This study evaluated the differential effects of the Grief and Trauma Intervention (GTI) with coping skills and trauma narrative processing (CN) and coping skills only (C). Seventy African American children (6–12 years old) were randomly assigned to GTI-CN or GTI-C. Both treatments consisted of a manualized 11-session intervention and a parent meeting. Measures of trauma exposure, posttraumatic stress symptoms, depression, traumatic grief, global distress, social support, and parent reported behavioral problems were administered at pre, post, 3 and 12 months post intervention. In general, children in both treatment groups demonstrated significant improvements in distress related symptoms and social support, which, with the exception of externalizing symptoms for GTI-C, were maintained up to 12 months post intervention. Results suggest that building coping skills without the structured trauma narrative may be a viable intervention to achieve symptom relief in children experiencing trauma-related distress. However, it may be that highly distressed children experience more symptom relief with coping skills plus narrative processing than with coping skills alone. More research on the differential effects of coping skills and trauma narration on child distress and adaptive functioning outcomes is needed.
exposure and post-disaster stressors (Prinstein et al., 1996). Despite the fact that social support is important in post-disaster recovery (e.g. La Greca et al., 2010), and that a key element of group treatment is building cohesion and support among participants (Yalom, 2005), there are no studies to date that examine social support as a post-disaster treatment outcome. In addition to being a group treatment model, GTI specifically targets reconnecting to others as a coping strategy, making social support an important treatment outcome to study.

Second, we compared the traditional GTI model that includes a structured trauma and loss narrative exposure component to a GTI model that focuses exclusively on grief and trauma coping skills. Developing a trauma narrative as well as cognitively activating fear structures and confronting trauma reminders activates, disconfirming and confronting fear structures are addressed by exposure techniques, trauma processing and the construction of a trauma narrative (Rauch & Foa, 2006). Most evidence-based CBT treatments for childhood PTSD utilize the construction of a trauma narrative (Amaya-Jackson & DeRosa, 2007) and exposure-based CBT models are highly recommended for adults and children after trauma (Foa, Keane, Friedman, & Cohen, 2009). However, there are challenges to implementing these protocols. First, implementation requires intensive training, adaptations and ongoing supervision whether in post-disaster (e.g. CATS Consortium, 2007) or non-disaster environments (Jensen-Doss, Cusack, & de Arellano, 2008). Second, there are a limited number of trained clinicians in evidence-based CBT practices to meet treatment needs (Becker, Zayfert, & Anderson, 2004). Third, exposure techniques are often not the preferred method of clinicians (Becker et al., 2004; Jensen-Doss et al., 2008; Minnen, Hendricks, & Olff, 2011; Sprang, Craig, & Clark, 2008).

Given these challenges, researchers have begun to explore skill-based interventions versus trauma-focused interventions for children. For example, Layne et al. (2008) conducted a randomized study following the Bosnian war that compared a universal classroom-based psychoeducation and skill-building intervention to the universal curriculum plus a trauma and grief group intervention. Results suggested that although a skill-based curriculum can be effective in reducing PTSD and depression symptoms, trauma and loss focused processing may be necessary for bereaved adolescents. However, it is also possible that the additional therapy sessions, and not the trauma-focused nature of the sessions, contributed to the greater improvements among adolescents who received both treatment components. In another study, Deblinger, Mannarino, Cohen, Runyon, and Steer (2010) randomized 210 children (4–11 years old) who were sexually abused into four TF-CBT groups: 1 & 2) 8 weeks with and without a trauma narrative; 3 & 4) 16 weeks with and without a trauma narrative. Results suggested that TF-CBT was effective with or without the trauma narrative, regardless of the number of sessions, in improving affective and behavioral functioning, child safety skills and parenting. However, the nature of the treatment did differentially impact specific outcomes. For example, focusing on the trauma narrative resulted in less fear and anxiety for children and less abuse-related distress for parents; focusing more on skill-building resulted in more improved parenting skills and externalizing behaviors, especially when more sessions were provided (Deblinger et al., 2010). Given the mixed findings of these studies, further research on trauma-focused treatments with and without trauma exposure methods is warranted.

The present study contributes to the knowledge about the utility of the trauma narrative for children with posttraumatic stress and traumatic grief. Building on our earlier study of GTI for children four months after Hurricane Katrina (Salloum & Overstreet, 2008), GTI was delivered with and without the narrative processing of traumatic events and losses (see Fig. 1). In addition, we sought to explore the impact of GTI on indicators of distress as well as perceived social support. The purpose of this study was to 1) examine the differential effects of GTI with coping skills plus trauma narrative processing to GTI with only coping skills on distress, behavior, social support, and treatment satisfaction over time, and 2) to determine if treatment gains in both conditions were maintained at 3 and 12 months post intervention.

### Method

#### Setting

This school-based mental health treatment study occurred three years post Hurricane Katrina (August 2008 to April 2009) in four elementary schools in New Orleans, LA. Parental consent forms were sent home with the children. Immediately after the consent forms were sent home, the approach of Hurricane Gustav resulted in a mandatory evacuation of New Orleans and a week-long closure of schools. Due to the disruption, parental consent forms were redistributed and additional evaluators were included in order to screen all of the children. This study was approved by the University of South Florida Institutional Review Board.

#### Participants

Congruent with community practice and to increase the generalizability of the intervention, participation was open to children who experienced different types of potentially traumatic events, including violence exposure (primarily community violence), hurricane-related exposure, and death (any cause). Inclusion criteria included: (1) parental consent and child assent; (2) enrolled in 2nd through 6th grade; (2) exposure to violence, hurricane-related stressors, or death; and 3) a moderate level of PTSD symptoms indicated by a score of 25 or above on the UCLA-PTSD index (Pynoos, Rodriquez, Steinberg, Stuber, & Frederick, 1998). Exclusion criteria included: 1) suicidal ideation (screened by the Mood and Feelings Questionnaire — Child Version (Angold & Costello, 1987), and 2) not clinically appropriate for group participation as determined by the evaluator. Because it is typical for children to receive services intermittently from school counselors or other health professionals, especially after they have been identified for services, children who received such services were not excluded from the study. Randomization resulted in equal proportions of children in each treatment group who had seen a mental health professional over the course of the study (GTI-CN: n = 1, 6, & 7; GTI-C: n = 0, 3, & 8, pre, 3 and 12 month, respectively). A total of 587 consent forms were sent home to parents and 131 (22.3%) consent forms were returned by the children. This return rate is consistent with other post-disaster studies (Pullins, McCammon, Lamson, Wuesch, & Mega, 2005; Salloum & Overstreet, 2008). Of the 131 children assessed, 72 (54.96%) children met the enrollment criteria. Using Excel randomization, child participants within each school were randomly assigned to either GTI with coping skills and trauma and loss narrative (GTI-CN) or GTI with coping skills only (GTI-C). There were four sibling sets.
representing 8 children who participated in the intervention. The procedure was to randomize siblings as one unit. For one sibling set, the two children were not identified as siblings and were assigned to separate conditions. All mixed model repeated measures analysis of variance were conducted with and without these two children with all outcome variables. No differences in results were found, therefore, the two siblings were included in the analyses. Since the majority of the sample was comprised of African American children (n = 70), the two Hispanic children were not included in the analyses.

Demographic information and child reported hurricane and death exposure are reported in Tables 1 and 2. Children ranged in age from 6 to 12 years (M = 9.6, SD = 1.52).

**Design and research procedures**

Children were randomly assigned to two groups: 1) GTI with coping skills and narrative construction (GTI-CN) and 2) GTI with coping skills (GTI-C). For this study, pre, post, 3 month and 12 month follow-up assessments are reported.

The pre-treatment evaluators also provided the treatment; however, at pre-treatment both the evaluator and child were blind to treatment condition. Twelve evaluators (ten master level social workers and two master of social work interns from a community-based mental health agency) conducted the child evaluations at pre-treatment. Assignment was based on the evaluator’s availability and all child evaluations occurred at school. Evaluators obtained child assent and conducted individual evaluations with each child, which took approximately 45 min. These twelve evaluators, along with one school psychology doctoral student, also conducted the GTI interventions. Once random assignment was completed, group facilitators had access to pre-treatment assessment information to inform treatment. All of the child follow-up assessments (post-treatment, 3 months, 12 months) were conducted by four school psychology doctoral students who were blind to treatment. Children were provided with school supplies (e.g. stickers, pencils) for participation in the assessments.

The parent assessments were conducted by six of the child pre-treatment evaluators and an additional two master level social workers. Parent assessments occurred at the parent’s home,
The 3 month parent interviews occurred in March 2009 and the 12 month parent interviews occurred in December 2009. Parents were compensated $50.00 per assessment. Assignment to parent evaluations was based on evaluator availability. However, no parent evaluator provided intervention to the parent’s child. Training to all evaluators was provided by the authors, and occurred prior to each evaluation time period.

If enrollment criteria were not met, the child evaluators contacted the parent to discuss the assessment, non-participation, and other referrals, as appropriate. If enrollment criteria were met, the child’s name was entered into an Excel database for random assignment to treatment condition. The agency assigned treating clinicians to conditions, with the requirement that the two groups of clinicians have similar practice experience.

**Measures**

**Exposure to potentially traumatic events**

There were three measures of exposure. 1) Community violence was assessed by 6-items from the *Things I Have Seen and Heard* survey: heard guns being shot; seen somebody being beat up; seen somebody get stabbed; seen somebody get shot; seen a dead body outside or in home; and seen somebody in home get shot or stabbed. Children indicated the frequency (none = 0 to many times = 4) of exposure in real life (Richters & Martinez, 1993). 2) Hurricane exposure was assessed by a 14 item scale (see Table 2) with a response format of yes or no. Development of this scale is described elsewhere (Salloum et al., 2010). 3) To assess if the child had someone close die, the following item with a response of yes or no was administered: “I have had a family member or someone close to me die.”

**Posttraumatic stress symptoms**

The UCLA Posttraumatic Stress Disorder Index for DSM-IV (UCLA-PTSD Index; Pynoos et al., 1998), a 22-item, self-report, Likert scale with a frequency range from “none” (0) to “most of the time” (4) was used to measure posttraumatic stress symptoms. Convergent validity (.70) with a similar instrument and Cronbach’s alpha in the range of .90 have been reported (Steinberg et al., 2004). Total scores were used as a dependent variable (α = .90) and ranged from 0 to 88. To determine clinically significant symptoms, a clinical cutoff score of 38, based on the total score of 17 items that correspond with the DSM-IV PTSD symptom criteria, was used (Steinberg et al., 2004).

**Depression symptoms**

The Mood and Feelings Questionnaire-Child Version (MFQ-C; Angold & Costello, 1987) 33-item measure was used to assess depression symptoms during the past two weeks with a response format of true (scored 1) or false (scored 0) (Angold & Costello, 1987). The MFQ-C has shown good criterion validity and good reliability (α = .81) and a clinical cutoff score of 29 or higher (David et al., 2006) was used to estimate the percentage of children presenting with clinically significant depressive symptoms.

**Traumatic grief**

The 23-item traumatic grief subscale of the Extended Grief Inventory was used to assess children’s traumatic grief reactions.

### Table 1
Child demographics (N = 70) and death information (N = 67) by treatment condition.

<table>
<thead>
<tr>
<th>Gender</th>
<th>GTI-NC n = 39</th>
<th>GTI-CC n = 33</th>
<th>Total n = 72</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>18</td>
<td>21</td>
<td>39</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>12</td>
<td>31</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Third</td>
<td>10</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>Fourth</td>
<td>11</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Fifth</td>
<td>8</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>Sixth</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Family income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>7</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>$10,000 to $24,999</td>
<td>19</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>$25,000 to $49,999</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[blank]</td>
<td>17</td>
<td>20</td>
<td>37</td>
</tr>
</tbody>
</table>

Note: Two Hispanic children, who were both in GTI-CN, were omitted from the results. The entire sample of children was African American. Information about annual household income and employment was available from 60 (86%) of the child participants.

### Table 2
Child reported exposure to Hurricane Katrina and Hurricane Gustav (N = 70).

<table>
<thead>
<tr>
<th>Exposure type</th>
<th>Katrina % (n)</th>
<th>Gustav % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felt bad/upset when thought about everything</td>
<td>64 (91.4)</td>
<td>37 (52.9)</td>
</tr>
<tr>
<td>Scared self or family might get hurt or die</td>
<td>54 (77.1)</td>
<td>44 (62.9)</td>
</tr>
<tr>
<td>Lost belongings like toys and clothes</td>
<td>51 (72.9)</td>
<td>12 (17.1)</td>
</tr>
<tr>
<td>Home was damaged due to Hurricane</td>
<td>51 (72.9)</td>
<td>20 (28.6)</td>
</tr>
<tr>
<td>Could not live in house due to damage</td>
<td>42 (60.0)</td>
<td>10 (14.3)</td>
</tr>
<tr>
<td>Still cannot live in house due to damage</td>
<td>20 (28.6)</td>
<td>7 (10.0)</td>
</tr>
<tr>
<td>Had to live in a house with no electricity</td>
<td>27 (38.6)</td>
<td>18 (25.7)</td>
</tr>
<tr>
<td>Pet was lost or died due to Hurricane</td>
<td>22 (31.4)</td>
<td>4 (5.7)</td>
</tr>
<tr>
<td>Had to go through flood waters to escape</td>
<td>14 (20.0)</td>
<td>0</td>
</tr>
<tr>
<td>Stayed in shelter during Hurricane</td>
<td>16 (22.9)</td>
<td>11 (15.7)</td>
</tr>
<tr>
<td>Had a family member/friend die/still missing</td>
<td>15 (21.4)</td>
<td>0</td>
</tr>
<tr>
<td>Stayed in the superdome/convention center</td>
<td>12 (17.1)</td>
<td>0</td>
</tr>
<tr>
<td>Had to get out by boat or helicopter</td>
<td>13 (18.6)</td>
<td>0</td>
</tr>
<tr>
<td>Trapped in house or attic during or after Hurricane</td>
<td>13 (18.6)</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: One child did not answer 4 Hurricane Katrina items.
Global distress

A 1-item measure of distress (Salloum & Overstreet, 2008) was administered to assess participants’ perception of their general level of distress during the past month. The item stated “how distressed (i.e. upset, mad, stressed, sad, or irritable) have you been in the past month as a result of [trauma and losses]?” Consistent with the response format for the UCLA-PTSD Index (Pynoos et al., 1998), a 5-response Likert format of none, a little, some, much of the time, and most of the time was used.

Multidimensional scale of perceived social support

The MSPSS (Canty-Michell & Zimet, 2000; Zimet, Dahlem, Zimet, & Farley, 1988) is a 12-item self-report multidimensional measure of perceived social support from family, friends and significant others. With a sample of majority urban African American adolescents, a Cronbach’s alpha of .93 has been found (Canty-Michell & Zimet, 2000). For the present study we adapted the 7 point Likert scale to a 5 point Likert scale (e.g. A lot disagree = 1 to A lot agree = 5) to be consistent with the other measures and used the total score of perceived social support as a dependent variable. The total score ranged from 12 to 60 (α = .74).

Child behavior checklist

The CBCL for children ages 6 to 18 (Achenbach & Rescorla, 2001) was used to measure internalizing and externalizing behavior problems. The internalizing (α = .79) and externalizing behavior scores (α = .87) were used as dependent variables. A T-score above 63 for internalizing and externalizing problem behaviors was used to indicate clinically significant symptoms (Achenbach & Rescorla, 2001).

Treatment satisfaction and child treatment fidelity

Four items to assess the level of success in achieving the stated goals and to assess the child’s perception of the intervention were administered (Salloum & Overstreet, 2008). Post intervention, children rated on a Likert scale (None = 0; A little = 1; Some = 2; A Lot = 3; A Whole Lot = 4) the following statements: 1) I learned more about grief and trauma reactions; 2) I expressed my thoughts and feelings about what happened; 3) I learned ways to cope when I feel upset, sad, angry, and/or stressed; and 4) Overall, how helpful was counseling for you. Item 2, about expressions related to the trauma and/or loss, and item 3, about coping, were also used to test for the child’s rating of treatment fidelity. For example, children in GTI-CN should rate item 2 higher than children in GTI-C and children in GTI-C should rate item 3 higher than children in GTI-CN.

Treatment

Both and GTI-CN and GTI-C were manualized. 10 week interventions consisting of 10 group sessions, 1 individual session and 1 parent session. Fig. 1 presents a detailed description of the content covered in each session for each treatment group. All group and individual child sessions (50 min to an hour) were held at school. Parent meetings occurred at home, school or at a convenient location for the parent, and primarily consisted of psychoeducation.

GTI-CN

GTI-CN was originally developed for children who had someone close murdered and/or children who witnessed community violence (Salloum, 2008) and has been described in detail elsewhere (see Salloum et al., 2009; Salloum & Overstreet, 2008). Techniques from CBT and narrative therapy were provided within a framework of three overlapping phases: 1) resilience and safety; 2) restorative retelling; 3) and reconnecting (Herman, 1997; Rynearson, 2001). The restorative retelling phase consisted of a process whereby children told their stories about the traumatic event(s) and/or losses by following a systematic process labeled DDWW. This structured process was utilized in all 10 group sessions and the individual session. Children were given topics and asked to draw (D) the imagery associated with the topic, then discuss (D) the imagery or story individually with the group facilitator who engaged the child in a dialog to help the child understand and “own” their story. The group facilitator then wrote (W) the child’s story in each session after the drawing and discussion occurred. Afterward, the child shared his or her story with the other group members who served as witnesses (W). The discussion about the worst moment was conducted in the individual session so that the facilitator could provide one-on-one attention to the child and in order to protect other children from being empathically vicariously to graphic material or images. At the end of the treatment, outside of the group, children were instructed to share their stories, which were compiled in a book called My Story, with a caring adult who they identify prior to treatment ending.

GTI-C

GTI-C consisted of all of the same skills and topics of resilience and safety and reconnection as described in GTI-CN, except for connection with the positive memories of the deceased, and the restorative retelling topics were not addressed (see Fig. 1). Reinforcing coping skills included activities such as making coping puppets and role-playing using coping skills, and creating coping collages. Similar to GTI-CN, children created a book throughout treatment, but for GTI-C, the book, entitled My Coping Book focused on coping. Children were instructed to share their coping books with a caring adult who they identify prior to treatment ending.

Allowing the child to share My Story or My Coping Book at the completion of the group provides the child an opportunity to connect with their supportive person in the natural environment and to share their story again and/or to review and practice their coping skills with the supportive person. The facilitators repeatedly reminded children who they identified as their supportive person(s) and encouraged them to talk to those individuals about their thoughts and feelings. Due to logistical concerns, it was not a goal of treatment to have parents or other identified supportive persons to come in to review the book with the facilitator monitoring the process.

Supervision and fidelity monitoring

The first author provided a two-day, 9 h training to all clinicians about study protocol procedures, theoretical rationale of treatments, group development theory, and self care. Clinicians also attended a separate 3 h training where the treatment manuals they would be using were reviewed. GTI-CN clinicians role-played helping children tell their narratives about what traumatic events and/or losses occurred. GTI-C clinicians role-played ways to focus on coping if a child began to talk about traumatic events and/or losses. Seven techniques were used to redirect children to focus on coping rather than telling their traumatic story, including using non-verbal responses, matching or reflecting, paraphrasing, empathic responding, being authentic and thanking the child for
sharing, encouraging coping by asking “what can you do now to try and feel better?” and not using any probing questions.

The GTI-CN and GTI-C clinicians were supervised separately twice a week. The first meeting (about 45 min) was led by the first author and clinicians reviewed the session content that was to be provided that week. The second meeting was facilitated by an independent clinical consultant (1 h) and clinicians discussed what occurred in sessions and problem-solved about any clinical issues that emerged. The first author monitored these clinical meetings to ensure that the treatments were delivered as intended.

The GTI-CN and GTI-C clinicians completed a fidelity checklist for each child after each session indicating if the specific tasks for that session were addressed. There were 43 and 39 topics on the fidelity checklist for the GTI-CN and GTI-C groups, respectively. For all treatment sessions, 95.69% and 97.12% of the topics were addressed, GTI-CN and GTI-C respectively.

Sessions attended and attrition

The mean number of sessions attended was 10.61 (SD = .70). There was no statistical difference between the number of sessions attended between conditions. The percentage of parent meetings between conditions was also similar (84% = GTI-CN; 85% = GTI-C).

Fig. 2 illustrates the number of assessments completed and cases lost to follow-up. The total attrition rate from pre-intervention to one year later was 8.57% (n = 6). The Mann–Whitney test for independent samples indicated that there were no differences in the pre-test outcome measures or exposure between children who completed all four assessments (n = 64) and children who did not (n = 6). Chi-square tests indicated no difference between completion status and death exposure, gender, parent employment or income level.

Statistical analyses

Missing data was negligible. There were 6 missing items (<.01%), including one CBCL item, four hurricane exposure items, and one distress item. Given the very small amount of missing data, as well as the nature of the missing data, mean substitution (CBCL) or deletion of the case (global distress item) was used rather than use of an estimation technique to replace missing data (Tabachnick & Fidell, 2001). Cases without complete

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**Note.** Caregiver assessments were completed at baseline (GTI-CN = 31 GTI-C = 28), 3 month (GTI-CN = 30, GTI-C = 26) and 12 month GTI-CN = 31, GTI-C = 26). The total CBCL completed at all three assessments was 49 (GTI=28, GTI-C = 21). CBCL assessments not completed were due to difficulty contacting parents to schedule an assessment.

**Fig. 2.** Study flowchart (CONSORT Flowchart).
data at all time points (n = 6) were excluded listwise for each primary and secondary outcome analysis. An intent-to-treat analysis was conducted using last-observation-carried-forward for missing data on the post and follow-up assessments for the outcome measures.

Chi-square tests for independence for nominal level data and independent t-tests for ratio level data revealed no significant differences between treatment conditions for demographics (age, gender, family income), trauma exposure (Katrina, Gustav and violence exposure) or outcome variables. Means and standard deviations for each dependent variable for each condition at each time point are presented in Table 3. Independent t-tests between conditions and dependent variables did not indicate significant differences pre assessment. Sixty four child participants completed all assessments (see Fig. 2), although for the traumatic grief measure, sixty one completed all assessments since not all children reported a death, and 49 (70%) parents completed all three assessments.

SPSS 19.00 was used for all statistical procedures. For the primary (PTSD) and secondary outcome measures (MFQ, UCLA-GR, Global distress, MSPSS and CBCL), a 2 x 4 (2 groups: GTI-CN and GTI-C x time: pre-treatment, post-treatment and 3 and 12 month follow-up) mixed model analysis of variance (ANOVA) repeated measures, using the Greenhouse-Geisser correction, was conducted to examine the main effects of time and treatment condition and the interaction of time x treatment condition. A repeated measures ANOVA was also conducted with age (younger children = ages 7–9 and older children = ages 10–12) by time for all outcome measures to rule out developmental differences in response to treatment. To assess level of treatment satisfaction and differences in treatment satisfaction at post-treatment between the two conditions, four independent t-tests were conducted for each indicator of treatment satisfaction at post-test. Due to the small sample size for this exploratory study, we did not correct for Type I error for the eight outcome variables and treatment satisfaction. However, for the numerous post-hoc t-test analyses, the Bonferroni correction (p ≤ .05/21 = .002) was applied. Trends toward significance were reported.

Effect sizes (d) were calculated by subtracting the pre-treatment mean from the post-treatment or follow-up mean and dividing the difference by the pooled standard deviation (Dunlap, Cortina, Vaslow, & Burke, 1996). The McNemar test was used to compare the percentage of participants who exceeded the clinical cutoff on the PTSD, depression, and child behavior measures from pre to post-treatment, 3 month and 12 month follow-up. The reliable change index (RCI) was also calculated using Cronbach α and pooled pre-test standard deviations for the variable of interest, p < .05 (Lunnen & Ogles, 1998).

**Results**

**Descriptive analyses**

Table 2 presents children’s reports about exposure to hurricanes Katrina and Gustav. All of the children endorsed some type of exposure to each hurricane. Sixty seven children (95.7%) reported that they had had someone close to them die (n = 35 GTI-CN; n = 32 GTI-C) (see Table 1). The majority of the children reported seeing someone get beat up (84.3%) and hearing gunshots (77.1%). In addition, 40% reported having seen someone get shot, 31.4% reported having seen a dead body outside or in their house, 18.6% reported having seen somebody get stabbed, and 7.1% having seen somebody in their home shot or stabbed. For the majority of these children, exposure to community violence (ECV) was chronic. For example, 51.5% reported exposure to three or more different types of violent events. Further, 95.7% of the children reported experiencing exposure to Hurricanes Katrina and Gustav, community violence, and having someone close die. While the vast majority had been exposed to several types of events, the index traumas identified by the children were as follows: 40 (57%) death, 14 (20%) hurricane, 13 (19%) violence and 3 (4%) other loss or illness.

**Primary outcome**

There was a significant main effect of time on PTSD scores (F(3,186) = 36.78, p < .001), indicating that the entire sample showed a change in PTSD scores over time. Post-hoc analyses indicated significant decreases from pre-treatment to post-treatment (t(63) = 6.64, p < .001, d = 1.11), to 3 month (t(63) = 7.00, p < .001, d = 1.22), and to 12 month follow-up (t(63) = 9.35, p < .001, d = 1.68) suggesting that initial improvements were maintained over time. The interaction between time and treatment condition was not significant. Based on the reliable change index (RCI), there was reliable symptom improvement for both groups; in the GTI-CN condition, from pre-treatment to 12 month follow-up,

<table>
<thead>
<tr>
<th>Scale</th>
<th>Pre-treatment</th>
<th>Post-treatment</th>
<th>3 Mo FU</th>
<th>12 Mo FU</th>
<th>ES*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>GRI-CN</td>
</tr>
<tr>
<td>PTSD</td>
<td>46.82 (13.00)</td>
<td>42.80 (10.77)</td>
<td>31.18 (16.30)</td>
<td>27.57 (14.80)</td>
<td>29.88 (15.10)</td>
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<tr>
<td>MFQ</td>
<td>27.62 (10.18)</td>
<td>22.83 (8.65)</td>
<td>18.50 (9.81)</td>
<td>13.83 (9.56)</td>
<td>14.83 (10.18)</td>
</tr>
<tr>
<td>EGI</td>
<td>53.03 (17.75)</td>
<td>46.00 (21.83)</td>
<td>36.13 (18.90)</td>
<td>29.31 (20.73)</td>
<td>33.41 (19.11)</td>
</tr>
<tr>
<td>GD</td>
<td>2.71 (1.32)</td>
<td>2.72 (1.13)</td>
<td>1.91 (1.36)</td>
<td>1.69 (1.26)</td>
<td>1.35 (1.51)</td>
</tr>
<tr>
<td>PSS</td>
<td>48.03 (8.48)</td>
<td>45.53 (6.88)</td>
<td>47.68 (8.50)</td>
<td>48.23 (8.01)</td>
<td>50.76 (5.45)</td>
</tr>
<tr>
<td>Int</td>
<td>9.50 (7.33)</td>
<td>8.76 (5.69)</td>
<td>–</td>
<td>–</td>
<td>7.50 (6.67)</td>
</tr>
<tr>
<td>Ext</td>
<td>12.39 (7.49)</td>
<td>10.05 (8.73)</td>
<td>–</td>
<td>–</td>
<td>13.36 (9.56)</td>
</tr>
</tbody>
</table>

* PTSD = UCLA-PTSD Index.

**Table 2** presents children’s reports about exposure to hurricanes Katrina and Gustav. All of the children endorsed some type of exposure to each hurricane. Sixty seven children (95.7%) reported that they had had someone close to them die (n = 35 GTI-CN; n = 32 GTI-C) (63). The majority of the children reported seeing someone get beat up (84.3%) and hearing gunshots (77.1%). In addition, 40% reported having seen someone get shot, 31.4% reported having seen a dead body outside or in their house, 18.6% reported having seen somebody get stabbed, and 7.1% having seen somebody in their home shot or stabbed. For the majority of these children, exposure to community violence (ECV) was chronic. For example, 51.5% reported exposure to three or more different types of violent events. Further, 95.7% of the children reported experiencing exposure to Hurricanes Katrina and Gustav, community violence, and having someone close die. While the vast majority had been exposed to several types of events, the index traumas identified by the children were as follows: 40 (57%) death, 14 (20%) hurricane, 13 (19%) violence and 3 (4%) other loss or illness.

**Primary outcome**

There was a significant main effect of time on PTSD scores (F(3,186) = 36.78, p < .001), indicating that the entire sample showed a change in PTSD scores over time. Post-hoc analyses indicated significant decreases from pre-treatment to post-treatment (t(63) = 6.64, p < .001, d = 1.11), to 3 month (t(63) = 7.00, p < .001, d = 1.22), and to 12 month follow-up (t(63) = 9.35, p < .001, d = 1.68) suggesting that initial improvements were maintained over time. The interaction between time and treatment condition was not significant. Based on the reliable change index (RCI), there was reliable symptom improvement for both groups; in the GTI-CN condition, from pre-treatment to 12 month follow-up,
70.59% (n = 24) of children improved and 2.94% (n = 1) deteriorated and in the GTI-C condition, 60% (n = 18) improved and 3.33% (n = 1) deteriorated. Chi-square test did not indicate a significant association between condition and improvement status. Consistent with these findings, 88.89% of children in the GTI-CN condition no longer reported clinically significant PTSD symptoms (e.g. a score of 38 or higher on the UCLA-PTSD Index) at 12 month follow-up (p < .001; 18 children were above the cutoff score at pre-treatment, whereas only 2 children were above the cutoff score at follow-up). In the GTI-CN condition, 76.92% of children no longer reported clinically significant PTSD symptoms at 12 month follow-up (p < .016; 13 children were above the cutoff score at pre-treatment, whereas only 3 children were above the cutoff score at follow-up).

Secondary outcomes

There was a significant main effect of time on mean depression scores (F(3,186) = 30.83, p < .001). Follow-up analyses indicated significant decreases from pre- to post-treatment (τ(63) = 6.11, p = .001, d = .96), to 3 month (τ(63) = 5.81, p < .001, d = .86) and to 12 month follow-up (τ(63) = 8.12, p < .001, d = 1.26), suggesting that initial improvements were maintained over time. There was not a significant time x treatment interaction for depression. The RCI indicated reliable symptom improvement; from pre-treatment to 12 month follow-up, 52.9% (n = 18) improved and 0% deteriorated in GTI-CN and 43.33% (n = 13) improved in GTI-C and 3.33% (n = 1) deteriorated. Chi-square test did not indicate a significant association between condition and improvement status. Significant proportions of children moved outside of the clinical range (e.g. a score of 29 or higher on the MFQ-C) from pre-intervention to 12 month follow-up: for GTI-CN there was a 100% decrease in the number of children who no longer were in the clinical range (p < .001; 17 children were above the clinical cutoff score at pre-intervention, whereas at follow-up there were no children scoring in the clinical range) and for GTI-C there was a 77.77% decrease in the number of children who no longer were in the clinical range (p < .008; 9 children were above the clinical cutoff score at pre-intervention, whereas at follow-up only 2 children were above the clinical cutoff score).

There was a significant main effect of time on traumatic grief scores (F(3,1777) = 34.48, p < .001). Post-hoc analyses revealed a significant decrease from pre-treatment to post-treatment (τ(60) = 6.11, p = .001, d = .84), to 3 month (τ(60) = 7.12, p < .001, d = .92) and to 12 month follow-up (τ(60) = 8.38, p < .001, d = 1.23), suggesting that initial improvements were maintained over time. There was not a significant time x treatment interaction for traumatic grief. From pre-treatment to 12 month follow-up, 68.75% (n = 22) demonstrated reliable symptom improvement and 0% deteriorated in GTI-CN and 55.17% (n = 16) demonstrated reliable symptom improvement in GTI-C and 3.45% (n = 1) deteriorated. Chi-square test did not indicate a significant association between condition and improvement status.

Consistent with the findings from standardized measures, there was also a significant decrease in mean global distress ratings over time (F(3,1383) = 18.66, p < .001). Post-hoc analyses revealed a significant decrease from pre-treatment to post-treatment (τ(62) = 3.85, p < .001, d = .71), to 3 month (τ(62) = 5.58, p < .001, d = 1.04) and to 12 month follow-up (τ(62) = 6.71, p < .001, d = 1.13), suggesting initial improvements were maintained over time. There was not a significant time x treatment interaction for distress scores.

There was a significant main effect for time for perceived social support (F(3,186) = 3.28, p = .022) and this main effect was not qualified by a significant group x time interaction. Post-hoc analyses indicated there was not a significant increase in perceived social support from pre- to post-treatment (τ(63) = −1.03, p > .05, d = 13), but there was a non-significant trend toward an increase in perceived social support from pre- to 3 month (τ(63) = −2.55, p = .006, d = .38) and 12 month follow-up (τ(63) = −2.67, p = .005, d = .33).

Parent reports indicated that internalizing symptoms (F(2,94) = 4.46, p = .015) changed over time for both treatment conditions, but externalizing symptoms did not. Post-hoc analyses indicated there was a significant decrease from pre-test to 3 month follow-up for internalizing symptoms (τ(48) = 1.93, p = .03, d = .26) and from pre-test to 12 month follow-up, (τ(48) = 3.00, p = .002, d = .45). Reliable symptom improvement for internalizing symptoms from pre-test to 12 month follow-up was observed in 17.86% (n = 4) of children in GTI-CN and 0% deteriorated. In GTI-C, there was reliable improvement from pre-test to 12 month follow-up in 14.29% (n = 3) of children and 4.76% (n = 1) deteriorated. Fischer’s Exact test did not indicate a significant association between condition and improvement status. The total percentage decrease in internalizing symptoms for children within the clinical range (e.g. a T-score above 63) from pre-test to 12 month follow-up was 75% (p = .035; 8 children were above the clinical cutoff score at pre-intervention, whereas at follow-up only 2 children were above the clinical cutoff score) for GTI-CN versus 0% (p = ns; there were 4 children above the clinical cutoff score at pre-intervention and at follow-up) for GTI-C.

Intent-to-treat analysis and developmental status

A similar pattern of findings was found with the intent-to-treat analyses indicating significant main effects for time for all dependent variables except for externalizing symptoms. For externalizing symptoms there was a time x treatment interaction, F(2,108) = 3.81, p = .026. Post-hoc comparisons indicate a trend toward significance from pre-test to 12 month follow-up for GTI-CN (t = 2.22, df = 28, p = .044) with means indicating that parents in GTI-CN reported more decrease in externalizing symptoms than parents in GTI-C. There were no differences in dependent variables over time between younger children and older children.

Treatment satisfaction and child treatment fidelity ratings

For the indicator of treatment satisfaction, “I learned more about grief and trauma reactions,” there were no differences between conditions at post-treatment. Both groups reported that they learned “a lot” about grief and trauma, (M = 3.15, SD = 1.07, M = 3.23, SD = 1.19, GTI-CN, GTI-C, respectively). For the indicator, “I expressed my thoughts and feelings about what happened,” there was a significant difference between the conditions (τ(62) = 2.27, p = .014). As expected, participants in GTI-CN reported that they expressed more thoughts and feelings (M = 3.38, SD = .85) than GTI-C participants (M = 2.77, SD = 1.25). These results lend support to the integrity of the two conditions being delivered as intended with the participants in GTI-CN processing thoughts and feelings more than the participants in GTI-C. For the indicator, “I learned ways to cope when I feel upset, sad, angry, and/or stressed,” there was a trend toward a significant difference between the conditions (τ(62) = 1.658, p = .052), with participants in GTI-C reporting that they learned more ways to cope with emotional distress (M = 3.30, SD = .95) than the participants in GTI-CN (M = 2.85, SD = 1.18). This finding further supports the integrity of the interventions being delivered as intended since GTI-C received more coping skills sessions than GTI-CN. For the item, “Overall, how helpful was counseling for you?”, there was no difference between conditions on rated helpfulness (τ(62) = 1.02, p > .05). Children in both conditions reported that the therapy was
“a lot” to “a whole lot” helpful ($M = 3.71$, $SD = .46$, $M = 3.60$, $SD = .63$), GTI-CN and GTI-C, respectively).

**Discussion**

This study compared the effectiveness of GTI with coping skills plus trauma and loss narrative processing to GTI with coping skills only. Adherence to each treatment model was monitored through weekly supervision meetings with the clinicians, which translated into clear differences in the experiences of children in each of the groups. Children assigned to GTI-CN reported expressing their thoughts and feelings more than the GTI-C group, who tended to report learning more ways to cope than children in the GTI-CN group. Despite the differences in the treatments received, children in both groups demonstrated significant improvements in distress related symptoms, which, with the exception of externalizing symptoms, were maintained at 3 and 12 months.

Results call into question the necessity of children processing the trauma for significant improvement in distress symptoms. It may be that active coping skills to address grief and trauma, without the clinician-directed trauma and loss processing, are mechanisms of change in treatment. In fact, active coping skills among children after disaster have been associated with less depression and PTSD than negative, avoidant or adaptive coping skills (Jenny-Gammon, Daugherty, Finch, Belter, & Foster, 1993; La Greca et al., 1996; Russoniello et al., 2002). In a meta-analysis examining prolonged exposure with adults, a therapy with intensive trauma processing, versus other active treatments that were based on cognitive therapy, there were no significant differences in primary and secondary outcomes based on treatment type (Powers, Halpern, Ferenschak, Gillihan, & Foa, 2010). As discussed in this meta-analysis, it is possible that there are separate active mechanisms that lead to effective treatment of PTSD, including coping skills and trauma processing.

However, the design of the current study makes it difficult to definitively rule out the role of trauma processing in trauma-focused therapies. Despite the fact that children in the GTI-C group reported that they expressed their thoughts and feelings less than children in the GTI-CN group, they did engage in “some” to “a lot” of talking about what happened. Since death was the index trauma for most of these children, it is likely that while talking about coping with the loss, children in the GTI-C group talked about the loss of the close person who died, thus engaging in at least some trauma processing. Therefore, it is possible that the treatments were not different enough, and that both groups processed traumatic events to some degree, contributing to the decreases in trauma-related distress. Future studies will need to tape sessions to code the degree of incidental emotional processing about the trauma and loss in coping-only treatments to fully explore the association between the degree of narrative processing and treatment outcomes.

There were three interesting findings related to social support. First, it is quite promising to find that there was an overall increase in perceived social support for children in both treatment groups. While specific sources of social support were not examined in this study, family support (Jaycox et al., 2010) and peer support (La Greca et al., 2010) have been found to be significant predictors of low PTSD symptoms following hurricane exposure. Being able to target and increase children’s perceived social support via GTI is important for both prevention and intervention of mental health problems post-disaster. Second, the GTI-C group had a moderate effect ($d = .51$) on perceived social support pre- to 12 month compared to the small effect of the GTI-CN group ($d = .17$). The relatively larger increase in social support observed in the GTI-C condition raises the question of whether there were processes that occurred within the intervention that improved perceived social support or if additional time addressing coping skills translated into better ability to access social support. More research is needed to understand who the providers of support are in the child’s life. Also, in a post-disaster environment, future studies need to examine the availability of existing network ties and new ties to provide support to the child, and to monitor the extent of contact and meaning with these providers (Gottlieb, 2000). Third, non-significant trends in changes in perceived social support occurred after the post assessment. In a study with adults experiencing traumatic grief, Ogrodniczuk, Joyce, and Piper (2003) found that social support increased during the follow-up assessments, but not during treatment. Their theories about why changes occurred after treatment may apply to children in this study as well. Potential reasons include that treatment may have been too short for children to seek support during this time, children may rely more on therapy and less on social supports during treatment and symptoms may need to decrease before children can seek support. Another reason may have been that the interaction of children reviewing and sharing their GTI books with an adult post-treatment led to an increased perception of support.

Findings of decreases in parent reported child behavior problems most must be interpreted with great caution. First, due to scheduling difficulties with parents in the post-disaster environment, the pre-assessments were conducted during the treatment, which may account for the small changes from pre- to 3 month assessment. Pre- to 12 month assessment may be a better indication of any changes. Second, although all children in the sample experienced at least moderate PTSD symptoms, only 26% of the children were within the reported clinical range for internalizing and externalizing behaviors. Therefore, there was less opportunity to observe change in these specific symptoms. Nonetheless, treatment effects did extend beyond PTSD with non-significant trends toward improvement from pre- to 12 months. Specifically, there were considerable improvements (75%) for children who were within the clinical range for internalizing behaviors for the GTI-CN group, and with the intent-to-treat analysis, results suggest that there were more improvements in externalizing symptoms for the GTI-CN than the GTI-C group. Our findings that parents of children in the coping skills only group did not report more improvements in externalizing behaviors are in contrast to those of Deblinger et al. (2010). It may be that more parent involvement is needed to reinforce the coping skills needed to decrease externalizing behaviors. However, it is also possible that the observed group difference reflects a spurious finding. Baldwin, Stice, and Rohde (2008) found that the CBCL externalizing subscale is vulnerable to within-group dependence, which increases Type I error rates. Children in the GTI-CN may have formed closer relationships with each other through the experience of sharing their trauma narratives, resulting in greater mutual influence on the nature of peer interactions.

The slight increase in externalizing behaviors at three months for children in the GTI-CN may be due to children still processing the traumatic experience via sharing of the book within the first three months post intervention, but after processing the trauma, they may exhibit less externalizing behaviors. It is possible that the differential effects at one year in externalizing symptoms may be due to external factors such as exposure to ongoing chronic violence. It is likely that the chronic violence that the children were exposed to prior to the study continued, and that some children were affected again by crime. In fact, during the period in which the 12 month assessments were conducted, the crime rate remained alarming high with New Orleans having the top murder rate in the United States (United States Department of Justice, 2009). Repeated
violence exposure may also account for the children who “deteriorated”.

Results of the current study indicate that GTI-CN and GTI-C are both active treatments for children experiencing grief and trauma reactions. In this real world setting three years post Hurricane Katrina, the effect sizes for treatment outcomes were similar to the large effects found in the early study on GTI-CN four months after Hurricane Katrina (Salloum & Overstreet, 2008) as well as to controlled trauma-focused trials with children (Deblinger et al., 2010). It is also noteworthy that the effect sizes tended to be larger in the GTI-CN group compared to the GTI-C group. In addition, higher percentages of children migrated out of clinical symptom ranges and demonstrated more reliable improvement, and less reliable deterioration, in the GTI-CN group versus the GTI-C group. These greater improvements may be due to the GTI-CN children having higher distress scores at pre-intervention, although differences in scores at pre-intervention were not significant. Nonetheless, the total percentage decrease for children within the clinical range from pre-intervention to 12 month follow-up was greater for children in the GTI-CN than GTI-C for posttraumatic stress (89% decrease versus 77%), depression (100% decrease versus 78%) and internalizing symptoms (75% decrease versus no change). The lack of significant time × treatment interactions indicate that more research is needed to determine any significant differential effects of coping skills and trauma narration on child distress and protective factor outcomes.

Limitations

There were several limitations to the current study. First, while the follow-up retention rate in a post-disaster environment with a low-income, minority sample was very good, the sample size was small for testing two active treatments. Large sample sizes (>100) are often needed to investigate the differential effects of two active treatments. Also, due to not being able to collect all parent assessment data, the sample size was further reduced for the parent reported outcomes. Second, there was not a control group. However, studies have demonstrated that children with PTSD in waitlist conditions do not get better compared to children who receive cognitive behavioral therapy (King et al., 2000; Scheeringa, Weems, Cohen, Amaya-Jackson, & Guthrie, 2011) or narrative exposure (Ruf, Schauer, Neuner, Catani, & Elbert, 2010). Third, the social support measure did not allow for subscales of type of social support to be explored. While the coefficient for the total social support measure was acceptable, we did not use the subscales as separate outcomes. It would be important for future outcome studies to identify the types of social support (see Wills & Shira, 2000). Fourth, due to school officials not allowing audio or video taping of sessions, measuring additional information about the extent of trauma processing was not possible. Also, while multiple methods of monitoring fidelity were used, self-reports are potentially biased.

Implications for research, policy and practice

Researchers need to explore accessible, efficient and effective post-disaster service delivery approaches that are congruent with consumer and provider preferences. Interventions need to move beyond a “one size fits all” to individualizing treatment, however more research is needed to understand which children benefit most from what types of treatments. Larger studies are needed to identify characteristics that predict better outcomes for treatment with and without a trauma narrative. Our earlier study examining the moderating role of prior exposure on the association between PTS and exposure to Hurricane Gustav suggested that children with exposure to Hurricane Katrina were at risk for elevated PTS upon exposure to another disaster (Salloum et al., 2010). Research is needed to understand the differential effects of treatment for children with prior, current and/or ongoing cumulative trauma exposure versus children with low levels of trauma exposure. Future research on children post-disaster needs to examine what protective factors such as social support can be bolstered by intervention. In addition, we need to understand how protective factors influence treatment outcomes and how change occurs. For example, does change in social support lead to decreases in distress or vice versa? What group processes may increase social support and decrease distress? Theory and measures are needed to capture these mechanisms of change that may occur within the group processes. Future research needs to examine if children with different distress levels at pre-intervention respond differentially to treatment with and without narrative processing.

Consistent with other studies on children post Hurricane Katrina (Jaycox et al., 2010), the vast majority of children in this study reported exposure to multiple potentially traumatic events. Policy makers must provide adequate funding for mental health treatment for children and their families for all stages of the recovery process. This should include treatment that targets PTSD from a variety of stressors and that broadens treatment outcomes beyond PTSD. Researchers and practitioners must then be ready to provide such treatments. Until we are able to tailor treatment effectively, a tiered approach (e.g. Layne et al., 2008) using a coping focused intervention as a first line treatment and then grief and trauma with narrative processing for those who remain clinically symptomatic may be the best way to utilize resources and meet the treatment demands post-disaster. However, if treatment is available, coping skills plus the narrative intervention may be the best first line treatment for highly distressed children. GTI-CN and GTI-C may both be effective interventions for treating children post-disaster who have experienced a range of traumatic events.

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Role of the funding source

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