas.

A third possible modification to *StArT* program might include a stronger emphasis on treatment techniques aimed at reconciling disaster related losses. As shown by youth in this sample, and consistent with research conducted in youth disaster survivors, losses are salient to children's disaster related experiences (La Greca et al., 1996),and have been implicated in the development of sadness and grief in the wake of disaster (Goenjian et al., 2005). For some of youth in this study, Hurricane Katrina related losses were also arguably tied to non-hurricane related losses in their lives (e.g., Elizabeth's hurricane related losses were very much intertwined with the deaths of family members for temporal reasons) which may maintain feelings of grief and sadness for several months post-disaster. Findings from youth in this sample and from other samples of disaster exposed youth suggest that treatments for youth in the wake of disaster include components addressing PTSD symptoms, grief, and loss (Goenjian et al., 2005; Salloum & Overstreet). The *StArT* program includes an optional discussion of loss reminders and all youth from this sample received this discussion during treatment due to history of multiple losses. Findings from this study not only magnify the importance of helping disaster exposed youth explore loss events but suggest the need for concentration on loss and grief processing when developing treatment protocols for these youth.

Limitations & Future Directions

Results from this study should be considered in light of its inherent and specific methodological limitations. Multiple baseline evaluation of the *StArT* program provides evidence suggesting intervention efficacy. However, generalization of findings from this study cannot be made to the population of youth disaster survivors in its entirety. While the goal of this study was to provide idiographic evaluation, conducting replications of the present study, or randomized control trials of the *StArT* program in large samples of youth is needed to provide data on the

generalizability of this treatment. Further, only one therapist conducted the intervention in this sample, and generalizability studies might also assess effective implementation of the program across multiple therapists. Additional limitations from this study include absence of post-assessment and follow-up data from some participants. Jennifer's parents could not be reached for post-assessment and Michael's and Kelly's parents would not consent to their children's participation to follow-up administration of the ADIS-C or treatment outcome measures.

Another possible limitation to consider in discussion of this study's findings can be drawn from children's response validity to the PTSD Reaction Index. Wave 1 screening (Fall 2008) had to be rescheduled due to Hurricane Gustav, and was conducting immediately following children's return to school. The experience of preparing for another Hurricane may have influenced children's responses to the RI during screening, accounting for differences in the number of youth meeting screening criteria compared to those meeting inclusion criteria. In wave 1, 7 families consented to the children's participation in treatment, and only 4 children met diagnostic criteria for PTSD.

The reliability of children's responses to pre- and post-treatment clinical interview items (i.e., items on the ADIS-C) should also be taken into consideration when discussing study limitations. For two participants, Sarah and Michael, data from this study suggests the development of additional diagnoses from pre- to post-treatment (for Sarah, the development of Specific Phobia, and for Michael the development of Social Phobia, see Table 2). Some of the response variability across ADIS-C administration may be related to emotion related deficits found in anxiety disordered youth. Researchers have theorized that anxiety disordered youth have difficulties understanding and managing their own emotional experiences (Suveg, Kendall, Comer, & Robin, 2006). It is plausible that participating in treatment improved Sarah's and Michael's understandings of the types of situations and experiences that are anxiety provoking to them, and this perhaps accounts for the variance in reported diagnoses. However, report of new diagnoses at post-treatment assessment suggests caution in making conclusions about clinical improvement from pre- to post-treatment.

Beyond conducting replication or randomized control studies to provide further evidence for the efficacy of the *StArT* program, findings from this study point toward the need for future advancements in intervention research. For one, results from this study point toward the utility of conducting mixed methods research designs. Mixed methods research designs integrate quantitative and qualitative data collection simultaneously or at alternating time points

longitudinally (Creswell & Zhang, 2009).The design of this study included collection of qualitative and quantitative data simultaneously, and while collection of both types of data has enriched the understanding and implication of this study's results, questions regarding individual progress are still left unanswered. Future treatment studies might include further examination of qualitative factors (e.g., affectivity) contributing to treatment responses. A better understanding of these qualitative factors might further demarcate potential and testable alterations to intervention programs (e.g., Barlow & Nock, 2009).

Findings from this study also highlight the general call for the further study of mechanisms of treatment change including the need for explanation of moderators effecting treatment outcomes (Kazdin, 2008). Some intervention researchers have suggested the utility of knowing whether or not a single variable or particular set of variables predicts an individual's responsiveness to treatment (Kazdin, 2008). Developing this type of knowledge base would help explain reports of pre- and post-treatment diagnoses in youth from this sample as well as inform the implementation of future treatments for traumatized youth. Identification of these moderators might help delineate the extent to which a treatment based on the cognitive behavioral model is appropriate for all youth trauma survivors (e.g., John). Further, findings from this study suggest that conducting single case designs in school settings are a viable context for collecting moderator data.

End Note

[1]A reliable change index (RCI; Jacobson & Truax, 1991) was calculated to detect how much change had occurred in RI scores (i.e., PTSD symptoms) during the course of treatment. Five youth in this sample reported reliable change in symptoms (Jennifer's RCI, 6.8; Michael, 4.1; Sarah, 2.8; Elizabeth, 7.8; Kelly, 5.6); however, John did not (.94).

References

Abdeen, Z., Qasrawi, R., Nabil, S., & Shaheen, R. (2008). Psychological reactions to Israeli occupation: Findings from the national study of school-based screening in Palestine. *International Journal of Behavioral Development, 32(4),* 290-297.

Ackerman, P. T., Newton, J. E. O., McPherson, W. B., Jones, J. G., & Dykman, R. A. (1998). Prevalence of posttraumatic stress disorder and other psychiatric diagnoses in three groups of abused children (sexual, physical, and both). *Child Abuse and Neglect, 22(8),* 759-794.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th edition, text revision). Washington, DC: Author.

Attar, B., Guerra, N., Tolan, P. (1994). Neighborhood disadvantage, stressful life events, and adjustment in urban elementary school children. *Journal of Clinical Child Psychology, 23,* 391-400.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37,* 122-147.

Barlow, D. H. & Nock, M. K. (2009). Why can't our approach to research be more idiographic? *Perspectives on Psychological Science, 4(1),* 19-21.

Bell, C., & Jenkins, E. (1993). Community violence and children on Chicago's southside. *Psychiatry, 56,* 46-54.

Berman, S. L., Kurtines, W. M., Silverman, W. K., & Serafini, L. T., (1996). The impact of crime exposure to crime and violence on urban youth. *American Journal of Orthopsychiatry, 66(3),* 329-336.

Berton, M. W. & Stabb, S. D. (1996). Exposure to violence and posttraumatic stress disorder in urban adolescents. *Adolescence, 122 (31),* 489-499.

Bogat, G. A. & Jason, L. A., (1997). Interventions in the school and community. In Robert T. Ammerman & Michel Hersen (Eds). *Handbook of Prevention and Treatment with Children and Adolescents: Intervention in Real World Contexts* (pp. 134-154). New York, NY: Wiley.

Bokszczainin, A. (2007). PTSD symptoms in children and adolescents 28 months after a flood: Age and gender differences. *Journal of Traumatic Stress, 20(3),* 347-351.

Bolton, D., Hill, J., O'Ryan D., Udwin, O., Boyle, S. & Yule, W. (2004). Long-term effects of psychological trauma on psychological functioning. *Journal of Child Psychology & Psychiatry, 45(5),* 1007-1014.

Bolton, D., O'Ryan, D., Udwin, O., Boyle, S., & Yule, W. (2000). The long-term psychological effects of disaster experienced in adolescences: II: General Psychopathology. *Journal of Child Psychology and Psychiatry, 41(4),* 513-523.

Braswell, L. & Kendall, P. C. (2001). Cognitive-behavioral therapy in youth. In K. S. Dobson (Ed.). *Handbook of Cognitive Behavioral Therapies* (2nd Edition, pp 3-39). Guilford: New York.

Burns, B. J., Costello, J. E., Angold, A., Tweed, D., Stangl, D., Farmer, E. M. Z. & Erkanli, A. (1995). Children's mental health use across service sectors. *Health Affairs, 14(3),* 148-159.

Chavira, D. A., Stein, M. B., Bailey, K., & Stein, M. T. (2003). Parental opinions regarding treatment for Social Anxiety Disorder in youth. *Journal of Developmental & Behavioral Pediatrics, 24,* 315-322.

Chemtob, C. M., Nakashima, J. P., & Hamada, R. S. (2002). Psychosocial intervention for post-disaster trauma symptoms in elementary school children. *Archives of Pediatric and Adolescent Medicine, 156,* 211-216.

Chorpita, B. F. & Barlow, D. H. (1998). The development of anxiety: The role of control in the early environment. *Psychological Bulletin, 124,* 3-21.

Chorpita, B. F., Taylor, A. A., Francis, S. E., Moffitt, C., & Austin A. A. (2004). Efficacy of modular cognitive behavioral therapy for childhood anxiety disorders. *Behavior Therapy, 35,* 263-287.

Chu, B. C., Choudry, M. S., Shortt, A. L., Pincus, D. B., Creed, T. A., & Kendall, P. C. (2004). Alliance, technology, and outcome in the treatment of anxious youth. *Cognitive & Behavorial Practice, 11*, 44-55.

Clarke, A. T. (2006). Coping with interpersonal stress and psychosocial health among children and adolescents: A meta-analysis. *Journal of Youth and Adolescence, 35(3),*11-24.

Cohen, J. A., Deblinger, E., Mannarino, A. P., Steer, R. A., (2004). A multi-site randomized control study pf sexually abused, multiply traumatized children with PTSD: Initial treatment outcome. *Journal of the American Academy of Child and Adolescent Psychiatry, 43,* 1402-1408.

Cohen, J.A., & Mannarino, A.P. (2008). Trauma-focused cognitive behavioural therapy for children and parents. *Child and Adolescent Mental Health, 13(4),* 158-162.

Cohen, J. A., Mannarino, A. P., Berlinger, L., & Deblinger, E. (2000). Trauma-focused cognitive behavioral therapy for children and adolescents: An empirical update. *Journal of Interpersonal Violence, 15(11),* 1202-1223.

Copeland, W. E., Keeler, G., Angold, A., & Costello, E.J. (2007). Traumatic events and posttraumatic stress in childhood. *Archives of General Psychiatry, 64,* 577-584.

Cortes, A. M., Saltzman, K. M., Weems, C. F., Regnault, H. P., Reiss, A. L., & Carrion, V. G. (2005). Development of anxiety disorders in a traumatized pediatric population: A preliminary longitudinal evaluation. *Child Abuse & Neglect, 29,* 905-914.

Costello, J. E., Erkanalli, A., Fairbank, J. A., & Angold, A. (2002). The prevalence of potentially traumatic events in childhood and adolescence. *Journal of Traumatic Stress, 15(2),* 99-112.

Creed, C. A. & Kendall, P. C. (2005). Therapist alliance-building behavior within a cognitive-behavioral treatment for anxiety in youth. *Journal of Consulting & Clinical Psychology, 73(3),* 498-505.

Creswell, J.W. & Zhang, W. (2009). The application of mixed method designs to trauma research. *Journal of Traumatic Stress, 22(6),* 612-621.

Dean, K. L., Langley, A. K., Kataoka, S. H., Jaycox, L. H., Wong, M., & Stein, B. D. (2008). School based disaster mental health services: Clinical, policy, and community challenges. *Professional Psychology, Research, & Practice, 39(1),* 52-57.

Deblinger, E., Lippmann, J., & Steer, R. (1996). Sexually abused children suffering posttraumatic stress symptoms: Initial treatment and outcome findings. *Child Maltreatment, 1,* 310-321.

Deblinger, E., Steer, R., & Lippmann, J. (1999). Two-year follow-up study of cognitive behavioral therapy for sexually abused children suffering posttraumatic stress symptoms. *Child Abuse & Neglect, 23,* 1371-1378.

Deblinger, E., Thakkar-Kolar, R., & Ryan, E. (2006). Trauma in childhood. In V. M. Follette & J. I. Ruzek (Eds.), *Cognitive-Behavioral Therapies for Trauma,* (pp.405-435). New York: Guliford.

Diagneault, I., Tournigy, M., & Hebert, M. (2006). Self-Attributions of blame in sexually abused adolescents: A mediational model, *Journal of Traumatic Stress, 19(1),* 153-157.

Diehl, A. S., & Prout, M. F. (2002). Effects of posttraumatic stress disorder and child sexual abuse on self-efficacy and development. *American Journal of Orthopsychiatry, 72(2),* 262-265.

Dobson, K. S. & Dozois, D. J. A. (2001). Historical and Philosophical Bases of the Cognitive-Behavioral Therapies. In K. S. Dobson (Ed). *Handbook of Cognitive Behavioral Therapies* (2nd Edition, pp 3-39). Guilford: New York.

Elhers, A. & Clark, D. M. (2000). A cognitive model of Posttraumatic Stress Disorder. *Behavior Research & Therapy, 38,* 319-345.

Elhers, A., Mayou, R. A., & Bryant, B. (2003). Cognitive predictors of posttraumatic stress disorder in children: Results of a prospective longitudinal study. *Behavior Research & Therapy, 41,* 1-10.

Ensink, K., Robertson, B. A., Zississ, C., Leger, P. (1997). Posttraumatic stress disorder in children exposed to violence. *South African Medical Journal, 87,* 1526-1530.

Ehring, T., Ehlers, A., & Glucksman, E. (2008). Do cognitive models help in predicting the severity of posttraumatic stress disorder, phobia, and depression after motor vehicle accidents? A prospective longitudinal study. *Journal of Consulting & Clinical Psychology, 76(2),* 219-230.

Evans, S. W. (1999). Mental health services in school utilization, effectiveness, and consent. *Clinical Psychology Review, 19(2),* 165-178.

Feather, J. S. & Ronan, K. R. (2006). Trauma-focused cognitive behavioral therapy for abused children and posttraumatic stress disorder: A pilot study. *New Zealand Journal of Psychology, 35(3),* 132-145.

Fedoroff, I., Taylor, s., Asmundson, G., & Koch, W. (2000). Cognitive factors in traumatic stress reactions: predicting PTSD symptoms from anxiety sensitivity and beliefs about harmful events. *Behavioral and Cognitive Psychotherapy, 28,* 5-15.

Fitzpatrick, K. M. & Boldizar, J. P. (1993). The prevalence and consequence of exposure to violence among African American youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 32(2),* 424-430.

Foa, E. B., Ehlers, A., Clark, D. M., Tolin, D., & Orsillo, S. (1999). The posttraumatic cognitions inventory (PTCI). *Child & Adolescent Psychiatry, 7,* 61-68.

Foa, E.B., Riggs, D. S., Massier, E. D., & Yaczower, M. (1995). The impact of fear activation and anger on efficacy of exposure treatment for PTSD. *Behavior Therapy, 26,* 487-500.

Frederick, C. J., Pynoos, R. S., & Nadar, K. (1992). *Reaction Index to Psychic Trauma Form C (Child).* Author: University of California, Los Angeles.

Ginsburg, G. & Drake, K. L. (2002). Anxiety sensitivity and panic attack symptomatology among low-income African–American adolescents. *Journal of Anxiety Disorders, 16(1),* 83-96.

Gray, M., & Lombardo, T. W. (2003). Life event attributions as a potential source of vulnerability following exposure to a traumatic event. *Journal of Loss and Trauma, 9,* 59-72.

Goenjian, A. K., Molina, L., Steinberg, A.M.**,** Fairbanks, L. A., Alvearez, M. L., Goenjian, H. A., & Pynoos, R. S. (2001). Posttraumatic stress and depressive reactions among Nicaraguan adolescents after Hurricane Mitch. *American Journal of Psychiatry, 158(5), 788-794.*

Goenjian, A. K., Walling, D., Steinberg, A. M., Karayan, I., Najarian, L. M., Pynoos, R. (2005). A prospective study of posttraumatic stress and depressive reactions among treated and untreated adolescents five years after a catastrophic disaster. *American Journal of Psychiatry, 162,* 2302-2308.

Green, B., Wilson, P., & Lindy, J. D., (1986). Conceptualizing PTSD: A psychosocial framework. In. C. Figley (Ed.), *Trauma and its wake* (Vol. I), (pp. 53-69). New York: Brunner/Mazel.

Green, B. L., Grace, M. C., Vary, M. G., Leonard, A. C., Gleser, G. C., & Smithson-Cohen, S. (1991). Children and disaster: Age, gender, and parental effects on PTSD symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry, 30(5),* 945-951.

Greenberg, H. S. & Keane, A. (2001). Risk factors for chronic posttraumatic stress symptoms and behavior problems in children and adolescents following a home fire. *Child and Adolescent Social Work Journal, 18 (3),* 205-221.

Greenwald, R. (2002). The role of trauma in conduct disorder. *Journal of Aggression, Maltreatment, & Trauma, 6,* 5-23.

Halligan, S. L., Michael, T., Clark, D. M. & Ehlers, A. (2003). Posttraumatic Stress Disorder following assault: The role of cognitive processing, trauma memory, & appraisals. *Journal of Consulting & Clinical Psychology, 71,* 419-431.

Harter, S. (1999). *The construction of the self.* New York: Guliford Press.

Hensley, L. & Varela, E. (2008). PTSD symptoms and somatic complaints following Hurricane Katrina: The roles of trait anxiety and anxiety sensitivity. *Journal of Clinical Child & Adolescent Psychology, 37(3),* 542-552.

Hoagwood, K. & Johnson, J. (2003). School psychology: A public health framework I. From evidence based practices to evi dence-based policies. *Journal of School Psychology, 41(1),* 3-21.

Holahan, C. J., & Moos, R. H. (1987). Risk, resistance, and psychological distress: A longitudinal analysis with adults and children. *Journal of Abnormal Psychology, 96,* 3-13.

Jacobson, N. S. & Traux, P. (1991). Clinical significance: A statistical approach to defining meaning change in psychotherapy research. *Journal of Consulting & Clinical Psychology, 59(1),* 12-19.

Jeney-Gammon, P., Daugherty, T. K., Finch, A. J., Belter, R. W., & Foster, K. Y. (1993). Children's coping styles and report of depressive symptoms following a natural disaster. *Journal of Genetic Psychology, 154,* 259-267.

Joseph, S. A., Brewin, C. R., Yule, W., & Williams, R. (1993). Causal attributions and posttraumatic stress in adolescents. *Journal of Child Psychology and Psychiatry, 34,* 247-253.

Kataoka, S. H., Zhang, L., & Wells, K. B. (2002). Unmet need for mental health care among U.S. children: Variation by ethnicity and insurance status. *American Journal of Psychiatry, 159,* 1548-1555.

Kazdin, A. E. (1982). *Single-case research designs: Methods for clinical and applied settings.* New York: Oxford University Press.

Kazdin, A. E. (2003). *Research design in clinical psychology.* Boston: Allyn and Bacon.

Kazdin, A. E. (2008). Evidence-based treatment and practice: New opportunities to bridge clinical research and practice, enhance the knowledge base, and improve patient care. *American Psychologist, 63*(3), 146-159.

Kazdin, A. E. & Nock, M. K. (2003). Delineating mechanisms of change in child and adolescent therapy: Methodological issues and research recommendations. *Journal of Child Psychology & Psychiatry, 44,* 1116–1129.

Kendall, P. C. (1994). Treating anxiety disorders in children: results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 62,* 200-210.

King, N. J., Tonge, B. J., Mullen, P., Myerson, N., Heyne, D., Rollings, S. et al. (2000). Treating sexually abused children with posttraumatic stress symptoms: A randomized clinical trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 1347-1355.

Kingery, J. N., Roblek, T. L., Suveg, C., Grover, R. L., Sherrill, J. T., & Bergman, R. L. (2006). They're not just little adults: Developmental considerations for implementing cognitive behavioral therapy with anxious youth. *Journal of Cognitive Psychotherapy: An International Quarterly, 20(3),*263-273.

Kiser, L. J., Heston, J., Millsap, P. A., Pruitt, D. B. (1991). Physical and sexual abuse in childhood: Relationship with *posttraumatic* stress disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 30(5),* 776-783.

Kolko, D. J. (1996). Individual cognitive behavioral treatment and family treatment and family therapy for physically abused children and their offending parents: A comparison of clinical outcomes. *Child Maltreatment, 1,* 322-342.

Konen, K. C., Moffitt, T. E., Poulton, R., Martin, J., & Caspi, A. (2007). Early factors associated with the development of posttraumatic stress disorder: Results from a longitudinal birth cohort. *Psychological Medicine, 37,* 181-192.

La Greca, A. M., Silverman, W. K., Vernberg, E. M., & Prinstein, M. (1996). Symptoms of posttraumatic stress after Hurricane Andrew: A prospective study. *Journal of Consulting and Clinical Psychology, 64,* 712-723.

La Greca, A. M., Silverman, W. K., & Wasserstein, S. B. (1998). Children's predisaster functioning as a predictor of posttraumatic stress following Hurricane Andrew. *Journal of Consulting & Clinical Psychology, 66(6),* 883-892.

La Greca, A.M., Silverman, W. K., Vernberg, E.M., & Roberts, M.C. (2002). Children and disasters: Future directions for research and public policy. In A. M. La Greca, W.K. Silverman, E. M. Vernberg, & M.C.Roberts, M.C. (Eds.) (2002). *Helping children cope with disasters.* Washington, DC: American Psychological Association.

Lambert, S. F., Cooley, M. R., Campbell, K. D., Benoit, M. Z., & Stansbury, R. (2004). Assessing anxiety sensitivity in inner-city African American children: psychometric properties of the childhood anxiety sensitivity index. *Journal of Child and Adolescent Psychology, 33(2),* 248-259.

Lang, A. J., Kennedy, C. M., & Stein, M. B. (2002). Anxiety sensitivity and PTSD among female victims of intimate partner violence. *Depression & Anxiety, 16,* 77-83.

Leen-Feldner, E. W., Feldner, M. T., Reardon, L. E., Babson, K. A., & Dixon, L. (2008). Anxiety sensitivity and posttraumatic stress among event-exposed youth. *Behavior and Research Therapy, 46,* 548-556.

Leitenberg, H., Yost, L. W., & Carroll-Wilson, M. (1986). Negative cognitive errors in children: Questionnaire development, normative data, and comparisons between children with and without self-reported symptoms of depression, low self-esteem, and evaluation anxiety. *Journal of Consulting and Clinical Psychology, 54,* 528-536.

Leung, P. W. L., & Poon, M. W. L. (2001). Dysfunctional schemas and cognitive distortions in psychopathology: A test of specific hypothesis. *Journal of Child Psychology and Psychiatry, 42,* 755-765.

Levitt, J. M., Saka, N., Hunter-Romanelli, L., & Hoagwood, K. (2007). Early identification of mental health problems in schools: The status of instrumentation. *Journal of School Psychology, 45(2),* 163-191.

Little, S. A., Little-Akin, A., & Guiterrez, G. (2009). Children and traumatic events: Therapuetic techniques for psychologists working in the schools. *Psychology in the Schools, 46(3),* 199-205.

Lonigan, C. J., Shannon, M. P., Taylor, C. M., Finch, A. J., & Sallee, F. R. (1994). Children exposed to disaster: II. Risk factors for the development of the post-traumatic symptomatology. *Journal of the American Academy of Child and Adolescent Psychiatry, 33 (1),* 94-105.

Lucas, C. P., Zhang, H., Fisher, P., Shaffer, D., Reiger, D. A., Narrow, W. E., Bourdon, K., Dulcan, M. K.,Canino, G., Rubio-Stipec, M., Lahey, B. B., Friman, P. (2001). The DISC Predictive Scales (DPS): Efficiently screening for diagnosis. *Journal of the American Academy of Child and Adolescent Psychiatry, 40(4),* 443-449.

Lumpkin, P. W., Silverman, W. K., Weems, C. F., Markham, M. R. & Kurtines, W. M. (2002). Treating a heterogeneous set of Anxiety Disorders in youths with group cognitive behavioral therapy: A partially non-concurrent multiple baseline evaluation. *Behavior Therapy, 33(1),* 163-179.

Marsee, M. A. (2008). Reactive aggression and posttraumatic stress in adolescents affected by Hurricane Katrina. *Journal of Clinical Child & Adolescent Psychology, 37(3),* 519-529.

Masia-Warner, C., Klein, R. G., Dent, H. C., Fisher, P. H., Alvir, J., Albano, A. M. & Guardino, M. (2005). School-based intervention for adolescents with Social Anxiety Disorder: Results of a controlled study. *Journal of Abnormal Child Psychology, 33(6),* 707-722.

McGloin, J. S. & Widom, C. S. (2001). Resilience among abused and neglected children all grown up. *Development and Psychopathology, 13,* 1021-1038.

Meiser-Stedman, R., Dalgleish, T., Glucksman, E., Yule, W. & Smith, P. (2009). Maladaptive cognitive appraisals mediate the evolution of posttraumatic stress reactions: A six month follow-up of child and adolescent assault and motor vehicle accident survivors. *Journal of Abnormal Psychology, 118(4),* 778-787.

Mufson, L., Dorta, K. P., Wickamarante, P., Nomura, Y., Olfson, M., Weissman, M. M. (2004). A randomized effectiveness trial of interpersonal psychotherapy for depressed adolescents. *Archives of General Psychiatry, 61,* 577-584.

Mullings, J. L., Hartley, D. L., Marquart, J. W. (2004). Exploring the relationship between alcohol use childhood maltreatment and treatment needs among female prisoners. *Substance Use and Misuse, 39(2),* 277-305.

Muris, P., Meesters, C., Schouten, E., & Hoge, E. (2003). Effects of percieved control on the relationship between perceived parental rearing behaviors and symptoms of anxiety and depression in nonclinical pre-adolescents. *Journal of Youth and Adolescence, 33(1),* 51-58.

Muris, P., Mayer, B., den Adel, M., Roos, T., & van Wamelen, J. (2009). Predictors of change following cognitive behavioral treatment of children with anxiety problems: A preliminary investigation on negative automatic thoughts and anxiety control. *Journal of Child Psychiatry & Human Development, 40,* 139-151.

Nabors, L. A., Weist, M. D., & Reynolds, M. W. (2000). Overcoming challenges in outcome evaluations of school mental health programs. *Journal of School Health, 70(5),* 206-209.

National Child Traumatic Stress Network (NCTSN) and National Center for PTSD (NCPTSD) (2006). *Psychological first aid: Field operations guide, 2nd Ed.* Los Angeles, CA and White River Junction, VT: Authors.

National Advisory Mental Health Concil (2001). Blueprint for change : Research on child and adolescent mental health. Workgroup on Child and Adolescent Mental Health Intervention and Development and Employment Washington, D.C.

Neuner, F., Schauner, M., Klaschik, C., Karunakara, U., & Elbert, E., (2004). A comparison of narrative exposure therapy, supportive counseling, and psychoeducation for treating posttraumatic stress disorder in an African Refugee Settlement. *Journal of Consulting & Clinical Psychology, 72,* 579-587.

Nock, M.K. (2007). Conceptual and design essentials for evaluating mechanisms of change. Alcoholism: Clinical and Experimental Research, 31, 4S–12S.

Nolen-Hoeskema, S., Girgus, J. S., & Seligman, M. E. P. (1992). Predictors and consequences of childhood depressive symptoms: A five year longitudinal study. *Journal of Abnormal Psychology, 101,* 405-422.

Norris, F. H., Friedman, M. J., & Watson, P. J. (2002). 60,000 Disaster victims speak: Part II. Summary and implications of disaster mental health research. *Psychiatry: Interpersonal & Biological Processes, 65(3),* 240-260.

Norris, F. H., Friedman, M. J., Watson, P. J., Bryne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 Disaster victims speak: Part I. An empirical review of the literature, 1981-2001. *Psychiatry: Interpersonal & Biological Processes, 65(3),* 207-239.

Ollendick, T. H. (1995). Cognitive-behavioral treatment of panic disorder with agoraphobia in adolescents: a multiple baseline design analysis. *Behavior Therapy, 26,* 517–31.

Pelcovitz, D., Kaplan, S., Goldenberg, B., Mandel, F., Lehane, J., & Guerrra, J. (1994). Posttraumatic stress disorder in physically abused adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 33,* 305-315.

Peterson, C., & Seligman, M. E. P. (1984). Causal explanations as a risk factor for depression: Theory and evidence. *Psychological Review, 91,* 347–374.

Pina, A. A., Villalta, I. K. Ortiz, C., Gottschall, A. C., Costa, N., M., & Weems, C. F. (2008). Social support, discrimination, and coping as predictors of posttraumatic stress reactions in youth survivors of Hurricane Katrina. *Journal of Child and Adolescent Psychology, 37(3),* 564-574.

Pincus, D. B. & Friedman, A. G. (2004). Improving children's coping with everyday stress: Transporting treatment interventions to the school setting. *Clinical Child and Family Psychology Review, 7(4),* 223-240.

President's New Freedom Commission on Mental Health. (2003). *Achieving the promise: Transforming mental health care in America, executive summary* (DHHS Pub. No. SMA-03–3831). Rockville, MD: U.S. Department of Health and Human Services.

Reiss, S. (1991). Expectancy model of fear, anxiety, and panic. *Clinical Psychology Review, 11(2),* 141-153.

Ringeisen, H., Henderson, K., & Hoagwood, K. (2003). Context matters: Schools and the "research to practice" gap in children's mental health. *School Psychology Review, 32(2),* 153-168.

Roberts, M. C., Vernberg, E. M., Biggs, B. K., Randall, C. J., & Jacobs, A. K. (2008). Lessons learned from the Intensive Mental Health Program: A school-based community oriented program for children with serious emotional disturbances. *Journal of Family and Child Studies, 17(2),* 277-289.

Ronen, T., Rahav, G., & Appel, N. (2003). Adolescent stress responses to a single acute stress and to continuous external stress: Terrorist attacks. *Journal of Loss and Trauma, 8,* 261-282.

Rubonis, A.V. & Bickman, L. (1991). Psychological impairment in the wake of disaster: The disaster psychopathology relationship. *Psychological Bulletin, 109(3),* 383-399.

Ruchkin, V. V., Schwab-Stone, M., Koposov, R., Vermeiren, R., & Steiner, H. (2002). Violence exposure, posttraumatic stress disorder, and personality in juvenile delinquents. *Journal of the American Academy of Child and Adolescent Psychiatry, 41,* 322-329.

Russoniello, C. V., Skalko, T. K., O'Brien, K., McGhee, S. A., Bingham-Alexander, D., Beatley, J. (2002). Childhood efforts to cope after Hurricane Floyd. *Behavioral Medicine, 28,* 61-71.

Saigh, P. A. (1987). In vitro flooding of an adolescent posttraumatic stress disorder. *Journal of Clinical Child Psychology, 16,* 147-150.

Saigh, P. A., Mroueh, M., Zimmerman, B. J., & Fairbank, J. A. (1995). Self efficacy expectations among traumatized adolescents. *Behavior Research and Therapy, 33(6),* 701-704.

Saigh, P. A., Yasik, A. E., Oberfield, R. A., Halamandaris, P. V., & McHugh, M. (2002). An analysis of the internalizing and externalizing behaviors of urban youth with and without PTSD. *Journal of Abnormal Psychology, 111(3),* 462-470.

Saigh, P. A., Yasik, A. E., Oberfield, R, O., & Halamandaris, P. (2007). Self-reported anger among traumatized children and adolescents. *Journal of Psychopathology and Behavioral Assessment, 29,* 29-37.

Salloum, A. & Overstreet, S. (2008). Evaluation of individual and group grief and trauma interventions for children post-disaster. *Journal of Clinical Child and Adolescent Psychiatry, 37(3),* 495-507.

Saltzman, W. R., Silverman, W. K., Brymer, M. J., Allen, A., Layne, C., Pynoos, R., & Steinberg, A. (2007). StArT: Strength after Trauma: A modular intervention for children and adolescent affected by hurricane. Los Angeles: National Child Traumatic Stress Network. Los Angeles: National Child Traumatic Stress Network.

Scheeringa, M. S., Salloum, A., Arnberger, R. A., Weems, C. F., Amaya-Jackson, L., Cohen, J. A. (2007). Feasibility and effectiveness of cognitive behavioral therapy for posttraumatic stress disorder in preschool children: Two case reports. *Journal of Traumatic Stress, 20(4),* 631-636.

Schwarzwald, J., Weisenberg, M., Waysman, M., Soloman, Z., & Klingman, A. (1993). Stress-reaction of school-aged children to the bombardment of SCUD missiles. *Journal of Abnormal Psychology, 102(3),* 404-410.

Servan-Scrieber, D., Le Lin, B., & Birmaher, B. (1998). Prevalence of posttraumatic stress disorder and major depressive disorder in Tibetan refugee children. *Journal of the American Academy of Child and Adolescent Psychiatry, 37(8),* 874-879.

Severson, H. H., Walker, H. M., Hope-Doolittle, J., Kratchowill, T. R., & Gresham, F.M. (2007). Proactive, early screening to detect behaviorally at risk students: Issues, approaches, emerging innovations and professional practices. *Journal of School Psychology, 45,* 193-223.

Silverman, W. K. & Albano, A. M. (1996). *The Anxiety Disorders Interview Schedule for DSM-IV-Child and Parent versions.* San Antonio, TX: Psychological Corporation.

Silverman, W. K., Fleisig, W., Rabian, B., & Peterson, B. R. (1991). Childhood anxiety sensitivity index. *Journal of Clinical Psychology, 20,* 162-168.

Silverman, W. K., Kurtines, W. M., Ginsburg, G. S., Weems, C. F., Lumpkin, P. W., & Carmichael, D. H. (1999a). Treating anxiety disorders in children with group cognitive-behavioral therapy: A randomized clinical trial. *Journal of Consulting and Clinical Psychology, 67*, 995-1003.

Silverman, W. K., Kurtines, W. M., Ginsburg, G. S., Weems, C. F., Rabian, B., & Serafini, L. (1999b). Contingency Management, Self-Control, and Education Support in the Treatment of Childhood Phobic Disorders: A Randomized Clinical Trial. *Journal of Consulting and Clinical Psychology, 67(5)*, 675-687.

Silverman, W. K., Oritz, C. D., Viswesvaran, C., Burns, B. J., Kolko, D. J., Putnam, F.W., & Amaya-Jackson, L. (2008). Evidence based treatments for children and adolescents exposed to traumatic events. *Journal of Clinical Child and Adolescent Psychology, 37(1),* 156-183.

Silverman, W. K., Pina, A. A., & Chockalingam, V. (2008). Evidence-based psychosocial treatments for phobic and anxiety disorders in children and adolescents. *Journal of Child & Adolescent Psychology, 37(1),* 105-135.

Silverman, W. K., Saavedra, L. M., & Pina A. A. (2001). Test-retest reliability of anxiety symptoms and diagnoses with the anxiety disorders interview schedule for the DSM-IV: Child and parent versions. *Journal of the Academy of Child and Adolescent Psychiatry, 40(8),* 937-944.

Smith, P., Perrin, S. & Yule, W. (1999). Cognitive behavior therapy for Posttraumatic Stress Disorder. *Child Psychology and Psychiatry Review, 4(4),* 177-182.

Stein, B. D., Jaycox, L. H., Kataoka, S., Rhodes, H. J., & Vestal, K. D. (2003). Prevalence of child and adolescent exposure to community violence. *Clinical Child and Family Psychology Review, 6,* 257-264.

Stein, B. D., Jaycox, L. H., Kataoka, S. H., Wong, M., Tu, W., Elliot, M. N., & Fink, A. (2003). A mental health intervention for schoolchildren exposed to violence: A randomized controlled trial. *Journal for the American Medical Association, 290 (5),* 603-611.

Stephan, S. H., Weist, M., Kataoka, S., Adelsheim, S. & Mills, C. (2007). Transformation of children's mental health services: The role of school mental health. *Psychiatric Services, 58(10),* 1330-1338.

Stormschak, E. A., Dishion, T. J., Light, J. & Yasui, M. (2005). Implementing family-centered interventions within the public middle school: Linking service delivery to change in student problem behavior. *Journal of Abnormal Child Psychology, 33(6),* 723-733.

Stuber, M. L., Nader, K. O. & Pynoos, R. S. (1997). The violence of despair: Consultation of a Headstart program following the Los Angeles uprising of 1992. *Community Mental Health Journal, 33(3),* 235-241.

Suvag, C., Kendall, P. C., Comer, J. S., & Robin, J. (2006). Emotion focused cognitive behavioral therapy for anxious youth: A multiple baseline evaluation. *Journal of Comtemporary Psychotherapy, 36,* 77-85.

Taylor, T. L. & Chemtob, C. M. (2004). Efficacy of treatment for child and adolescent traumatic stress. *Archives of Pediatrics & Adolescent Medicine, 158(8),* 786-791.

Taylor, L. K., Costa, N. M., Cannon, M. F., Adams, C. S., & Weems, C. F. (August, 2006). *Developing the Anxiety Control Questionnaire for Children (ACQ-C) Short* Form. Annual Convention of American Psychological Association, New Orleans, LA.

Thabet, A. A. M. & Vostanis, P. (1999). Posttraumatic stress reactions in children of war. *Journal of Child Psychology and Psychiatry, 40(3),* 385-392.

Thurber, S., Crow, L., Thurber, J. A., & Woffington, L. M. (1990). Cognitive distortions and depression in psychiatrically disturbed adolescent inpatients. *Journal of Clinical Psychology, 46(1),* 57-60.

Thurber, C. A. & Weisz, J. R. (1997). "You can try or you can just give up": The impact of perceived control and coping style on childhood homesickness. *Developmental Psychology, 33(3),* 508-517.

United Nations Children's Fund (1995). Zur situation der kinder welt, 1996. Frankfurt: Fisher TB.

Vander Stoep, A., McCauley, E., Thompson, K., Herting, J., Kuo, E., Stewart, D., et al. (2005, December). Universal emotional health screening at the middle school transition. *Journal of Emotional and Behavioral Disorders, 13*(4), 213-223.

Vernberg, E. M., LaGreca, A. M., Silverman, W. K., & Prinstein, M. J. (1996). Prediction of posttraumatic stress symptoms in children after Hurricane Andrew. *Journal of Abnormal Psychology, 105,* 237-248.

Weems, C. F., Berman, S. L., Silverman, W. K., & Saavedra, L. M. (2001). Cognitive errors in youth with anxiety disorders: The linkages between negative cognitive errors and anxious symptoms. *Cognitive Therapy and Research, 25(5),* 559-575.

Weems, C. F., Costa, N. M., Watts, S. E., Taylor, L. K., & Cannon, M. F. (2007). Cognitive errors, anxiety sensitivity, and anxiety control beliefs: Their unique associations with childhood anxiety symptoms. *Behavior Modification, 31(2),* 1-28.

Weems, C. F., Silverman, W. K., Rapee, R., & Pina, A. A. (2003). The role of control in childhood anxiety disorders. *Cognitive Therapy and Research, 27,* 557-268.

Weems, C. F. & Silverman, W. K. (2006). An integrative model of control: Implications for understanding emotion regulation and dysregulation in childhood anxiety. *Journal of Affective Disorders, 91,* 113-124.

Weems, C. F. & Overstreet, S. (2008). Child and adolescent mental health research in the context of Hurricane Katrina: An ecological-needs-based perspective and introduction to the special section. *Journal of Clinical Child and Adolescent Psychology, 37,* 487-494.

Weems, C. F., Taylor, L. K., Costa, N. M.., Marks, A. B., Romano, D. M., Verrett, S. L., & Brown, D.M. (2009). Effect of a school-based test anxiety intervention in ethnic minority youth exposed to Hurricane Katrina. *Journal of Applied Developmental Psychology, 30,* 218-226.

Weems, C. F., Watts, S. E., Marsee, M. A., Taylor, L. K., Costa, N. M., Cannon, M. F., Carrión, V. G., & Piña, A. A.(2007). The psychosocial impact of Hurricane Katrina: Contextual differences in psychological symptoms, social support, and discrimination. *Behaviour Research and Therapy, 45(10),* 2295-2306.

Widom, C. S. (1999). Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry, 156,* 1223-1229.

Yule, W., Bolton, D., Udwin, O., Boyle, S., O'Ryan, D., & Nurrish, J. (2000). The long term psychological effects of disaster experienced in adolescence: I. The incidence and course of posttraumatic stress disorder. *Journal of Child Psychology and Psychiatry, 41(4),* 503-511.

Appendix A. UNO IRB Approval for use of Human Subjects in Research

University Committee for the Protection of Human Subjects in Research
University of New Orleans

Campus Correspondence

Principal Investigator: Carl Weems

Co-Investigator: Leslie Taylor

Date: March 2, 2009

RE: "A School-based treatment for disaster exposed youth"

IRB#: 02Dec06

The IRB has deemed that the research and procedures described in the modifications to a previously approved protocol application received on 12/8/2006 are compliant with the University of New Orleans and federal guidelines. The modifications did not change the potential risks to the participants. The requested modifications have been approved.

Please remember that approval is only valid for one year from the original approval date. Any changes to the procedures or protocols must be reviewed and approved by the IRB prior to implementation.

If an adverse, unforeseen event occurs (e.g., physical, social, or emotional harm), you are required to inform the IRB as soon as possible after the event.

Best of luck with your project!
Sincerely,

Robert Laird, Chair
UNO Committee for the Protection of Human Subjects in Research

Appendix B. Description of Treatment Sessions

Session	Description
1	Greeting and introduction with child regarding treatment goals. Child assigned homework designed to track distressing, trauma-related reactions/behaviors that are most problematic. The therapist makes final comments and feedback, and re-confirms the date/time for next session.
2	Individual meeting with the child. After reviewing homework the therapist teaches the child a cognitive-behavioral conceptualization of anxiety, introducing **Show That I Can (STIC)** tasks (e.g., introduction to approaching feared situations, ranking how fearful situations are via feelings thermometer), introducing relaxation skills and how to identify things the child can do to reduce anxiety (e.g., read a book, play outside, go for a bike ride). For homework, the therapist assigns **STIC** tasks and use of relaxation techniques, and then re-confirms the date/time for next session.
3	Individual meeting with the child. The overarching goal of this session is to teach the child ways to cope with troubling, trauma-related thoughts. First, therapist reviews homework, then goes over trauma related safety issues and concerns via the **STOP** (you recognize you feel **Scared**, you look at the **Thoughts** that make you feel scared, you try to come up with **Other** thoughts, you **Praise** yourself**)**. **STOP** homework is assigned, and the therapist re-confirms the date/time for next session.
4	Individual meeting with the child. The overarching goal of this session is to enhance the child's coping skills. After reviewing **STOP** homework, the therapist introduces helpful vs. non-helpful coping strategies, the importance of approach behavior, and teaches cognitive restructuring techniques for handling stress. At the close of the session, the therapist reviews main points of the session and assigns use of new coping techniques as homework. The therapist re-confirms the date/time for next session.
5	Individual meeting with the child. The overarching goal of this session is to help the child identify personal reminders of the trauma. After reviewing homework, the therapist introduces and helps the child to define and discuss trauma and loss reminders. The child writes down reminders. The therapist discusses reminders with the child in the context of coping skills that will be helpful to the child when confronted by trauma and/or loss cues. For homework, the child is asked to anticipate a specific reminder and notice what coping behaviors are most helpful. The therapist re-confirms the date/time for next session.
6	Individual meeting with the child. The overarching goal of this session is to help the child begin to construct a trauma narrative. The therapist begins the session by troubleshooting the selection and use of coping skills relative to the homework assignment. Then, the therapist introduces trauma narrative construction. The narrative will focus on an event that the child directly witnessed, is causing a lot of distress/problems, is on the child's mind a lot, etc. The role of the therapist is to know when and how to increase and decrease the child's level of engagement during the

narrative (i.e., going fast vs. slow through some parts of the narrative, keeping the child grounded, and helping them relax when the process gets intense). During the session, the child constructs a timeline for the narrative that includes demarcation of event intensity. For homework, the child is asked to continue refining his/her personal repertoire of coping strategies for distressing reminders/situations that come up during the week. The therapist re-confirms the date/time for next session.

7 Individual session with the child. The overarching goal of this session is to over the narrative again, with the child experiencing less anxiety. The therapist explains that going over the narrative another time will help the child gain control of his/her memories, and during the narrative, the therapist identifies inaccurate or unhelpful thoughts expressed by the child and challenges them. The therapist helps the child work through the worst moments and keeps the child within a working range of anxiety by facilitating the use of grounding or relaxation techniques when/if needed. The child's homework is to practice their coping skills and keep track of any distressing experiences that occur prior to the next session.

8 Individual session with the child. The overarching goal of this session is to over the narrative again, with the child experiencing less anxiety. The role of the therapist is to identify supportive responses and help problem-solve any ongoing obstacles regarding the trauma. The therapist closes the session with a joint homework assignment for the parent and child. For this assignment, the parent and child are supposed to practice being supportive to each other in ways
identified as helpful during the meeting.

9 Individual session with the child. The overarching goal of this session is to help the child develop problem solving skills. First, the therapist begins by checking in with the child about how things have gone for them over the past week and asks how the homework went. Then, the therapist facilitates development of a problem list with the child by helping s/he identify and prioritize current problems. The therapist introduces the **ABC**s of problem solving (i.e., **Ask** if the problem belongs to you, **Brainstorm** many possible solutions, and **Choose** the best ones). The therapist also helps the child identify things on the list that *are not* a kid's responsibility to fix (e.g., parents arguing with relatives, parents not having enough money). Then, therapist identifies one or two problem situations the child may encounter during the next week. For homework, the child is asked to implement the problem solving model when problem situations occur.

10 Individual session with the child. The overarching goal of this session is for the therapist to introduce the concept of relapse prevention. The therapist begins the session by reviewing the child's the treatment experience and asking the child how their life has changed over the course of treatment different. Then, the therapist asks what challenges the child anticipates having in the next few months (e.g., anniversaries, holidays, hurricane season). The therapist helps the child create a list of challenging events that may occur in the next 6 months. Then, the therapist initiates a discussion with the child regarding effective ways of coping with these events. Upon completion of the list, the therapist introduces the concept of "slipping," (e.g., times when the child

may feel they have fall back to where they were pre-treatment) and how “slips” do not mean that the child is back where s/he started. When slips happen, the child should pick him/herself back up, try not to get frustrated and give up, and continue to make progress. At the close of the session, the therapist facilitates the goodbye process by reminding the child of all the positive changes they have made, and expresses their admiration for the child’s courage and hard work.

Appendix C: Treatment Fidelity Checklist

Session 1

- ✓ Greeting and Introduction about the program (to help kids who have had scary things happen to them).
- ✓ Assessment with child.
- ✓ Individual meeting with child. Therapist examines what types of PTSD symptoms the child endorses and lets the child know that they will be talk more about the symptoms over the next few weeks.
    - o Therapist explains the Tracking My Feelings & Reactions Handout.
    - o Therapist and child develop treatment goals by discussing how s/he would like his/her life to be different after the program.
- ✓ Therapist goes over homework handout "Tracking My Feelings and Reactions." Before the child leaves, the therapist initiates a brief discussion on events that may act as triggers and writes these on the handout.
- ✓ Therapist re-confirms session time for next week.

Session 2

- ✓ Therapist meets individually with child and discusses what has happened between meetings.
- ✓ Review of previous session
    - o Discussion of Tracking Feelings and Reactions Handouts.
    - o Discussion of any other anxiety/depression symptoms endorsed by the child during assessment process. Therapist provides brief psychoeducation about these symptoms and that ideally they should remit by the end of the program. If they don't though, the therapist will have additional sessions with the child or provide a referral list.
- ✓ Therapist introduces the cognitive-behavioral conceptualization of anxiety.
    - o Bodily reactions
    - o Thoughts
    - o Actions or Behaviors
    - o Therapist provides developmentally sensitive examples of anxiety provoking situations (e.g., if you were approached by a big bear) where these cognitive/behavioral reactions may occur and how they are normal
    - o Therapist tells the child that s/he will learn to and get better at handling their anxiety over the next few meetings.
- ✓ Therapist introduces STIC (Show That I Can Tasks).
- ✓ Therapist helps child recognize how much anxiety or fears relative to the trauma affect their lives using the feelings/fear thermometer.
- ✓ Therapist introduces muscle relaxation and abdominal breathing skills and how to cope with stress.
- ✓ Give 1st STIC task for homework (child practices relaxation skills and other options for handling stress until the next session).
- ✓ Therapist re-confirms session time for next week.

Session 3

- ✓ Therapist discusses with the child what has happened between meetings (i.e., talk about good/bad things and feelings/reactions that occurred in the last week).
- ✓ Review what happens when we are nervous (i.e., physical symptoms, actions thoughts).
- ✓ Review last week's STIC task and discuss the coping strategies that work for the child
- ✓ Therapist focuses on safety and security issues relative to the child's traumatic experience
    - o Therapist defines and discuss safety concerns in personally relevant terms
    - o Therapist lets child know that making safety preparations allows us to feel more safe and secure.
    - o Therapist provides psychoeducation about the trauma (e.g., go over a handout on hurricanes).
- ✓ Therapist teaches the child the STOP technique
    - o Therapist explains to the child that techniques can help him deal with troubling thoughts about the trauma (e. g., hurricane).
    - o Therapist introduces the cognitive components of the STOP technique
    - o Therapist introduces the idea of self-evaluation and explains the importance of praise
- ✓ Therapist reviews what was talked about (safety plans and STOP)
- ✓ Therapist assigns STOP homework and facilitates a discussion with the child on events during the upcoming where using STOP may help.
- ✓ Therapist re-confirms session time for next week.

Session 4

- ✓ Therapist discusses with the child what has happened between meetings (what has happened good and not so good/reactions and feelings).
- ✓ Therapist and child review material covered last week and therapist answers questions the child may have.
- ✓ Therapist reviews STOP homework.
    - o Therapist asks the child what STOP stands for
    - o Therapist and child discuss coping responses used in the past week and how STOP went
- ✓ Therapist introduces coping strategies and strategies that are constructive/helpful vs non-helpful strategies
    - o Therapist and child develop a list of constructive coping strategies
    - o Therapist and child create a list of "worry friends" or people the child can talk to when they are scared or worried about things
    - o Therapist and child develop a list of fun activities the child can do instead of worrying.
- ✓ Explain the importance of not avoiding and facing fears
- ✓ Therapist introduces cognitive restructuring techniques for handling stress
    - o *Is it possible* vs *is it likely* exercise
    - o *But what if…* exercise
- ✓ Therapist reviews new information covered during session
- ✓ Therapist gives homework assignment: Child is to practice coping strategies from list, practice relaxation and STOP exercises
- ✓ Therapist reconfirms next week's meeting

Session 5

- ✓ Therapist discusses with the child what has happened between meetings (what has happened good and not so good/reactions and feelings).

- ✓ Therapist uses the fear thermometer to assess current levels of anxiety
- ✓ Therapist and child review helpful vs non-helpful coping strategies covered last week, the homework assignment, and therapist answers questions the child may have.
- ✓ Therapist introduces this session's topic: Learning about things that remind them of traumas and things you can do to make yourself feel better.
    - o Therapist explains trauma and loss reminders in concrete terms, how they elicit PTS symptoms, and how loss symptoms elicit grief symptoms
    - o Therapist explains what types of things can trigger reminders (internal and external sources)
    - o Therapist has the child write down some personal reminders and rank how distressing they are to the child
    - o Therapist goes over missing and loss reminders and has the child write them down (optional)
- ✓ Therapist works with child to practice a coping skills exercise about reminders ranked most distressing.
- ✓ Therapist reviews main points of the session by asking the child what s/he remembers about the session and makes necessary clarifications
- ✓ Therapists gives homework assignment: the child is to try to anticipate specific reminders or situations that arise and notice which coping strategies make him feel better
- ✓ Therapist re-confirms session time for next week.

Session 6

- ✓ Therapist checks in with child about any feelings or reactions that came up during the last week.
- ✓ Therapist uses feelings thermometer to see what the child's "temperature" is. Therapist follows up by asking about any strong feelings and thoughts that might be tied to them
- ✓ Therapist reviews previous material on relaxation exercise and coping strategies and entertains any of the child's questions about these things.
- ✓ Therapist reviews previous homework assignment and helps the child troubleshoot their responses to situations that came about during the past week.
- ✓ Therapist introduces the idea of constructing a narrative beginning with what happened during and after the traumatic event
    - o Therapist describes the importance of creating a narrative in that it helps people gain a sense of control over what happened to them as well as make sense of what happened
    - o Therapist helps the child pick an event for narrative construction
- ✓ Therapist checks in with the child during narrative construction with the feelings thermometer to assess levels of discomfort.
    - o During narrative construction the therapist helps the child track events using a timeline (written story or drawing).
    - o Therapist increases/decreases engagement at appropriate points and helps the child draw a timeline.
    - o Therapist and child record child's distress levels for events profiled in the timeline.
- ✓ Therapist reviews and processes the narrative timeline with the child and makes sure that the timeline accurately reflects what happened.
- ✓ Therapist acknowledges the importance of the work done with the narrative and tells the child that sharing the information may result in s/he feeling more distressed than usual over the next few days, but that in the long run this will help him/her heal.
- ✓ Therapist assigns homework: child is to continue refining the personal repertoire of coping strategies for distressing reminders and situations that come up during the week.
- ✓ Therapist re-confirms session time for next week

Session 7

- ✓ Therapist checks in with child about any feelings or reactions that came up during the last week.
- ✓ Therapist uses feelings thermometer to see what the child's "temperature" is. Therapist follows up by asking about any strong feelings and probing the thoughts that might be tied to them.
- ✓ Therapist reviews previous material on relaxation exercises and coping strategies and entertains any of the child's questions about these things
- ✓ Therapist reviews previous homework assignment and helps the child troubleshoot their responses to situations that came about during the past week.
- ✓ Therapist helps the child troubleshoot the selection and use of coping skills. Therapist helps the child brainstorm new strategies if current ones are not effective.
- ✓ Therapist tells child they will be retelling the narrative and explains why they will be going back over the narrative.
- ✓ Therapist gets a thermometer reading from the child before beginning the narrative and assesses readings periodically during the narrative.
- ✓ Therapist has the child begin to retell the narrative focusing on worst moments and asks child what sensations, feelings, and thoughts they experienced during these moments.
- ✓ Therapist keeps the child in the working range of anxiety and increases or decreases intensity as appropriate.
- ✓ Therapist and child refer back to the timeline created in the previous session and add a column for distressing events that have happened in the past month.
- ✓ Therapist helps the child identify, challenge, and replace hurtful thoughts
- ✓ Therapist reviews the main points of the session.
- ✓ Therapist assigns homework: the child is to continue practicing coping skills and report back on situations that were problematic or distressing
- ✓ Therapist re-confirms session for next week.

Session 8

- ✓ Therapist welcomes child to the session and outlines session goals (to facilitate better understanding and support).
- ✓ Therapist role plays and reinforces supportive exchanges between the child and other people in their lives during the session (i.e., the people they were with during the storm).
- ✓ Therapist introduces the narrative task and provides child guidelines for sharing the narrative
    - o Therapist explains the importance of sharing the narrative, processing why people acting the way they did during the storm, and challenging hurtful thoughts that go along with the action of others.
    - o Therapist keeps child in the working range of anxiety through check-ins with the feelings thermometer.
- ✓ Therapist has child share their narrative and timeline first, then parent.
- ✓ Therapist then focuses on events that have occurred in the past 4-weeks in parent and child timelines and identifies relevance of these events to the child's post-traumatic reactions.
- ✓ During the narrative discussion, therapist identifies ways child can be more sensitive and supportive to other people in their lives and develop mutual understanding with them
- ✓ Therapist reviews main points of the session.
- ✓ Therapist assigns parent and child therapeutic homework: practicing being supportive of others in the specific ways identified in the meeting.
- ✓ Therapist re-confirms session for next week.

Session 9

- ✓ Therapist checks in with child about any feelings or reactions that came up during the last week.
- ✓ Therapist follows up by asking about any strong feelings and probing the thoughts that might be tied to them.
- ✓ Therapist discusses last week's homework with the child and asks practicing supportive activities worked at home.
- ✓ Therapist discusses the importance of this session: identifying and prioritizing current problems
    - o The therapist starts with the narrative timeline of the last 4 weeks and asks how upsetting they are (as noted by the drawing). The therapist uses the timeline as a platform to add new problems or more pressing problems for the child
    - o The therapist probes child about problems (how often do they happen, who is involved, how do they make you feel in terms of "temperature" and how does it impact them).
    - o Therapist writes the simplified version of each problem on a note card and has the child put them in rank order and prioritize them.
- ✓ Therapist introduces the ABCs of problem solving and explains that some problems belong to the child while others belong to parents, teachers, friends etc.
- ✓ Therapist explains the ABCs and uses one of the problems presented by the child as an example of how to use the ABCs
    - o Therapist and child practice assessing whose problem it is to fix and therapist helps the child understand incorrect classifications
    - o Therapist helps the child brainstorm several possible solutions for problems by making columns for solutions and consequences of actions
    - o Therapist helps the child choose the best solution based on what would probably happen if they put the solution into action and therapist and child explore "upsides" and "downsides" of decisions
- ✓ Therapist reviews main points of the session.
- ✓ Therapist identifies one or two problems that the child may encounter in the next week and tells the child to use the ABCs and report back how it went for next session.
- ✓ Therapist reconfirms next session.

Session 10

- ✓ Therapist checks in with the child about any feelings or reactions that came up during the last week.
- ✓ Therapist and child discuss how the homework assignment went and therapist helps child troubleshoot the assignment.
- ✓ Therapist and child move onto the current session's agenda. Therapist reviews the treatment experience with the child by asking the child how their lives are they are different now vs before treatment.
- ✓ Therapist focuses the discussion on the child's accomplishments during the interventions
- ✓ Therapist asks the client to talk about upcoming events that may be challenging in their lives (e.g., birthday, holidays, storm season)
- ✓ Therapist helps the child plan for difficult days
    - o The therapist explains the importance of being aware of difficult days ahead so they can prepare for them
    - o Therapist helps child come up with ways to prepare as part of Anticipating Difficult Days Exercise

- ✓ Therapist introduces child to the concept of slipping and bouncing back if you slip
- ✓ Therapist initiates the goodbye process by sharing her perceptions of the positive changes the child has made during the program and emphasizes her respect and admiration for the child's hard work.
- ✓ Therapist touches base with the child and asks how they are feeling, makes any final comments, and closes the session.

Vita

Leslie K. Taylor is from beautiful Greenville, S.C. and earned her B.S. from the University of Georgia in 2002. She holds a masters degree from the University of New Orleans.