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# Predictors of Positive Adjustment in a Sample of Children Impacted by Hurricane Katrina

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PREDICTORS OF POSITIVE ADJUSTMENT IN A SAMPLE OF CHILDREN  
IMPACTED BY HURRICANE KATRINA

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
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requirements for the degree of  
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in

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by

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**LIST OF ABBREVIATIONS** – in order of their appearance

1. PTSS – Posttraumatic Stress Symptoms
2. PTSD – Posttraumatic Stress Disorder
3. CVE – Community Violence Exposure
4. HVE – Home Violence Exposure
5. BASC-2 – Behavior Assessment System for Children, Second Edition
6. SAVE – Screen for Adolescent Violence Exposure
7. KID-SAVE – Screen for Adolescent Violence Exposure adapted for youth aged 8-10
8. APQ – Alabama Parenting Questionnaire
9. CRI – Child Routines Inventory

## Abstract

Natural disasters have a profound psychological impact on children and youth (Kelley et al., 2010; Lai et al., 2015; La Greca, et al., 1996; Vernberg et al., 1996). Much of the literature assessing risk and protective factors related to children's post-disaster recovery has primarily focused on the development of significant clinical symptoms, largely ignoring factors associated with positive adjustment and resilience. The purpose of the current investigation was to examine parenting behaviors and family organization (i.e., child routines) as they relate to children's self-esteem and self-reliance in a sample of 371 parent-child dyads impacted by Hurricane Katrina. A series of hierarchical regression analyses tested the hypotheses that parenting behaviors and child routines are predictive of self-esteem and self-reliance in an attempt to elucidate the relationship between family-level variables and children's post-disaster adjustment at two time points (i.e., 3-7 and 13-17 months) following Hurricane Katrina. While hypotheses were partially supported, significant relationships were small. Results indicated that home violence exposure was the strongest predictor of self-esteem ( $B = -1.81, p < .05$ ) and corporal punishment ( $B = .57, p < .05$ ) was the strongest predictor of self-reliance 3-7 months post-disaster. Minority status ( $B = 3.47, p < .05$ ), child gender ( $B = -2.74, p < .05$ ), and poor monitoring/supervision ( $B = -.38, p < .05$ ) were significant predictors of self-esteem 13-17 months post-disaster. Implications and directions for future research are discussed.

## INTRODUCTION

### **Overview: Natural Disasters & Child Outcomes**

Natural disasters are common traumatic events associated with profound psychological impact (Furr, Comer, Edmunds, & Kendall, 2010; Neria, Nandi & Galea, 2008; Kelley et al., 2010; Lai et al., 2015; La Greca, et al., 1996; Vernberg et al., 1996). Children are at heightened risk for negative outcomes related to disaster exposure compared to adults due to their developmental vulnerability and nascent coping skills (Lai, Esnard, Lowe, & Peek, 2016; Flanagan, Gregory, Hallisey, Heitgerd & Lewis, 2011). Despite this, a minority of recently published studies on disaster-impacted populations has focused on the short and long-term impact on children in particular (Neria, Nandi & Galea, 2008).

The reactions experienced by youth in response to a natural disaster vary greatly. The most common psychological symptoms in children and adolescents following a disaster are posttraumatic stress symptoms (PTSS; Kelley et al., 2010; Self-Brown, Lai, Thompson, McGill, & Kelley, 2013; Weems, Pina, Costa, Watts, Taylor, & Cannon, 2007). While, many children who experience PTSS in the aftermath of a disaster return to normal levels of functioning, there is a significant subset of individuals who develop ongoing, chronic distress (La Greca, Silverman, Vernberg, & Prinstein, 1996; Weems, Scott, Taylor, Cannon, Romano, Perry, & Triplett, 2010). Furthermore, research investigating PTSS trajectories in children and adolescents consistently find that most children fall into a resilient category, often defined by the absence of clinical psychopathology (e.g., Lai, Beaulieu, Ogokeh, Self-Brown, & Kelley, 2015; Weems & Graham, 2014; La Greca et al., 2013).

The current literature on children's psychological adjustment following exposure to a natural disaster focuses primarily on the pathways associated with the onset and maintenance of significant clinical symptoms (e.g., Lai et al., 2015; La Greca et al., 2013; Self-Brown et al, 2013; Weems & Graham, 2014). Although an essential line of inquiry as it informs treatment efforts, this approach largely ignores the path to positive adjustment and resilience. Thus, it is necessary to elucidate the processes related to the development of resilient outcomes in the aftermath of disaster, as well as symptom trajectories.

### **Resilience**

Theoretical perspectives of resilience have evolved significantly over the past several decades (Bonanno & Diminich, 2013; Masten & Narayan, 2012; Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003; Zolkoski & Bullock, 2012). Initially, research on resilience focused on recovery from and resistance to physical illnesses (Zolkoski & Bullock, 2012). Recently, however, the definition of resilience has expanded, incorporating adaptive functioning, psychosocial outcomes, and protective mechanisms involved in healthy development in the face of adversity (Olsson et al., 2003). This holistic approach includes the absence of negative outcomes as well as the presence of positive ones.

Masten (2014) broadly defines resilience as “the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development (p. 6).” Furthermore, psychological resilience pertains to the ability to maintain healthy psychological functioning in the face of adverse conditions (Bonanno & Diminich, 2013; Olsson et al., 2003; Weems & Graham, 2014). As such, the psychological sciences have

adopted a resilience perspective in understanding the development and prevention of psychopathology related to traumatic stressors experienced across the lifespan.

Bonanno (2005) points out, there are differences between individuals who recover from a potentially traumatic event and those who never go on to develop significant clinical symptoms, and therefore these two trajectories should be considered distinct outcomes. In the disaster literature, resilient trajectories are often defined by either absence of psychopathology or by the presence of low, stable symptoms maintained over time (Lai et al., 2015; Weems & Graham, 2014; La Greca et al., 2013). This definition fails to capture potential mechanisms underlying the ability to maintain healthy levels of functioning (Bonanno, 2005). Thus, it is necessary to further examine potential factors related to these phenomena, such as how individuals view their own effectiveness and ability to cope successfully (Bonanno, 2005).

Moreover, much of the literature examining resilience in children has focused primarily on the impact of chronic adversity and exposure to repeated traumatic events, such as poverty or child maltreatment (Bonanno & Diminich, 2013). However, Bonanno and Diminich (2013) argue that acute, isolated stressors produce a more stable adjustment trajectory with less negative impact. Thus, what we know about resilience in the context of chronic trauma may be limited in its application to acute stressors, such as natural disasters. Despite this trend, research examining the impact of natural disaster primarily center on pathology and largely ignore predictors associated with resilience. By expounding the factors related to positive adjustment and resilience, treatment and prevention programs can better target skills and resources predictive of resilient trajectories.



The theory that resilience is a separate trajectory compared to recovery, fits well with Weems and Graham's (2014) definition of resilience, which states that resilience is defined by exposure to risk (e.g., facing disaster related adversity) as well as the presence of positive functioning relative to others experiencing the same risk. Only recently, has the psychological literature begun to incorporate the latter part of this definition: the presence of positive outcomes (Bonanno, 2004; Fletcher & Sarkar, 2013; Norris, 1992). The current approach to defining resilience in the disaster literature greatly limits our understanding of positive adjustment in this context, as it largely ignores important mechanisms involved in healthy post-disaster functioning. Even more so, there is a lack of research comprehensively assessing resilience in youth exposed to natural disasters.

When conceptualizing resilience in child populations, specifically, it is necessary to consider the larger context in which children develop (e.g., family, school, community). Bronfenbrenner's ecological model (Bronfenbrenner, 1994; Bronfenbrenner & Morris, 2006), for example, outlines a framework for understanding human development across the lifespan with a particular consideration for the role of the environment in shaping individual outcomes. Researchers investigating the resources, competencies, talents, and skills related to resilience in children emphasize the importance of focusing psychological assessment on multiple ecological levels (Masten, 2014; Olsson et al., 2003). For example, some researchers have focused primarily on individual assets (e.g., coping skills), while others have focused on the influence of family (e.g., social support) or community factors (e.g., community-level support). Disasters significantly disrupt these ecological systems, thus negatively impacting children's response and recovery (Weems & Overstreet, 2009). Therefore, more research

is warranted to better understand how these systems influence behavioral and psychological outcomes in children exposed to natural disasters.

### **Variables Related to Psychopathology Post-Disaster**

Researchers have repeatedly documented that a sizeable minority of children who experience a natural or manmade disaster report significant psychological distress. Specifically, the rates of clinical levels of PTSS in children several months after experiencing a disaster ranges from 11% to 34% (La Greca et al., 2013; Lai et al., 2013; Self-Brown et al., 2013; Weems & Graham, 2014). Although a number of variables have been associated with PTSS, the degree of loss and perceived threat associated with the disaster-related event appears to be the most significant (Banks & Weems, 2014; Kelley et al., 2010; La Greca et al., 2013; Spell et al., 2008). In an investigation using path analysis, Kelley and colleagues (2010) found that the relationship between hurricane threat/exposure and increased levels of PTSD symptoms was strongest in families where parents demonstrated increased distress (e.g., maladaptive coping) and increased corporal punishment (Kelley et al., 2010). Degree of disaster exposure and perceived life threat, must be carefully considered when interpreting conclusions about risk and resilience in a disaster context (Sprague et al., 2015; Weems & Graham, 2014; Bonanno, Brewin, Kaniasty, & La Greca, 2010).

In addition to hurricane threat and loss, Kelley and colleagues (2010) were the first to identify community violence exposure (CVE) as equally predictive of PTSD symptoms in sample of children exposed to Hurricane Katrina. Additionally, in an investigation mapping out distinct PTSD trajectories in children impacted by Hurricane Katrina, Self-Brown and colleagues (2013), found CVE, as well as hurricane exposure, to

significantly predict the chronic PTSD trajectory compared to recovering and resilient trajectories. These findings are consistent with previous literature documenting the association between CVE and PTSD in children and adolescents (Fowler, Tompsett, Braciszewski, Baltes, & Jacques-Tiura, 2009; Zinzow, Ruggerio, Resnick, Saunders, Kilpatrick, & Smith, 2009). Self-Brown et al. (2013) were the first to explore community violence as well as home violence exposure (HVE) simultaneously in a disaster exposed sample; however, they did not find HVE variable to be predictive of PTSD symptoms. Due to the lack of research assessing these two forms of violence as risk factors, further investigation is warranted. As such, the potential impact of violence exposure must also be considered when investigating factors underlying disaster-related psychological outcomes.

Other factors associated with psychological symptoms post-disaster include individual assets and environmental factors (e.g., family-level, community-level). Coping skills and social support, for example, have been well established as being related to risk and recovery in disaster-impacted populations (Banks & Weems, 2014; Self-Brown, et al., 2013). For example, Banks and Weems (2014) found peer and family social support to be significantly related to symptoms of PTSD, anxiety, and depression in a sample of children and adolescents exposed to Hurricane Katrina. Furthermore, peer support was found to significantly moderate the impact of hurricane exposure and PTSS.

Moreover, maternal factors such as maternal psychopathology, social support, and parental stress have been linked to children's psychological health post-disaster (Kelley et al., 2010; Lai et al., 2013; Self-Brown, Lai, Harbin, & Kelley, 2014; Vigna et al., 2009). Discipline practices, such as the use of corporal punishment, and child routines

also have been associated with increased PTSD symptoms in disaster-affected children (Kelley et al., 2010). Despite our knowledge of risk and protective factors associated with PTSS and PTSD, very little is known about these variables as they relate to positive adjustment and resilient outcomes in disaster-exposed youth.

### **Positive Adjustment in the Post-Disaster Context**

As noted previously, the literature on children's psychological adjustment following exposure to a natural disaster is limited, in that most studies have focused on pathways associated with the development of psychopathology (e.g., PTSS, anxiety, depression). Thus, research investigating symptom trajectories following a disaster has defined resilient groups by the absence of significant clinical symptoms (e.g., Lai et al., 2015; Weems & Graham, 2014; La Greca et al., 2013). As Bonanno and Diminich (2013) underscore, using dichotomous groups of individuals with or without psychopathology limits our understanding of resilience, as diagnostic categories overlook empirical evidence suggesting that these conditions exist on a continuum. Therefore, by only focusing on the presence or absence of symptoms, the literature largely ignores important factors and mechanisms related to the promotion of resilience.

Emerging evidence suggests certain individual assets are associated with emotional and behavioral well-being. In a review summarizing research on youth resilience, Zolkoski and Bullock (2012) highlighted several emerging factors characteristic of resilient children. For example, social competence, problem-solving skills, critical consciousness, autonomy, and a sense of purpose were found to be associated with positive outcomes in children impacted by various stressors (Zolkoski & Bullock, 2012). Furthermore, according to Sandler's risk and resilience model, developed

within the context of Bronfenbrenner's ecological theory, self-worth, control/efficacy, and sense of social relatedness are associated with healthy adaptation in children and youth (Sandler, 2001). Similarly, resilient characteristics commonly observed in children exposed to violence include adaptive success in future endeavors and self-reliance (Joshi & Lewin, 2004). While these specific factors have been found to be related to resilience overall, there is a paucity of research in the area, especially as it relates to children's exposure to disasters. It is possible that these assets can be disrupted by the threat and disorder associated with disaster exposure and thus further investigation in this context is necessary (Weems & Overstreet, 2009).

The limited number of studies that have focused on positive outcomes within the disaster context, include measures assessing overall positive adjustment or adaptability (Aikins, 2012; Vigna, Hernandez, Passch, Gordon & Kelley, 2009). It is theorized that self-esteem and self-reliance underlie these constructs, as demonstrated in commonly used measures assessing personal adjustment in children, such as the Behavior Assessment System for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004). Previous research suggests that self-esteem, defined as "an individual's global evaluation of his or her overall worth as person" (Steigler, Allemand, Robis, & Fend, 2014; p. 325), is often related to children and adolescent's psychological and physical health (Sowislo and Orth, 2013; Steigler et al., 2014). Similarly, self-reliance, the ability to manage problems autonomously, has been frequently associated with psychological wellbeing and resilience (Greer, Arnold, Grimsely, Ford, Bryant, & Mancini, 2016; Joshi & Lewin, 2004). Research investigating self-reliance and self-esteem in a disaster-impacted sample of youth is particularly scarce.

In a rare study, Vigna and colleagues (2009) investigated parent and child-reported positive adjustment in children exposed to Hurricane Katrina. Investigators found specific types of coping (i.e., diversion) and social support to be particularly related to self-reported personal adjustment in children. This was the first study to investigate variables associated with long-term positive outcomes in youth in a disaster-affected sample. Additionally, the investigators found that the degree of life threat was directly related to children's adjustment (Vigna et al., 2009), in that children who had a higher degree of life threat also demonstrated better adjustment 25-28 months post-Katrina. This finding was particularly surprising, given that previous literature demonstrates a link between severity and psychological distress (e.g., Kelley et al., 2010); however, the findings are consistent with theory underlying Post Traumatic Growth, which posits that individuals can develop personal growth after exposure to a traumatic life event (Tedeschi & Calhoun, 1996).

Although previous research has looked at individual characteristics (e.g., coping skills) related to positive adjustment (e.g., Vigna et al., 2009), less research has focused on the influence of family level variables. In an investigation of the predictors of positive adjustment in children impacted by Hurricane Katrina and the Deepwater Horizon Oil Spill, Aikins (2012) found social support to be a significant predictor of child-reported personal adjustment. In addition to individual assets (e.g., coping styles), close relationships between children and their parents (e.g., parent support) were shown to be influential in children's psychological recovery (Aikins, 2012).

### **Positive Adjustment and Family Influence**

Research supports the microsystem's integral role in the development of positive psychosocial outcomes and protective mechanisms in children exposed to adverse events (Zolkoski & Bullock, 2012; Scheeringa & Zeanah, 2008; Spell, et al., 2008; Kelley et al., 2010; Weems & Overstreet, 2009). Specifically, within the context of Bronfenbrenner's ecological model, Weems and Overstreet (2009) posit that natural disasters threaten ecologies supporting access to basic needs (i.e., physical safety, social relatedness, and control/efficacy) and thus negatively impact children's adjustment. However, few studies have investigated the role of microsystem variables, such as parenting behavior (e.g., positive parenting, corporal punishment) and family organization (e.g., routines) on children's positive adjustment following a natural disaster (Kelley et al., 2010; Botey & Kulig, 2013; Gil-Rivas & Kilmer, 2013; Sprague et al., 2015). Previous research has established the importance of parental social support (Aikins, 2012; Vigna et al., 2009; Kelley et al., 2010), parent distress (Lai et al., 2013; Kelley et al., 2010), and parent coping (Kelley et al., 2010; Vigil & Geary, 2008) on the development of PTSD and other internalizing symptoms post-disaster. The following review highlights the few studies that have focused on resilient outcomes.

In one study conducted by Vigil and Geary (2008), family coping styles were found to play an important role in the development of psychological wellbeing (i.e., self-esteem) of children exposed to Hurricane Katrina. They found that higher family mobilizing coping (e.g., seek professional help from community programs that help families) was associated with lower levels of self-esteem and higher rates of psychological distress, perhaps due to the stigmatization of seeking help in the community (Vigil & Geary, 2008). They also found this coping style moderated the

relationship between youth hurricane experience, lower self-esteem, and higher distress. To date, this was the only study to investigate self-esteem as a factor underlying positive adjustment within a disaster context.

Sprague et al. (2015) evaluated adolescents' adjustment in response to California wildfires and found that family factors were associated with positive adjustment, as measured by prosocial behavior in adolescents. Specifically, the researchers found that family emotional support, the perceived degree of empathy and reassurance from family members, moderated the relationship between disaster-related stress and prosocial behavior, suggesting that the family environment plays an important role in the development of positive adjustment in youth impacted by this incident.

Emerging evidence suggests that family functioning impacts children's adaptive behavior and recovery after experiencing an adverse event such as a natural disaster. However, further investigation of the impact of the family environment on the health and well being of children exposed to traumatic events is warranted (Olsson et al., 2003). The current investigation focuses on family organization (i.e., routines) and parenting practices and their influence on post-disaster adjustment. Literature supporting the importance of these variables on post-disaster recovery is reviewed in the following paragraphs.

**Routines.** Research has consistently supported the importance of routines for children's positive adjustment to adverse events such as financial hardship (Budescu & Taylor, 2013) and chronic medical conditions (e.g., diabetes; Greening, Stoppelbein, Konishi, Jordan, & Moll, 2007). Moreover, routines have been found to moderate the presentation of negative psychological outcomes. For example, Bridley and Jordan



(2012) found household routines to moderate the relationship between children's self-reported stress and internalizing symptoms. That is, children with more daily routines reported less internalizing symptoms in the face of daily stressors (Bridley & Jordan, 2012). While there is a wealth of research supporting the positive influence of routines on children's development, few studies have investigated the role of routines in disaster-affected populations, and the few that have, produced inconsistent findings.

Researchers, clinicians, and policy makers consistently emphasize the importance of maintaining regular routines and predictability to offset social disruptions following exposure to a natural disaster (Vernberg, 2002; Pfefferbaum & Shaw, 2013; Botey & Kulig, 2013; American Red Cross, 2016; Prinstein, La Greca, Vernberg, & Silverman, 1996). The reinstatement of daily routines is hypothesized to decrease distress, as children depend on routines to provide familiarity, consistency, and healthy distraction during a time of difficulty (Verberg et al., 2016; American Red Cross, 2016). Interestingly, routines are rarely included as predictor variables in studies investigating post-disaster outcomes.

In an investigation on the impact of child routines on symptoms of PTSD in a sample of children affected by Hurricane Katrina, researchers found that increased presence of routines actually placed children at greater risk for PTSD symptoms (Kelley et al., 2010). These same parents also reported higher levels of psychological distress themselves, perhaps indicating that parents who are highly distressed may be engaging in more negative parenting behaviors and implementing routines in a coercive that may be influencing child distress (Kelley et al., 2010).

This finding is incongruent with other studies investigating the influence of roles

and routines in a post-disaster sample. For example, Prinstein and colleagues (1996) found the reinstatement of routines to be a common coping mechanism for children with low levels of PTSD symptoms compared to children who reported mild to severe symptoms, suggesting that routines may be protective against the development of more severe psychological distress. Further investigation is warranted to clarify the relationship between child and family routines and children's adjustment in the face of traumatic events.

While the reviewed studies investigated the impact of routines on the development of negative symptoms, the current study will investigate this role in the development of self-esteem and self-reliance in a post-disaster sample. To date, this relationship has not been examined directly. Furthermore, due to the inconsistency of results, this study will aim to assess the possible impact of different kinds of routines (e.g. routines of daily living, household routines, discipline routines, and homework routines) on children's adjustment and specific positive outcomes (i.e., self-esteem and self-reliance). For example, it is possible that certain types of routines may serve as a protective mechanism in the development of positive outcomes, while others may be detrimental.

**Parenting.** In addition to maintaining routines, certain parenting variables have also been established as influencing the development of psychological outcomes in children in post-disaster samples (Kelley et al., 2010; Gil-Rivas & Kilmer, 2013). In an investigation assessing the role of primary caregivers on children's adjustment in a sample of children exposed to Hurricane Katrina, parenting factors, such as caregiver warmth and acceptance, negatively correlated with children's self-reported depressive

symptoms (Gil-Rivas & Kilmer, 2013). This pattern, however, was not observed when relating to PTSS. This finding suggests that positive parenting behaviors may serve as a protective factor for the development of certain psychological outcomes in children.

In another study investigating symptom trajectories in youth exposed to Hurricane Katrina, researchers found that children who reported more hurricane loss were more likely to have parents who reported maladaptive coping styles (Kelley et al., 2010). These parents were also more likely to use corporal punishment, leading to an increased risk for PTSD symptoms. These findings suggest that parent coping and specific parenting behavior may increase risk for psychopathology in children (Kelley et al., 2010). The current study will add to the literature by investigating the potential role of different parenting behaviors on the development of positive adjustment.

### **The Present Study**

Hurricane Katrina was a category 5 hurricane that made landfall in southern Louisiana on August 29, 2005. The hurricane destroyed thousands of homes, businesses, and other properties and caused an estimated 1,500 deaths and \$108 billion of damage (Knabb et al., 2005). Prior to Hurricane Katrina, little was known about how family and parenting characteristics were related to children's post-disaster recovery.

The current investigation examined whether family routines and parenting behaviors (i.e., parent involvement, positive parenting, poor mentoring/supervision, inconsistent discipline, and corporal punishment) are related to children's self-esteem and self-reliance using a sample of children impacted by Hurricane Katrina. The aim of this study was to further explicate the relationship between the family environment and

personal assets associated with psychological resilience (i.e., self-esteem and self-reliance).

The variables above were evaluated with careful consideration of the effects of disaster loss and exposure and prior violence exposure as well as demographic variables, given their impact on children's psychological outcomes in previous research (e.g., Kelley et al., 2010; Self-Brown et al., 2013). First, it was hypothesized that previous violence exposure and hurricane threat/loss will be negatively associated with self-esteem and self-reliance. It is hypothesized that routines and positive parenting behavior (i.e., parent involvement, positive parenting) will be positively associated with self-esteem and self-reliance in children exposed to Hurricane Katrina, where as negative parenting behaviors (i.e., poor mentoring/supervision, inconsistent discipline, and corporal punishment) will be negatively associated with self-esteem and self-reliance.

## METHOD

### Participants

Participants included a sample of parent-child dyads drawn from of larger multi-wave longitudinal study investigating the psychological impact of Hurricane Katrina. Data was collected between 2005 and 2007 on four occasions post-hurricane: Time 1 data were collected at 3-7 months after Hurricane Katrina; Time 2 at 13-17 months; Time 3 at 19-22 months; and Time 4 at 25-27 months (cf. Kelley et al., 2010; Self-Brown et al., 2013, Lai, Kelley, Harrison, Thompson, & Self-Brown, 2014; Lai et al., 2015). The present study focuses on the first year and a half following Hurricane Katrina and therefore only includes data collected at Time 1 and Time 2.

371 and 367 child-parent dyads participated in the study at Time 1 and Time 2, respectively. Demographic data on child and parent participants is presented in Table 1. A majority of the parent-child dyads were displaced due to the Hurricane ( $N= 275$ ) forcing them to move away from their homes and communities. At Time 1, children ranged in age from 8 to 16 years old ( $M = 11.62$ ,  $SD = 1.55$ ) and were in grades 3 through 8. A majority of the sample identified as African American (65.2%), with 23.5% Caucasian and 7.0% other minority. Median family income prior to Hurricane Katrina was below \$25,000 and 53.82% of the children came from single-parent households. Parent participants were primarily mothers ranging in age from 23-67 ( $M = 38.65$ ;  $SD = 7.43$ ), and had a median education level of some college or technical training.

Table 1. Demographic Statistics of Sample at Time 1

	N (%)	Missing (%)
Displaced Status	275 displaced (74.1)	
Child Age	$M=11.62$ ( $SD = 1.55$ )	
Child Gender	186 female (50.9)	8 (2.16)
Grade	$M = 5.93$ ( $SD = 1.38$ )	
Race		16 (4.3)
Caucasian	87 (23.5%)	
African American	242 (65.2%)	
Hispanic	7 (1.9%)	
Asian	16 (4.3%)	
Other	3 (.8%)	
Mother's Age	$M = 38.65$ ( $SD = 7.43$ )	
Marital Status	5.93 (1.38) 3-8	32 (8.6)
Single	183 (53.82)	
Married	151 (50.3)	
Mother's Education Level		27 (7.3)
< HS graduate	54 (14)	
HS graduate	92 (26.4)	
Partial College	119 (32.1)	
Standard College/University Graduate	55 (14.8)	
Graduate Professional Degree	20 (5.4)	
Yearly Income Before Hurricane Katrina		48 (12.9)
< \$25,000	177 (47.7)	
\$25,000-34,999	46 (12.4)	
\$35,000-49,999	30 (8.1)	
\$50,000-74,999	47 (12.7)	
> \$75,000	23 (6.2)	
Yearly Income After Hurricane Katrina		60 (16.3)
< \$25,000	185 (49.8)	
\$25,000-34,999	45 (12.1)	
\$35,000-49,999	28 (7.5)	
\$50,000-74,999	31 (8.4)	
> \$75,000	22 (5.9)	

Note. N = 371

## **Procedure**

After receiving Louisiana State University IRB approval, students were recruited from six, reopened schools in Orleans Parish. Students and their parents were invited to participate through informational fliers brought home by their child. Interested parents completed parent and child consent forms and questionnaires. Completed questionnaire packets and signed consent forms were returned to the child's classroom. Approximately 36% of contacted parents completed the consent forms and questionnaires (Spell et al., 2015). Children signed assent forms and completed self-report questionnaires at their schools under the supervision of research staff. For younger children and those who demonstrated difficulty reading, research staff verbally administered questionnaires. Children who were enrolled in special education classes and who experienced other severe developmental disabilities or autism were excluded from the study.

The procedure outlined above was identical for all data collection points. Children and parents were compensated for their participation in the original investigation. At Time 1, participants were compensated at the discretion of the school personnel by either entering a drawing to win \$5 or a class pizza party. At the subsequent data collection points (i.e., Time 2-4), families received compensation of \$25-\$50.

## **Measures**

**Demographic Questionnaire.** Parents completed a demographic form that queried: parent age, sex, race/ethnicity, income, educational level and marital status. The form also asked parents to provide demographic data on their children such as age, gender, and race.

**Hurricane Exposure Questionnaire.** This 15-item questionnaire was adapted from that used in similar studies assessing hurricane loss and exposure in youth samples (e.g., La Greca, Silverman, Wasserstein, 1998; Vernberg, La Greca, Silverman & Prinstein, 1996). The Hurricane Exposure Questionnaire measures life threatening experiences (6-items) and loss/disruption (9-items) related to Hurricane Katrina on a dichotomous scale (i.e., yes/no). Example items include: “Did windows or doors break in the place you stayed during the hurricane” and “Were your toys or clothes ruined by the hurricane?” Both, children and parents completed the measure; however, only child report was used in the current investigation.

**Screen for Adolescent Violence Exposure (SAVE; Hastings, & Kelley, 1997).** The SAVE is a 32-item measure assessing violence exposure in youth aged 11-16. Frequency of violence exposure is measured on a five-point scale ranging from 0 (*never*) to 4 (*Almost Always*) where higher scores indicate increased violence exposure. This measure consists of three subscales: *Family*, *School*, and *Neighborhood* violence. For purposes of the current investigation, School and Neighborhood violence subscales will be combined a measure of community violence exposure. The current study included the composite measure of community violence exposure and home violence exposure. The SAVE has been validated for use in adolescent populations and demonstrates good psychometric properties (Hastings & Kelley, 1997). Z-scores were used in the following analyses.

**KID-Screen for Adolescent Violence Exposure (KID-SAVE; Flowers, Hastings, & Kelley, 2000).** The KID-SAVE is a 35-item measure assessing violence exposure in school-aged children (8-11 years old). Frequency of violence exposure is



measured on a three-point scale: *Never, Sometimes, A lot*. Children are asked to rate the frequency of violence exposure in three areas: *Home, School, and Neighborhood*. Similarly to the SAVE, the School and Neighborhood violence subscales of the KID-SAVE will be combined as a measure of community violence exposure (c.f., Kelley et al., 2010; Self-Brown et al., 2013). This measure demonstrates good psychometric properties including high reliability and good discriminant validity (Flowers et al., 2000). The current study included the composites of community violence exposure and home violence exposure. Z-scores were used in the analyses.

**Behavior Assessment System for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004).** The BASC-2 is a multi-method, multidimensional measure of child behavior assessing positive (adaptive) and clinical (negative) dimensions. The BASC-2 contains five components: Teacher Rating Scales; Parent Rating Scales (PRS); Self-Report of Personality (SRP); Structure Developmental History; Student Observation System. The BASC-2 contains age appropriate forms including one for adolescents (12-21 years old) and one for school age children (6-11 years old). The self-report version (BASC-2: SRP) was used in the current investigation. The Personal Adjustment composite of the BASC-2: SRP will be used for the purpose of this study. This subscale assesses four areas of adaptability: *Relationship with Parents, Interpersonal Relations, Self-Esteem, and Self-Reliance*. Reliability and validity information were reported to range from adequate to excellent (Reynolds & Kamphaus, 2004). For the current study, the self-esteem and self-reliance subscales were used as outcome variables. Additionally, the personal adjustment composite score was also assessed to explore possible issue of collinearity. The self-esteem and the self-reliance

subscales each contain eight items and are rated on a on a 2-point True/False and a 4-point scale ranging from 0 (Never) to 3 (Almost Always). Sample items include, “I feel good about myself” and “If I have a problem, I can usually work it out,” for the self-esteem and self-reliance subscales, respectively. T-scores were used for purposes of this analysis.

**Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wootton, 1996).**

The APQ is a multi-informant, multi-method, 42-item measure assessing parenting practices across five subscales: *Involvement*, *Positive Parenting*, *Poor Mentoring/Supervision*, *Inconsistent Discipline*, and *Corporal Punishment*. An additional composite, not considered a subscale is *Other Discipline Practices*, which provides information on an item-by-item basis. The current investigation will include the parent report version asking about the frequency of a variety of parenting techniques. Items are evaluated using a scale that ranged from 1 (*Never*) to 5 (*Always*). Sample items include, “You have a friendly talk with your child” and “You scream at your child when he or she has done something wrong.” The APQ has been validated for use in school-aged children and demonstrates good psychometric properties with moderate internal consistency reliability of the five scales ( $\alpha = .63-.80$ ; Shelton et al., 1996). All subscales, except for *Other Discipline Practices*,” were considered in the current study.

**Child Routines Inventory (CRI; Sytsma, Kelley, & Wymer, 2001).** The CRI is a 39-item, parent-report measure assessing the presence of common child routines in children aged (5-12). Routines are rated on a 5-point Likert-type scale ranging from 0 (Never) to 4 (Nearly Always). Higher scores on the CRI are associated with increased frequency of child routines. The CRI a total score and four subscale scores for child

routines including *daily living routines*, *household responsibilities*, *discipline routines*, and *homework routines*. The CRI demonstrates good psychometric properties including good internal consistency for subscales ( $\alpha = .79-.83$ ) and total score ( $\alpha = .90$ ) and test-retest reliability ( $r = .75-.85$  for subscales and  $r = .86$  for the total score; Stytsma et al., 2001). All of the subscales of the CRI were considered for the current investigation.

### **Data Analysis**

Relationships between proposed control variables (i.e., demographic variables, hurricane and violence exposure), parenting behaviors, as measured by the APQ, and child routines, as measured by the CRI were assessed using bivariate correlations. A series of multiple hierarchical regression models were tested to predict self-esteem and self-reliance at Time 1 and Time 2 post-Katrina, for a total of four separate regression models. In order to control for any effects of previous violence exposure, the CVE and HVE composite scores were retained on Step 1. All demographic variables which were found to be significantly correlated with self-reported self-esteem and self-reliance, as measured by the BASC-2, were retained and entered on to step 2 of the subsequent hierarchical regression models. Parenting behaviors and routines were entered on Step 3. All data analyses were conducted using SPSS version 24.

## RESULTS

### Preliminary Analysis

Prior to the primary data analysis, all variables of interest, including demographic variables, were examined for accuracy of data entry, missing values, and outliers. Additionally, all continuous demographic and dependent variables were examined for normality of distribution. Because more than 5% of cases had missing values on pertinent study variables, multiple imputations (MI) using SPSS 24 to estimate missing values at Time 1 and Time 2 (Tabachnick & Fidell, 2012). MI is a procedure of estimating missing data values by generating multiple datasets with varied estimates and pooling results in the final analyses (Rubin, 1987). This procedure is generally preferred in the literature over listwise deletion (Thabachnick & Fidell, 2012). Pooled results were calculated using rules outlined by Rubin (1987), Schafer (1997), and Van Ginkel and Kroonenberg (2014).

*Descriptive Statistics.* Demographic characteristics are presented in Table 1. The means, standard deviations, and ranges are provided in Tables 2 and Table 3 for all continuous variables of interest at Time 1 and Time 2, respectively. Most children in the sample reported average levels of positive adjustment with a self-reported mean T-score of 50.73 ( $SD = 10.31$ ) for self-esteem and 48.13 ( $SD = 11.15$ ) for self-reliance. This number remained stable for self-esteem ( $M = 51.02$ ;  $SD = 10.75$ ) and self-reliance ( $M = 47.22$ ;  $SD = 11.36$ ) at Time 2. T-tests were conducted to assess changes in self-esteem and self-reliance from Time 1 to Time 2. Independent samples t-tests indicated no significant differences between self-esteem ( $t = -.03$ ,  $p > .05$ ) and self-reliance ( $t = 1.83$ ,  $p > .05$ ) scores between time points. Finally, T-scores between 31 and 40 are considered at risk and scores below 30 are considered clinically significant (Reynolds & Kamphaus,

2004). At Time 1, 15% and 23% of children reported t-scores below 40, on self-esteem and self-reliance, respectively. At Time 2, 14% and 26% of children reported t-scores below 40 on self-esteem and self-reliance, respectively.

Table 2. Means, Standard Deviations for Variables of Interest Time 1

	Min.	Max.	Mean	SD
BASC-2 Self-Esteem	21	62	50.73	10.31
BASC-2 Self-Reliance	19	71	48.13	11.15
BASC-2 Personal Adjustment Composite	16	69	49.52	10.45
CVE	-1.31	4.56	.01	1.01
HVE	-.89	4.23	.01	1.01
CRI Total	0	177	110.23	22.09
CRI Daily Living Routines	1	84	33.18	7.93
CRI Discipline Routines	4	44	34.29	7.27
CRI Household Responsibilities	0	36	26.21	6.68
CRI Homework Routines	0	20	16.56	3.84
APQ Parent Involvement	3	50	40.26	6.33
APQ Positive Parenting	5	80	26.38	3.65
APQ Poor Monitoring	6	38	18.30	6.94
APQ Inconsistent Discipline	4	26	14.06	4.54
APQ Corporal Punishment	2	15	6.07	2.93
HURTE Child Life-Threatening Experiences	0	5	.79	1.16
HURTE Child Loss-Disruption	0	9	3.10	2.27

Note. BASC-2 = Behavior Assessment System for Children, Second Edition; CVE = Community Violence Exposure; HVE = Home Violence Exposure; CRI = Child Routines Inventory; APQ = Alabama Parenting Questionnaire; Time 1 = 3-6 months post disaster.

A majority (74%) of the sample was displaced due to Hurricane Katrina. While the level of hurricane exposure was varied in the sample, approximately 28% of youth indicated that they thought they might die during the hurricane. Additionally, many children reported significant disruptions at home and at school due to the hurricane, in that 34% indicated that they were not able to return to the school they went to prior to the storm and 41% of the children's homes were "badly damaged" during the hurricane.

In respect to previous violence exposure, item frequencies for HVE and CVE were examined. 13% of adolescents and 10% of children reported someone hitting them and 30% of adolescents and 18% of children reported people screaming at each other at home. In terms of CVE, 23% of adolescents and 21% of children reported hearing about someone getting shot, 18% of adolescents and 26% of children reported hearing about someone getting killed, and 39% of adolescents and 16% of children reported hearing gunshots in their neighborhood. Due to the frequency of violence exposure and to control for the possible impact of violence exposure on outcome variables, HVE and CVE were retained as control variables when developing final regression models. Z-scores were calculated for the KID-SAVE and SAVE in order to create a combined CVE and HVE score. These composite scores were used in the following analyses.

Table 3. Ranges, Means, Standard Deviations for Variables of Interest Time 2

	Min.	Max.	Mean	SD
BASC-2 Self-Esteem	18	62	51.02	10.75
BASC-2 Self-Reliance	10	71	47.22	11.36
BASC-2 Personal Adjustment Composite	18	68	49.33	10.30
APQ Parent Involvement	14	50	40.04	7.56
APQ Positive Parenting	9	30	26.14	4.72
APQ Poor Monitoring	10	45	16.10	6.30
APQ Inconsistent Discipline	6	28	13.68	4.98
APQ Corporal Punishment	3	13	5.47	2.74
CRI Total	43	144	108.29	24.30
CRI Daily Living Routines	6	44	33.52	7.56
CRI Discipline Routines	11	44	34.82	7.14
CRI Household Responsibilities	3	36	24.81	7.01
CRI Homework Routines	2	20	16.14	4.40

Note. BASC-2 = Behavior Assessment System for Children, Second Edition; CRI = Child Routines Inventory; APQ = Alabama Parenting Questionnaire; T2 = 13 months post-disaster.

*Bivariate Correlations.* At Time 1, household income prior to Hurricane Katrina was significantly related to self-reliance ( $r = .14, p < .05$ ), in that children from higher

income families reported higher self-reliance T-scores. The relationship between grade of child and self-esteem was trending towards significance ( $r = .16, p = .05$ ) at Time 2, in that older children reported higher rates of self-esteem. At Time 2, minority status (dummy coded: 0 = white, 1 = minority;  $r = .13, p < .05$ ) and child sex (dummy coded: 0 = male, 1 = female;  $r = -.12, p < .05$ ) were significantly correlated with self-esteem. None of the demographic variables were significantly correlated with self-reliance at Time 2. Because of the exploratory nature of the current investigation, sex, minority status and grade were retained as control variables in subsequent analyses.

Additionally, bivariate correlations were conducted and a correlation matrix was developed for all Time 1 and Time 2 variables of interest. Matrices included hypothesized control variables (community violence, home violence, and disaster exposure), predictor variables (parenting behaviors and child routines), and outcome variables (self-esteem and self-reliance) independently for Time 1 (3-7 months post-Hurricane Katrina) and Time 2 (13-17 months post-Hurricane Katrina). This information is presented in Tables 4 and 5 for Time 1 and Time 2, respectively.

In terms of the proposed predictor variables (i.e., hurricane loss/disruption, CVE and HVE), none of the correlations with outcome variables were found to be statistically significant; however, the relationship between HVE and self-esteem ( $r = -.12, p = .06$ ) at Time 1 approached significance.

Positive parenting and parent involvement were highly significantly correlated with one another at Time 1 ( $r = .66, p < .001$ ) and Time 2 ( $r = .73, p < .001$ ). Tabachnick & Fidell (2012) advise that correlations between independent variables that are larger than .70 may indicate collinearity and a composite score should be considered. Therefore,

a positive parenting composite score was calculated using the procedure outlined in a paper by Barry, Frick, and Gafeman (2008) and was utilized for subsequent regression analyses. Similarly, Time 1 daily living routines ( $r = .90, p < .001$ ), household routines ( $r = .85, p < .001$ ), homework routines ( $r = .76, p < .001$ ), and discipline routines ( $r = .90, p < .001$ ) were highly significantly correlated with the CRI composite score. The same pattern was found at Time 2 (see Table 5). Due to risk of collinearity, the composite CRI score was used in the regression analyses, rather than individual subscales.

Finally, at Time 1, the only predictor variable significantly correlated with self-esteem was parent involvement ( $r = .14, p < .05$ ), in that higher rates of parent involvement were related to increased rates of self-esteem in youth. None of the other predictor variables were significantly correlated with self-esteem at Time 1; however, the positive parenting composite score (not shown in Tables 4 and 5) approached significance with self-esteem ( $r = .12, p = .06$ ). Self-reliance at Time 1 was significantly negatively correlated with corporal punishment ( $r = -.13, p < .05$ ), in that increased corporal punishment was associated with decreased self-reliance. At Time 2, household routines were significantly correlated with self-esteem ( $r = .17, p < .05$ ). This relationship suggests that increased self-esteem is associated with more household-related routines. The relationship between poor monitoring and self-esteem approached significance ( $r = -.13, p = .09$ ), in that increased scores on the measure of poor monitoring were related to lower self-esteem scores.



Table 4. Correlations T1

	1	2	3	4	5	6	7	8	9	10
1. Personal Adjustment	-									
2. Self-Esteem	.77**	-								
3. Self-Reliance	.74**	.31**	-							
4. Life-Threat	-.02	.04	-.01	-						
5. Loss/Disruption	.01	.00	-.02	.36*	-					
6. HVE	-.05	-.12 <sup>†</sup>	.04	.23**	.15**	-				
7. CVE	-.04	-.06	.06	.28**	.22**	.77**	-			
8. Total Routines	-.03	-.01	.00	-.05	.02	-.11*	-.07	-		
9. Discipline Routines	-.06	-.01	-.01	-.03	.03	-.08	-.08	.90**	-	
10. Homework Routines	-.02	-.00	-.00	-.01	.05	-.11	-.05	.76**	.59**	-
11. Household	-.01	.03	.00	-.04	-.03	-.04	.02	.85**	.69**	.54**
12. Daily Living	-.08	.04	.02	-.07	-.01	-.16**	-.11 <sup>†</sup>	.90**	.73**	.64**
13. Positive Parenting	-.03	.05	.03	-.07	-.08	-.06	-.08	.47**	.48**	.40**
14. Parent Involvement	.03	.14*	.00	-.03	-.04	-.06	-.02	.46**	.42**	.44**
15. Poor Monitoring	.04	-.12	-.07	-.08	-.01	.17*	.17**	-.46**	-.41**	-.38**
16. Inconsistent Discipline	-.02	-.03	.02	.06	.03	.09	.09	-.37**	-.33**	-.26**
17. Corporal Punishment	-.09	-.10	-.13*	.11 <sup>†</sup>	.11 <sup>†</sup>	.12*	.12*	-.20**	-.17**	-.15**

Note. \*\* Correlation is significant at the .01 level (2-tailed); \* Correlation is significant at the .05 level (2-tailed); <sup>†</sup> Correlation approaching significance at the .10 level; HVE = Home Violence Exposure; CVE = Community Violence Exposure; T1 = 3-7 months post-disaster.

Table 4. Correlations T1 (continued)

	11	12	13	14	15	16
1. Personal Adjustment						
2. Self-Esteem						
3. Self-Reliance						
4. Life-Threat						
5. Loss/Disruption						
6. HVE						
7. CVE						
8. Total Routines						
9. Discipline Routines						
10. Homework Routines						
11. Household	-					
12. Daily Living	.63**	-				
13. Positive Parenting	.32**	.41**	-			
14. Parent Involvement	.28**	.46**	.66**	-		
15. Poor Monitoring	-.28**	-.49**	-.32**	-.30**	-	
16. Inconsistent Discipline	-.30**	-.35**	-.17**	-.19**	.55**	-
17. Corporal Punishment	-.13**	-.20**	-.16**	-.09	.40**	.38**

Note. \*\* Correlation is significant at the .01 level (2-tailed); \* Correlation is significant at the .05 level (2-tailed); † Correlation approaching significance at the .10 level; HVE = Home Violence Exposure; CVE = Community Violence Exposure; T1 = 3-7 months post-disaster.

Table 5. Correlations T2

	1	2	3	4	5	6	7	8	9	10
1. Personal Adjustment	-									
2. Self-Esteem	.68**	-								
3. Self-Reliance	.73**	.20**	-							
4. Life-Threat	-.01	.02	-.03	-						
5. Loss/Disruption	-.06	-.05	-.06	.36**	-					
6. HVE	-.04	.05	-.05	.23**	.15**	-				
7. CVE	-.01	.08	-.04	.28**	.22**	.77**	-			
8. Total Routines	.13	.09	.01	-.07	-.17*	-.14	-.17 <sup>†</sup>	-		
9. Discipline Routines	.01	-.02	-.06	.03	-.08	-.03	-.11	.75**	-	
10. Homework Routines	.12	.04	.03	.03	-.02	-.14	-.11	.83**	.57**	-
11. Household	-.13	.17*	-.05	.03	-.11	-.01	-.09	-.88**	.55**	.57**
12. Daily Living	-.07	.02	-.01	-.03	-.11	-.18*	-.23**	-.30*	.68**	.57**
13. Positive Parenting	.05	-.07	.11	-.15 <sup>†</sup>	-.03	-.19 <sup>†</sup>	-.24*	-.12	-.28**	.38**
14. Parent Involvement	.15 <sup>†</sup>	.05	.11	-.15	-.06	.23**	-.24*	.37**	.31**	.44**
15. Poor Monitoring	-.08	-.13 <sup>†</sup>	.01	.25	-.06	.23**	-.33**	-.23*	-.21*	-.20*
16. Inconsistent Discipline	.06	-.01	.05	.14	.14	.06	.10	-.26*	-.34**	-.21
17. Corporal Punishment	-.09	-.08	-.07	.06	.12	.08	.09	-.16	.12	-.10

Note. \*\* Correlation is significant at the .01 level (2-tailed); \* Correlation is significant at the .05 level (2-tailed); <sup>†</sup> Correlation approaching significance at the .10 level; HVE = Home Violence Exposure; CVE = Community Violence Exposure; CRI = Child Routines Inventory; T2 = 13-17 months post-disaster.

Table 5. Correlations T2 (continued)

	11	12	13	14	15	16
1. Personal Adjustment						
2. Self-Esteem						
3. Self-Reliance						
4. Life-Threat						
5. Loss/Disruption						
6. HVE						
7. CVE						
8. Total Routines						
9. Discipline Routines						
10. Homework Routines						
11. Household	-					
12. Daily Living	.61**	-				
13. Positive Parenting	.14	.27**	-			
14. Parent Involvement	.12	.39**	.73**			
15. Poor Monitoring	.24**	-.25*	-.27*	.36*		
16. Inconsistent Discipline	-.15	-.28*	.04	-.08	.34*	
17. Corporal Punishment	-.22	-.18	-.03	-.06	.32*	.26 <sup>†</sup>

Note. \*\* Correlation is significant at the .01 level (2-tailed); \* Correlation is significant at the .05 level (2-tailed); <sup>†</sup> Correlation approaching significance at the .10 level; HVE = Home Violence Exposure; CVE = Community Violence Exposure; CRI = Child Routines Inventory; T2 = 13-17 months post-disaster.

## Primary Analysis

Proposed hypotheses were tested with a series of hierarchical linear regression analyses to examine the relationship between positive adjustment variables (i.e., self-reliance and self-esteem) and microsystem level predictor variables (i.e., parent behaviors and child routines).

Because of the substantial rate of previous violence exposure, HVE and CVE were controlled for on Step 1 of the regression model. Step 2 included relevant demographic variables (i.e., child grade, gender, minority status). Finally, parenting variables (i.e., positive parenting, poor mentoring/supervision, inconsistent discipline, and corporal punishment) and child routines were entered on the final step of the regression model. This procedure was repeated for each of the criterion variables of interest: self-reliance and self-esteem, at Time 1 and Time 2 independently. The results of these analyses are presented in Tables 6 and 7.

*Personal Adjustment 3-6 Months Post-Katrina.* The overall model for self-esteem at Time 1 was found to be significant [ $F(10, 354) = 2.40, p < .05$ ] accounting for 4% of the variance in self-esteem scores. As shown in table 6, HVE was the strongest predictor of self-esteem ( $B = -1.81, p < .05$ ) in the sample, in that increase presence of HVE predicted lower self-esteem scores. CVE, minority status, child gender, child age, and all family-level predictors were not significantly predictive of self-esteem in the final model. Positive parenting ( $B = .70, p = .09$ ) and child routines ( $B = -.19, p = .06$ ) approached significance in the model. The final model for self-reliance at Time 1 was not found to be statistically significant; however, the model approached significance [ $F(10, 354) = 1.70, p = .08$ ], accounting for 2% of the variance in self-reliance scores. In this model, the only

significant predictor of self-reliance was corporal punishment ( $B = .57, p < .05$ ). Corporal punishment was found to negatively predict self-reliance. None of the other variables in the model were found to be statistically significant.

*Personal Adjustment 13-17 Months Post-Katrina.* A second set of regression models were conducted to elucidate the relationship between family-level predictor variables and self-esteem and self-reliance in youth 13 months following Hurricane Katrina (see Table 7). The final model predicting self-esteem at Time 2 was found to be significant [ $F(5, 356) = 5.03, p < .001$ ], accounting for 8% of the variance in self-esteem. Minority status ( $B = 3.47, p < .05$ ) and child gender ( $B = -2.74, p < .05$ ) were significant predictors of self-esteem, in that males and minority status were associated with higher rates of self-esteem. The only significant family level predictor variable was poor monitoring/supervision ( $B = -.38, p < .05$ ). The model predicting self-reliance at Time 2 was not statistically significant, however, similar to Time 1, the model approached significance [ $F(10, 335) = 1.77, p = .06$ ], accounting for 2% of the variance. None of the family-level predictor variables were found to be significantly predictive of self-reliance.

Table 6. Regression Models for T1

	Self-Esteem					Self-Reliance				
	R <sup>2</sup>	Adj. R <sup>2</sup>	R <sup>2</sup> Δ	B	SE	R <sup>2</sup>	Adj. R <sup>2</sup>	R <sup>2</sup> Δ	B	SE
Step 1	.02	.01	.02			.01	.00	.01		
HVE				-1.81*	.93				-.22	1.04
CVE				.80	.94				1.20	1.10
Step 2	.02	.01	.01			.01	.00	.01		
Minority Status				2.09	1.55				-.37	1.73
Gender				.58	1.20				-.57	1.35
Child Age in Years				.56	.38				-.26	.44
Step 3	.06	.04	.04**			.05	.02	.04*		
Corporal Punishment				-.28	.27				-.57*	.26
Inconsistent Discipline				.07	.16				.30	.18
Poor Monitoring				-.17	.13				-.16	.15
Positive Parenting				.70 <sup>†</sup>	.41				-.06	.45
Child Routines				-.19 <sup>†</sup>	.10				-.01	.14

Note. \*\* Correlation is significant at the .01 level (2-tailed); \* Correlation is significant at the .05 level (2-tailed); <sup>†</sup> Correlation approaching significance at the .10 level; HVE = Home Violence Exposure; CVE = Community Violence Exposure; T1 = 3-7 months post-disaster.

Table 7. Regression Models for T2

	Self-Esteem					Self-Reliance				
	R <sup>2</sup>	Adj. R <sup>2</sup>	R <sup>2</sup> Δ	B	SE	R <sup>2</sup>	Adj. R <sup>2</sup>	R <sup>2</sup> Δ	B	SE
Step 1	.01	.00	.01			.01	.00	.01		
HVE				-.23	1.08				-.80	1.11
CVE				1.52	1.18				.32	1.12
Step 2	.04	.02	.03*			.01	-.01	.00		
Minority Status				3.47*	1.50				.75	1.75
Gender				-2.74*	1.24				.16	1.37
Child Age in Years				.52	.45				.25	.50
Step 3	.10	.08	.07**			.05	.02	.04*		
Corporal Punishment				-.22	.44				-.46	.36
Inconsistent Discipline				.22	.18				.14	.23
Poor Monitoring				-.38*	.18				.12	.21
Positive Parenting				-.45	.43				.88	.60
Child Routines				.06	.05				-.02	.04

Note. \*\* Correlation is significant at the .01 level (2-tailed); \* Correlation is significant at the .05 level (2-tailed); † Correlation approaching significance at the .10 level; HVE = Home Violence Exposure; CVE = Community Violence Exposure; T2 = 13-17 months post-disaster.



## DISCUSSION

The present study examined the role of parenting behaviors and child routines on children's psychological adjustment at two time points (3-7 and 13-17 months) following Hurricane Katrina. Previous research assessing the impact of natural disasters on children and youth has primarily focused on predictors of negative symptoms (e.g., PTSS, PTSD, anxiety, depression) and very few studies have focused on positive psychological adjustment and resilience. Therefore, little is known about how the family environment and other ecological systems impact positive outcomes in youth post-disaster. This investigation represents the first attempt to test several hypotheses related to predicting self-esteem and self-reliance in a sample of children and adolescents exposed to Hurricane Katrina.

While hypotheses were partially supported, the major finding of the present study is that parenting behaviors and child routines were largely unrelated to children's self-reported post-disaster adjustment. This was a surprising finding given the established relationship between parenting behaviors and negative outcomes in post-disaster samples (Kelley et al., 2010; Gil-Rivas & Kilmer, 2013). Furthermore, the statistically significant relationships between parenting behavior and child routines with self-esteem and self-reliance in the sample were small, accounting for a very minor portion of the variance in scores. Potential explanations for the small relationships that were discovered are discussed below and suggestions for future research are highlighted.

It was hypothesized that degree of hurricane and previous violence exposure would significantly predict personal adjustment, in that increased exposure would be inversely associated with self-esteem and self-reliance in children and adolescents. Perceived life

threat/disaster-related loss and CVE have been well documented as accounting for a significant amount of the variance in psychological outcomes (e.g., PTSS) in children impacted by natural disasters (Banks & Weems, 2014; Bonanno et al., 2010; Kelley et al., 2010; La Greca et al., 2013; Self-Brown et al., 2013; Spell et al., 2008; Sprague et al., 2015; Weems & Graham, 2014). Thus, it was expected that these variables would also be significantly predictive of child-reported personal adjustment (i.e., self-esteem and self-reliance) following Hurricane Katrina. However, this relationship was only partially observed in this study.

While the relationship was small, HVE was found to be the strongest predictor of self-esteem at Time 1 (3 months post-Katrina). However, this relationship was not observed for self-esteem at Time 2 (13 months post-Katrina) or for self-reliance at either time-point. Contrary to hypotheses based on previous literature assessing clinical symptoms post-disaster (Bonanno et al., 2010; Kelley et al., 2010; Self-Brown et al., 2013; Sprague et al., 2015; Weems & Graham, 2014), hurricane-related perceived loss/life threat and CVE were not significantly predictive of self-esteem or self-reliance at either time point. The relationship between HVE and self-esteem is consistent with previous research documenting reduced self-esteem in children exposed to domestic violence (Holt, Buckley, & Whelan, 2008). In the immediate aftermath of a disaster, event-related distress may indirectly impact rates of HVE in families with higher rates of perceived stress. Therefore, the influence of HVE may be particularly important in the months following a disaster compared to long-term outcomes.

Secondly, it was hypothesized that positive parenting behaviors (i.e., parent involvement, positive parenting) would positively predict self-esteem and self-reliance in

children impacted by Hurricane Katrina. Overall, positive parenting variables were not significantly predictive of self-esteem or self-reliance at either time-point. While the predictive relationship between positive parenting and self-esteem trended towards significance at 3-7 months post-Katrina, this trend was not observed at 13-17 months. Taken together with the significant predictive value of HVE for self-esteem at Time 1, positive parenting behaviors may be playing a moderating role between HVE and self-esteem in hurricane impacted youth, serving as a protective factor in the presence of HVE. However, in the current study, this relationship, while trending towards significance, was small.

Conversely, it was hypothesized that negative parenting behaviors (i.e., poor mentoring/supervision, inconsistent discipline, and corporal punishment), would inversely predict rates of child-reported self-esteem and self-reliance. This hypothesis was partially supported, in that corporal punishment negatively predicted self-reliance and poor monitoring/supervision negatively predicted with self-esteem 3-7 months post-disaster. Negative parenting behaviors did not independently contribute to the regression models 13-17 months post-disaster.

Research assessing the role of negative parenting behaviors, such as corporal punishment, on post-disaster outcomes, has established an increased risk for the development of negative psychological symptoms post-disaster (e.g., PTSS/PTSD; Kelley et al., 2010). In one study, Kelley and colleagues (2010) found that the relationship between degree of hurricane-exposure and PTSD was strongest in families with high levels of maternal distress and increased corporal punishment. This study suggests that parent-distress influences rates of corporal punishment and in turn

negatively impacts children's psychological outcomes. Future research should build upon the current model, by including parental distress as a potential mediator.

In regard to child routines, it was hypothesized that increased child routines would significantly predict increased levels of self-esteem and self-reliance. Researchers and clinicians alike often promote the reinstatement of routines in post-disaster communities, as this provides children with a sense of consistency and normalcy (Vernberg, 2002; Pfefferbaum & Shaw, 2013; Botey & Kulig, 2013; American Red Cross, 2016; Prinstein et al., 1996). The assumption that increased routines leads to increased adjustment was not observed in this sample. Child routines were found to negatively predict self-esteem at 3-7 months post-disaster; while this relationship was not found to be statistically significant, it is consistent with previous research identifying a positive relationship between routines and negative outcomes (Kelley et al., 2010). These findings suggest that routines could potentially have a negative impact on psychological outcomes post-disaster.

There are several possible explanations for this finding. The manner in which routines are implemented could influence youth outcomes post-disaster. For example, routines that are implemented in a coercive manner may lead to increased stress for children, especially for those who were recently exposed to an acute traumatic event, such as a hurricane. Research intending to build on these findings should investigate the possible interaction between routines and coercive parenting behaviors. Furthermore, it may be helpful to know the frequency of baseline routines in order to draw conclusions about how possible changes in routines can influence psychological adjustment and pathology. For example, if families implemented inconsistent routines prior to Hurricane

Katrina, instituting new routines in a post-disaster environment may prove to be a source of stress for children and families leading to negative psychological outcomes.

Overall, the relationship between family environment factors and child/adolescent self-esteem and self-reliance was weak. The models produced in the final analyses accounted for very little of the variance in self-reliance and self-esteem scores. Despite this, the current study is an important first step in identifying which parenting behaviors are most predictive of positive outcomes in children impacted by Hurricane Katrina and ruling out factors that are not significantly predictive. While analyses suggest that parenting behaviors and child routines may play a role in post-disaster psychological adjustment in youth, future research should focus on further extrapolating the underpinnings of this relationship.

### **Limitations**

One major limitation of the current study is that the analyses tested are largely correlational; therefore, causal relationships between study variables cannot be drawn. More sophisticated statistical modeling techniques (e.g., path analysis) can allow for a longitudinal analysis of the data to more precisely assess changes in positive adjustment over time. Further analyses should attempt to develop more concise models in an attempt to explain variance in self-esteem and self-reliance scores.

Additionally, the sample included in this study was restrictive in terms of demographic characteristics. While this study provides insight on a traditionally marginalized population, the sample was composed of predominantly low-income African American families with previous exposure to home and community violence. Future research should seek to build upon this model in a more heterogeneous sample to

improve the generalizability of results. Furthermore, supplemental analyses on this particular sample, should involve more rigorous examination of potential cultural and racial influences on psychological outcomes. This is of particular importance when assessing the impact of parenting behaviors on children, as research documents racial and cultural differences in preferred parenting practices and emphasizes the importance of these considerations for the development of parenting-based interventions (Sangawi, Adams, & Reissland, 2015; Forehand & Kotchick, 2016). Future research assessing psychological impact of disaster should carefully consider race, ethnicity, and culture and interpret the generalizability of results with caution.

Because data was collected post-disaster, it is impossible to determine whether level of positive adjustment changed from pre- to post-disaster. Future research should establish baseline rates of psychological functioning prior to disaster to be able to determine which children are at heightened risk for maladjustment. Additionally, hypotheses were investigated during the first year and a half following Hurricane Katrina. Recent literature indicates that children are often impacted by natural disaster, in some cases, for several years following exposure (Tanaka et al., 2016; Weems & Banks, 2015). Further investigation of the long-term impact of disaster exposure on the self-esteem and self-reliance in children beyond the first year of impact is warranted.

### **Future Directions**

The limited variance accounted for in the final regression models produces questions about the unexplained variance. There is a paucity of research in the assessment of positive adjustment in children impacted by natural disasters. In a rare study, Vigna and colleagues (2009) discovered that social support and certain types of coping (i.e.,

diversion) were significantly predictive of overall positive adjustment in children impacted by Hurricane Katrina 25-28 months post-disaster. Some research suggests that availability of emotional support from parents or other parental figures is particularly important for children's resilience and self-esteem (Seals, Buckley, & Whelan, 2008). It may be possible that social support from parents plays a more significant role in positive adjustment outcomes than parenting behaviors themselves. Future research should build upon this model to investigate the differential impact of parenting behaviors in addition to parent-provided social support in disaster-impacted children and adolescents.

Finally, the emerging literature examining children's post-disaster adjustment uses varied methods of assessing outcomes. For example, some researchers have used the BASC-2 (Reynolds & Kamphaus, 2004) system to assess personal adjustment or adaptability (e.g., Vigna et al., 2009), while others have used prosocial behaviors as a measure of adjustment and resilience (e.g., Sprague et al., 2015). Moreover, a majority of researchers define resilient outcomes in youth as the absence of significant clinical symptoms (e.g., Lai et al., 2015; Weems & Graham, 2014; La Greca et al., 2013). Future research should attempt to develop more accurate definitions of resilience, assessing both the presence of low symptomatology and high levels of positive adjustment (Bonanno & Diminich, 2013; Olsson et al., 2003; Weems & Graham, 2014). Improved definitions of resilience, specifically as it pertains to disaster-related outcomes, will allow for improvement in assessment tools and uniformity in the psychological literature. Ultimately, this will help clinicians, researchers, and practitioners to assess and promote resilience in trauma impacted-children more accurately.

## **Summary**

The purpose of the present study was to better understand potential predictors and factors theorized to underlie personal adjustment and psychological resilience in youth impacted by Hurricane Katrina. To date, this study is the first attempt to investigate parenting behaviors and family routines as they relate to children's personal adjustment post-disaster. Findings highlight some significant relationships between predictor and outcomes variables and is an important first step in better understanding the influence of the family environment on children's self-esteem and self-reliance post-disaster. Furthermore, this research, taken with previous findings, can inform treatment and public health initiatives aimed to promote resilience in children.



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Appendix A

Hurricane Exposure Questionnaire

**What Happened To You During and After the Hurricane – p. 1**

During the Hurricane

1. Where were you during the hurricane? (You can check more than one.)

- |                          |                                  |                          |               |
|--------------------------|----------------------------------|--------------------------|---------------|
| <input type="checkbox"/> | in my home                       | <input type="checkbox"/> | in a closet   |
| <input type="checkbox"/> | in a friend's or relative's home | <input type="checkbox"/> | in a bathroom |
| <input type="checkbox"/> | in a shelter                     | <input type="checkbox"/> | in a hallway  |
| <input type="checkbox"/> | out of town                      | <input type="checkbox"/> | in a car      |
| <input type="checkbox"/> | other (describe) _____           |                          |               |

- |     |   |            |          |       |             |
|-----|---|------------|----------|-------|-------------|
| 2.  | Did windows or doors break in the place you stayed during the hurricane?                            | yes        |          | no    |             |
| 3.  | Did you get hurt during the hurricane?  | yes        |          | no    |             |
| 4.  | At any time during the hurricane, did you think you might die?                                      | yes        |          | no    |             |
| 5.  | Did you see anyone else get hurt badly during the hurricane?  | yes        |          | no    |             |
| 6.  | Did you have to go outside during the hurricane because the building you were in was badly damaged? | yes        |          | no    |             |
| 7.  | Did a pet you liked get hurt or die during the hurricane?   | yes        |          | no    |             |
| 8.  | Did you get hit by anything falling or flying during the hurricane?                                 | yes        |          | no    |             |
| 9.  | Was your mother or father with you during the hurricane?  | yes        |          | no    |             |
| 10. | Overall, how scared or upset were you during the hurricane?   | not at all | a little | a lot | a whole lot |

## What Happened To You During and After the Hurricane – p. 2

Name: \_\_\_\_\_ Grade: \_\_\_\_\_ Teacher: \_\_\_\_\_ Date: \_\_\_\_\_

### After the Hurricane

- |     |   |            |          |       |             |
|-----|---|------------|----------|-------|-------------|
| 1.  | Was your home damaged badly or destroyed by the hurricane?                                | yes        | no       |       |             |
| 2.  | Did you have to go to a new school because of the hurricane?                              | yes        | no       |       |             |
| 3.  | Did you move to a new place because of the hurricane?                                     | yes        | no       |       |             |
| 4.  | Did one of your parents lose his or her job because of the hurricane?                     | yes        | no       |       |             |
| 5.  | Has it been hard to see your friends since the hurricane because they moved or you moved? | yes        | no       |       |             |
| 6.  | Did your family have trouble getting enough food and water after the hurricane?           | yes        | no       |       |             |
| 7.  | Were your clothes or toys ruined by the hurricane?  | yes        | no       |       |             |
| 8.  | Did you pet run away or have to be given away because of the hurricane?                   | yes        | no       |       |             |
| 9.  | Has anyone stolen anything from your home since the hurricane?                            | yes        | no       |       |             |
| 10. | Did you have to live away from your parents for a week or more because of the hurricane?  | yes        | no       |       |             |
| 11. | Overall, how upset about things have you been since the hurricane?                        | not at all | a little | a lot | a whole lot |



## Appendix B

### SAVE Questionnaire

	<u>How often it happens</u>				
	Never	Hardly	Sometimes Ever	Almost	Always Always
1. I have seen someone carry a gun...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
2. Someone has pulled a gun on me...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
3. Grownups beat me up...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
4. Someone my age has threatened to beat me up...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
5. I have been shot...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
6. I have seen the police arrest someone...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
7. Someone my age hits me...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
8. I have seen someone get killed...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
9. I have seen a grownup hit a kid...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4

How often it happens

	Never	Hardly Ever	Sometimes	Almost Always	Always
10. I have heard about someone getting shot...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
11. Someone has pulled a knife on me...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
12. Grownups threaten to beat me up...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
13. I have had shots fired at me...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
14. I have seen someone carry a knife...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
15. I have seen someone get shot...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
16. I have been attacked with a knife...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
17. I have seen a kid hit a grownup...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
18. I have seen people scream at each other...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4

How often it happens



	Never	Hardly Ever	Sometimes	Almost Always	Always
19. I have seen someone pull a gun on someone else...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
20. I have seen someone get beaten up...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
21. I have heard about someone getting killed...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
22. I have heard about someone getting attacked with a knife...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
23. I have heard about someone getting beaten up...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
24. I have seen someone pull a knife on someone else...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
25. I have been badly hurt...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
26. I have seen someone get attacked with a knife...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
27. I hear gunshots...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4



How often it happens

	Never	Hardly Ever	Sometimes	Almost Always	Always
28. I have seen someone get badly hurt...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
29. I have run for cover when people started shooting...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
30. Grownups scream at me...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
31. I have heard of someone carrying a gun...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4
32. Grownups hit me...					
- at my school	0	1	2	3	4
- in my home	0	1	2	3	4
- in my neighborhood	0	1	2	3	4

Appendix C

**KID-SAVE**

	How often it happens:			How upsetting it was:		
	Never	Some- times	A lot	 Not at All	 Some- what	 Very
I have seen someone carry a gun	0	1	2	0	1	2
I have heard about someone getting attacked with a knife.	0	1	2	0	1	2
I have seen the police arrest someone.	0	1	2	0	1	2
Someone has pulled a gun on me.	0	1	2	0	1	2
I have seen someone pull a knife on someone else.	0	1	2	0	1	2
I have heard about a friend of mine getting shot.	0	1	2	0	1	2
I have seen someone get badly hurt.	0	1	2	0	1	2
Someone has pulled a knife on me.	0	1	2	0	1	2
I have seen someone get killed.	0	1	2	0	1	2
I have heard about drive-by shootings in my neighborhood.	0	1	2	0	1	2
I have seen a family member get shot.	0	1	2	0	1	2
Grown-ups scream at me at home.	0	1	2	0	1	2
I have seen a grown-up hit a kid.	0	1	2	0	1	2
Someone has threatened to beat me up.	0	1	2	0	1	2
I have seen people scream at each other.	0	1	2	0	1	2
I hear gunshots in my neighborhood.	0	1	2	0	1	2
I have seen someone carry a knife.	0	1	2	0	1	2
Grown-ups hit me at home.	0	1	2	0	1	2
I have seen a friend of mine get shot.	0	1	2	0	1	2

	How often it happens:			How upsetting it was:		
	Never	Some- times	A lot	 Not at All	 Some- what	 Very
I have run for cover when people started shooting.	0	1	2	0	1	2
I have seen a kid hit a grown-up.	0	1	2	0	1	2
I have heard about someone getting killed.	0	1	2	0	1	2
I have seen someone pull a gun on someone else.	0	1	2	0	1	2
I have been attacked with a knife.	0	1	2	0	1	2
I have seen someone get beat up.	0	1	2	0	1	2
Someone my age hits me.	0	1	2	0	1	2
I have seen someone get attacked with a knife.	0	1	2	0	1	2
I have heard of someone carrying a gun in my neighborhood.	0	1	2	0	1	2
I have seen a drive-by shooting.	0	1	2	0	1	2
I have heard about a family member getting shot.	0	1	2	0	1	2
I have seen a car get stolen.	0	1	2	0	1	2
I have heard about someone getting shot.	0	1	2	0	1	2
I have seen someone get shot.	0	1	2	0	1	2
I have heard about someone getting beat up.	0	1	2	0	1	2
I have been badly hurt.	0	1	2	0	1	2

We want to learn about things that happen to kids so we can help you. If something violent has happened to you or someone you know, please tell us about it: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Appendix D

**ALABAMA PARENTING QUESTIONNAIRE (APQ)**

Instructions: The following are a numbers of statements about your family. Please rate each item as to how often it typically occurs in your home. The possible answers are Never (1), Almost Never (2), Sometimes (3), Often (4), Always (5). PLEASE ANSWER ALL ITEMS.

		Never	Almost Never	Some- times	Often	Always
1.	You have a friendly talk with your child.	1	2	3	4	5
2.	You let your child know when he/she is doing a good job with something.	1	2	3	4	5
3.	You threaten to punish your child and then do not actually punish him/her.	1	2	3	4	5
4.	You volunteer to help with special activities that your child is involved in (such as sports, boy/girl scouts, church youth groups).	1	2	3	4	5
5.	You reward or give something extra to your child for obeying you or behaving well.	1	2	3	4	5
6.	Your child fails to leave a note or to let you know where he/she is going.	1	2	3	4	5
7.	You play games or do other fun things with your child.	1	2	3	4	5
8.	Your child talks you out of being punished after he/she has done something wrong.	1	2	3	4	5
9.	You ask your child about his/her day in school.	1	2	3	4	5
10.	Your child stays out in the evening past the time he/she is supposed to be home.	1	2	3	4	5
11.	You help your child with his/her homework.	1	2	3	4	5
12.	You feel that getting your child to obey you is more trouble that it's worth.	1	2	3	4	5
13.	You compliment your child when he/she does something well.	1	2	3	4	5
14.	You ask your child what his/her plans are for the coming day.	1	2	3	4	5
15.	You drive your child to a special activity.	1	2	3	4	5
16.	You praise your child if he/she behaves well.	1	2	3	4	5
17.	Your child is out with friends you don't know.	1	2	3	4	5
18.	You hug or kiss your child when he/she does something well.	1	2	3	4	5

19.	Your child goes out without a set time to be home.	1	2	3	4	5
20.	You talk to your child about his/her friends.	1	2	3	4	5
21.	Your child is out after dark without an adult with him/her.	1	2	3	4	5
22.	You let your child out of a punishment early (like lift restrictions earlier than you originally said).	1	2	3	4	5
23.	Your child helps plan family activities.	1	2	3	4	5
24.	You get so busy that you forgot where your child is and what he/she is doing.	1	2	3	4	5
25.	Your child is not punished when he/she has done something wrong.	1	2	3	4	5
26.	You attend PTA meetings, parent/teacher conferences, or other meetings at your child's school.	1	2	3	4	5
27.	You tell your child that you like it when he/she helps out around the house.	1	2	3	4	5
28.	You don't check that your child comes home at the time she/he was supposed to.	1	2	3	4	5
29.	You don't tell your child where you are going.	1	2	3	4	5
30.	Your child comes home from school more than an hour past the time you expect him/her.	1	2	3	4	5
31.	The punishment you give your child depends on your mood.	1	2	3	4	5
32.	Your child is at home without adult supervision.	1	2	3	4	5
33.	You spank your child with your hand when he/she has done something wrong.	1	2	3	4	5
34.	You ignore your child when he/she is misbehaving.	1	2	3	4	5
35.	You slap your child when he/she has done something wrong.	1	2	3	4	5
36.	You take away privileges or money from your child as a punishment.	1	2	3	4	5
37.	You send your child to his/her room as a punishment.	1	2	3	4	5
38.	You hit your child with a belt, switch, or other object when he/she has done something wrong.	1	2	3	4	5
39.	You yell or scream at your child when he/she has done something wrong.	1	2	3	4	5
40.	You calmly explain to your child why his/her behavior was wrong when he/she misbehaves.	1	2	3	4	5
41.	You use time out (make him/her sit or stand in a corner) as a punishment.	1	2	3	4	5
42.	You give your child extra chores as a punishment.	1	2	3	4	5



## Appendix E

### Child Routines Inventory

Routines are events that occur at about the same time, in the same order, or in the same way every time. **Please rate how often your child engages in each routine by circling a rating ranging from 0 (never) to 4 (nearly always) of how often your child has engaged in this routine in the last month.** If an item does not apply to your child due to his or her age, please mark "0".

<b>My child...</b>	How often does it occur at about the <b>same time</b> or in the <b>same way</b> ?  0 = Never 1 = Rarely 2 = Sometimes 3 = Often 4 = Nearly Always
1) ... has a set routine for getting ready in the morning (e.g., brushing teeth, washing face, doing hair, and dressing)	0 1 2 3 4
2) ... knows what will happen if he or she doesn't follow parent instructions or rules	0 1 2 3 4
3) ... takes turns with family members talking about their day	0 1 2 3 4
4) ... has regular chores (e.g., takes out trash, helps with laundry, feeds/cares for family pet)	0 1 2 3 4
5) ... straightens bedroom daily	0 1 2 3 4
6) ... eats meals with family at the table each day	0 1 2 3 4
7) ... hugs / kisses parent before bed	0 1 2 3 4
8) ... cleans up food mess after snack	0 1 2 3 4
9) ... spends special time talking with parent (e.g., in the car or before bed) each day	0 1 2 3 4
10) ... practices for lessons, such as piano or dance at about the same time each day	0 1 2 3 4
11) ... does the same things each night before bed (e.g., brush teeth, read story, say prayers, and kiss parent goodnight)	0 1 2 3 4
12) ... has household rules such as "No cursing", "No talking while eating" or "No running inside"	0 1 2 3 4
13) ... wakes up at about the same time on week days	0 1 2 3 4
14) ... must finish household responsibilities (e.g., homework or chores) <b>before play time</b>	0 1 2 3 4
15) ... receives rewards or privileges for specific good behavior (e.g., finishing homework or completing chores)	0 1 2 3 4
16) ... eats dinner at about the same time each day	0 1 2 3 4
17) ... brushes teeth before bed	0 1 2 3 4
18) ... picks up dirty clothes after changing	0 1 2 3 4
19) ... washes hands before mealtime	0 1 2 3 4
20) ... reads or listens to the Bible or other devotional book with family each day	0 1 2 3 4
21) ... goes to bed at about the same time on week nights	0 1 2 3 4

<b>My child...</b>	How <b>often</b> does it occur at about the <b>same time</b> or in the <b>same way</b> ?  0 = Never 1 = Rarely 2 = Sometimes 3 = Often 4 = Nearly Always
22) ... helps clean up after meals	0 1 2 3 4
23) ... has time limits on fun activities (e.g., outside play, TV, video games, or phone use)	0 1 2 3 4
24) ... washes hands after using toilet	0 1 2 3 4
25) ... is disciplined for misbehavior (e.g., time out, loss of a privilege, or spanking)	0 1 2 3 4
26) ... helps decide and prepare for family fun or events	0 1 2 3 4
27) ... receives smaller punishment for minor misbehavior (e.g., not following instructions), and larger punishment for major misbehavior (e.g., fighting)	0 1 2 3 4
28) ... picks up toys and puts them away when done playing	0 1 2 3 4
29) ... eats breakfast at about the same time and place (e.g., at kitchen table or at school ) each morning	0 1 2 3 4
30) ... makes bed each morning	0 1 2 3 4
31) ... helps puts things away after shopping	0 1 2 3 4
32) ... is praised or rewarded for specific good behavior (e.g., "I like the way you put away your toys")	0 1 2 3 4
33) ... says prayers before meals	0 1 2 3 4
34) ... takes part in "family time" each week when the family does planned activities together (e.g., play games, watch movies, go out to eat)	0 1 2 3 4

**The next questions are about school and homework.**

<b>Does your child attend school?</b>	<b>YES</b>	<b>NO</b>
---------------------------------------	------------	-----------

**If you answered "NO", please stop here and go to the next page. If you answered "YES", please continue.**

<b>Has your child attended school in the past month?</b>	<b>YES</b>	<b>NO</b>
--	------------	-----------

**If you answered "YES", please continue with #35.**

**If you answered "NO", please answer #35 to #39 based on how frequently your child engaged in these activities during the LAST MONTH school was in session**

35) ... shows parent school work after school (e.g., art work or spelling test)	0 1 2 3 4
36) ... begins homework at about the same time and place (e.g., at the kitchen table) during the week	0 1 2 3 4
37) ... is supervised by an adult who helps child with homework by explaining tasks, demonstrating the task, and/or checking the answers when it is completed.	0 1 2 3 4
38) ... completes homework	0 1 2 3 4
39) ... studies for tests (e.g., weekly spelling test)	0 1 2 3 4

## Appendix F

### **BASC-2 SRP – Adolescent Personal Adjustment Composite**

#### **Self-esteem**

- 1. I like who I am.
- 31. I wish I were different.
- 61. I feel good about myself.
- 91. I get upset about my looks.
- 121. My looks bother me.
- 104. I am good at things.
- 74. I like the way I look.
- 44. I wish I were someone else.

#### **Self-reliance**

- 123. I am good at making decisions.
- 153. My friends come to me for help.
- 166. I am someone you can rely on.
- 136. I like to make decisions on my own.
- 106. I can solve difficult problems by myself.
- 76. I am dependable.
- 46. I can handle most things on my own.
- 16. If I have a problem, I can usually work it out.

Appendix G

IRB Approval



Institutional Review Board  
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LSU IRB  
ACTION ON PROTOCOL APPROVAL REQUEST

TO: Mary Lou Kelley  
Psychology

FROM: Robert C. Mathews, Chairman  
Institutional Review Board for Research with Human Subjects

DATE: November 30, 2005

RE: IRB# 2561

TITLE: "Predictors of Recovery in Children Evacuated from Hurricane Katrina"

New Protocol/Modification: M


Review type: Full \_\_\_\_\_ Expedited X \_\_\_\_\_ Review date: 11/30/2005

Approved X \_\_\_\_\_ Disapproved \_\_\_\_\_

Approval Date: 11/30/2005 Approval Expiration Date: 11/30/2006

Re-review frequency: (annual unless otherwise stated) \_\_\_\_\_

Number of subjects approved: 400

By: Robert C. Mathews 

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING -- Continuing approval is **CONDITIONAL** on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects\*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. SPECIAL NOTE:

\*All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at <http://www.osr.lsu.edu/osricomply.html>

## VITA

Jennifer Piscitello, originally from Long Island, New York, completed her Bachelor of Arts with honors in Psychology and a second major in Political Science in 2010 from SUNY Stony Brook University. During her undergraduate studies, she completed an honors thesis aimed at identifying discriminating factors between detected and undetected families with child physical abuse. Prior to attending graduate school, Jennifer worked in related positions, first as a Program Supervisor of a transitional housing facility for homeless families and then as a Research Assistant at Columbia University Medical Center. She also volunteered for several years at a disaster law and policy center. Jennifer's interest in clinical psychology and family functioning led her to Louisiana State University where she is currently studying to complete her Doctor of Philosophy in Child Clinical Psychology under the supervision of Dr. Mary Lou Kelley. Her current research interests broadly include family factors related to children's response and recovery to traumatic events (e.g., natural disaster, community and home violence).