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Examination of the relationship between academic achievement and traumatic stress following Hurricane Katrina

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EXAMINATION OF THE RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND
TRAUMATIC STRESS FOLLOWING HURRICANE KATRINA

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in Partial Fulfillment of the
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in

The Department of Psychology

by

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Abstract

Hurricane Katrina inflicted traumatic experiences on many children in New Orleans and the surrounding area. The literature has shown a significant relationship between Post Traumatic Stress Disorder (PTSD) symptoms and lowered academic achievement in children. This longitudinal study investigated the relationships between attendance, academic achievement, and PTSD symptoms following Hurricane Katrina. Participants were 343 mother-child dyads recruited from public and private schools within Orleans Parish, Jefferson Parish, and East Baton Rouge Parish 4-7 months following Hurricane Katrina. Children completed the UCLA PTSD Reaction Index, the BASC-2 Self Report of Personality, and the Hurricane-Related Traumatic Experiences (HURTE). Mothers completed the Childhood Routines Inventory and a demographic questionnaire. Finally, children's test scores from the Iowa Test of Basic Skills and the Louisiana Educational Assessment Program were collected. Hierarchical regression analyses revealed that PTSD symptom severity following Hurricane Katrina was negatively correlated with post-storm achievement after accounting for pre-storm achievement and attendance. PTSD symptom severity was not a significant predictor of post-storm attendance after accounting for pre-storm attendance. Inattention/Hyperactivity served as a mediator between PTSD symptom severity and achievement in one of the three measured years (2008).

Finally, pre-storm academic achievement did not serve as a moderator in the relationship between hurricane exposure and PTSD symptom severity. Clinical implications and recommendations for future research are discussed.

Introduction

Hurricane Katrina had a very disruptive effect on children and families and many services and agencies were not available in the aftermath of the disaster. For many children, schools were damaged preventing re-enrollment. As such children lost contact with many friends and teachers who provided social support on a daily basis. Research has shown that the prevalence of Post Traumatic Stress Disorder (PTSD) in Katrina affected children ranged from 16% to 39% (Weems et al., 2010). Further, the literature consistently has demonstrated a link between increased PTSD symptoms and lowered academic achievement in children. The current study examined the relationship longitudinally after controlling for pre-storm academic variables.

Hurricane Katrina

Nearly 372,000 school-aged children were displaced by Hurricane Katrina (Hardy, 2005) and 150,000 individuals were stranded for up to a week without sufficient aid (Castellano, Ussery, & Grunfest, 2006). Madrid and Grant (2008) found that in the weeks following the storm, many children were withdrawn, displayed anxious and depressed affect, and noted worries regarding the effects of the disaster. They found that one month following the storm, youth in shelters experienced symptoms of acute stress such as dissociation, nightmares,

flashbacks, crying spells, poor concentration, and difficulty sleeping. Six months following Hurricane Katrina, Madrid and Grant further found that nearly half of parents living in shelters reported new behavioral or emotional problems in their children, and nearly 20% of children had not returned to school.

State and local officials in affected regions reported that educators and school administrators as well as officials also suffered personal loss that was greater than or equal to those losses suffered by the students and their families (Dean et al., 2008). Such a disrupted scholastic environment likely impacted the quality of instruction and stability in the schools, perhaps resulting in negative impacts on child achievement. Dean et al. further noted that school personnel described great levels of variability regarding the needs of their students, though for students in need, resources were lacking.

Posttraumatic Stress Disorder (PTSD)

Stress reaction theory, known as the “fight or flight” response, grounds the development of PTSD symptoms (Kruczek & Salsman, 2006). The limbic system in the amygdala triggers both psychological and physiological reactions when stress is perceived, resulting in a “fear conditioning” response (LeDoux, 1996). It is believed that hyperresponsive activity in the amygdala underlies the PTSD symptoms of intrusive memories, hyperarousal, and nightmares

(Cohen, 2001). Brain regions involved in attention, arousal, and emotion are affected by high levels of adrenergic activity which are caused by stressful experiences, specifically those which are unpredictable and uncontrollable (Donnelly, Amaya-Jackson, & March, 1999). It has also been found that youth who undergo severe stressors are more likely to demonstrate smaller cerebral brain volume (Carrion et al., 2001; De Bellis et al., 1999) and decreases in volume in cognitive processing regions of the brain such as the hippocampus (Carrion, Weems, & Reiss, 2007). Indeed, children who experience high levels of trauma are at risk for neurological changes which may hinder their academic performance.

Regarding PTSD risk factors, the degree of hurricane exposure is consistently predictive of PTSD symptom severity (Silverman & La Greca, 2002). Regarding hurricane Katrina, Weems et al. (2007) found that hurricane-related events experienced by youth were positively and significantly related to PTSD symptoms post-disaster. Further, pre-Katrina levels of trait anxiety and negative affect were significantly correlated with post-Katrina symptoms of Generalized Anxiety Disorder, Major Depression, and PTSD. They further noted that females were more likely to develop PTSD reactions than males. Rabalais, Ruggiero, and Scotti (2002) found that African American and Hispanic minorities are at greater risk for developing PTSD following

trauma exposure. Silverman and La Greca (2002) found that preexisting academic difficulties, behavior problems, and attention difficulties serve as risk factors as well.

Academic Achievement, Attendance Rates and PTSD

Recent literature has shown that PTSD symptoms are correlated with decreased academic achievement and attendance rates. Delaney-Black et al. (2002) examined standardized test scores in 299 urban first graders. After controlling for multiple variables (caregiver IQ, child gender, socioeconomic status, home environment, prenatal exposure to substance abuse, and violence exposure), traumatic distress related to violence exposure accounted for variance in reading ability. That is, children undergoing trauma related distress due to violence exposure were at significant risk for decreased reading achievement.

Broberg, Dyregrov and Lars (2005) examined adolescents who witnessed a 1998 discotheque fire in Goteborg, Sweden which killed 63 adolescents and injured 213. The authors found a positive correlation between adolescents' PTSD symptom severity and school absences. Twenty-three percent of adolescents who experienced the fire dropped out of school or repeated a class because of their traumatic experience, and fifty-nine percent reported a decrease in their exam results and grades due to the fire.

Saltzman, Pynoos, Layne, Steinberg, and Aisenberg (2001) found that adolescents' GPA was negatively correlated with PTSD symptoms related to community violence exposure. Specifically the researchers found that students with severe to very severe PTSD symptoms earned grades that were significantly lower than individuals with moderate levels of PTSD symptoms.

Summary and Purpose

High rates of poor concentration, behavioral problems and emotional problems in children were reported following Hurricane Katrina. Research has shown that traumatized youth may experience an impaired capacity for learning and memory. Therefore, it is likely that children affected by Hurricane Katrina may have suffered experiences which hindered their ability to perform adequately in the classroom.

This study examined the relationship between attendance, academic achievement and PTSD symptoms following Hurricane Katrina. An important contribution of this study is the inclusion of pre and post-disaster measures of academic achievement and attendance. This examination expands upon current research regarding school attendance, achievement, and trauma exposure. Specifically, child reported PTSD symptoms were examined as a risk factor for decreased academic achievement and decreased attendance after accounting for these variables

prior to Hurricane Katrina. Homework routines and attention were examined as a mediator for the relationship between PTSD and post-storm academic achievement. Finally pre-storm academic achievement was examined as a moderator in the relation between trauma exposure and PTSD symptom level. Below are the proposed hypotheses:

1. It is hypothesized that PTSD symptom severity following Hurricane Katrina will predict achievement test scores after accounting for pre-storm academic achievement and attendance. It is expected that PTSD symptom severity will serve as a risk factor for decreased academic achievement.
2. It is hypothesized that PTSD symptom severity following Hurricane Katrina will predict attendance after accounting for pre-storm attendance. It is expected that PTSD symptom severity will serve as a risk factor for decreased attendance.
3. It is hypothesized that homework routines and ADHD symptoms will mediate the relation between PTSD symptom severity and post-storm academic achievement. It is expected that relatively fewer homework routines and inattention/hyperactivity will drive this relation, as higher levels of PTSD will result in fewer homework routines and inattention/hyperactivity, resulting in decreased academic achievement.

4. It is hypothesized that pre-storm academic achievement will moderate the relation between hurricane exposure and PTSD symptom severity. It is expected that lower achievement will increase the strength of the positive relationship between hurricane exposure and PTSD symptom severity.

Method

Participants

Participants were 388 mother-child dyads recruited from various public and private elementary and middle schools within East Baton Rouge, Jefferson, and Orleans Parish, 4-7 months after Hurricane Katrina. Participants were either displaced by Hurricane Katrina (the majority of the Jefferson Parish and Orleans Parish participants) or not displaced (East Baton Rouge Parish participants and remaining Jefferson and Orleans Parish participants). The non-displaced sample was included in this examination in order to account for a full range of hurricane exposure experiences and related distress. Ages of the children ranged from 8 to 16 years. Children unable to comprehend questionnaires were excluded.

Measures

Demographic Questionnaire

A demographic questionnaire was created to obtain information regarding age, gender, grade, and family characteristics. Mother participants completed the questionnaire. Age, grade, and family income were gathered as control variables.

UCLA PTSD Reaction Index

The UCLA PTSD Reaction Index is a revised edition of the widely utilized and researched Child PTSD Reaction Index (CPTSD-RI; Nader, Pynoos, Fairbanks, & Fredrick, 1990). The UCLA PTSD Reaction Index is a 22-item instrument which assesses PTSD DSM-IV diagnostic criteria in children and adolescents (American Psychiatric Association, 1994). This measure has shown high test-retest reliability, internal consistency, as well as specificity and sensitivity (Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1998; Rodriguez, Steinberg, Saltzman, & Pynoos, 2001; Steinberg, Brymer, Decker, & Pynoos, 2004). In the present study the Index Summary score, which is the total score, was used as a measure of PTSD symptom severity.

Hurricane-Related Traumatic Experiences (HURTE)

The HURTE is a measure of hurricane-related traumatic experiences. The two subscales, Threat and Loss, are created from the summation of “yes” or “no” responses to questions concerning trauma experiences. The HURTE has shown adequate test-retest reliability and predictive validity (La Greca, Silverman, Verberg, & Prinstein, 1996; Vernberg, La Greca, Silverman, & Prinstein, 1996). The current study utilized Threat and Loss scores as a measure of child exposure to traumatic experiences.

The Childhood Routines Inventory (CRI)

The CRI is a 39-item questionnaire which assesses child routines. The questionnaire has demonstrated excellent internal consistency, good test-retest reliability as well as construct validity (Sytsma, Kelley, & Wymer, 2001). It is comprised of four subscales: Daily Living Routines, Discipline Routines, Homework Routines, and Household Responsibilities. Items are rated on a five point scale. The Homework Routines score was used in the analyses.

BASC- Self Report of Personality

The BASC-2 Self Report of Personality (BASC-2-SRP) is a self-report measure which has three forms based on age: one for ages 8-11 years, one for ages 12-21 years, and one for ages 18-25 years. The BASC-2-SRP has demonstrated adequate internal consistency, test-retest reliability, and validity (Reynolds & Kamphaus, 2004). The 8-11 year and 12-21 year forms were used for the present study. These two versions have an identical set of five composite scales and 18 primary scales. The composite scales include the following: Emotional Symptoms Index, Inattention/Hyperactivity, Internalizing Problems, Personal Adjustment, and School Problems. The Inattention/Hyperactivity composite scale was used in the analyses.

Attendance Records & Achievement Records

The Iowa Test of Basic Skills (ITBS) and the Louisiana Educational Assessment Program for the 21st Century (LEAP-21; grades 4 and 8) are administered annually in the state of Louisiana. As the ITBS and LEAP-21 scores are not reported on comparable scales, standard scores in subject domains were converted to z-scores based on the database of all children in the state of Louisiana. Subject domains included Math, Science, Social Studies, and English/Language Arts.

Procedure

After obtaining school board approval, schools were contacted and asked to allow students to participate in the research. Students in the 4th through 8th grades were recruited through flyers and questionnaire packets sent home through the child. Packets included parent consent forms, information regarding the study, contact information for any necessary psychological referral, the Demographic Questionnaire, the CRI and other measures included in the NIMH funded study (Kelley, 2006). After obtaining parent consent and child assent, children completed the questionnaires at school either individually or in small groups. Younger students were read the questionnaires and able readers completed the questionnaires on their own

with the directions read and explained. Appropriate referral information for mental health services was provided to all parents.

Based on school personnel preference, compensation and incentives were provided and included a \$5 cash prize or pizza parties to participating children. Participating mothers were either paid \$20 individually or entered into a cash prize drawing. Mother and child responses were anonymous and packets were coded to match mother child dyads.

Results

Missing Data and Invalid Data Analyses within Questionnaire Data

As recommended by Schafer and Graham (2002), missing questionnaire responses in the current study were addressed using the Bayesian multiple imputation procedure. Each missing value was replaced with a list of $m > 1$ simulated values. Per recommendations of Rubin (1987) and Schafer (1997) each of the m data sets were subsequently analyzed using a complete data method, and results were combined through simple arithmetic to give parameter estimates and standard errors which accounted for uncertainty due to missing data values (Schafer & Graham, 2002).

Preliminary Analyses

Among the 388 individuals who agreed to participate, academic achievement data was located for 343 participants, thus 343 participants were used in data analyses. Analyses were conducted to search for demographic differences between individuals with complete data (174 participants; i.e., 4 years of attendance and achievement data plus data points on all 5 questionnaires) versus those with partially complete data (239 participants). A multivariate analysis of variance (MANOVA) revealed significant differences between the two groups (complete vs. partially complete) $F(2, 323) = 32.37, p < .001, \text{partial eta squared} = .167$. Follow

up analysis of variance (ANOVA) indicated significant differences in age $F(1, 324) = 50.80, p < .001$, and grade $F(1, 324) = 63.48, p < .001$. Specifically, individuals with partially completed data were typically older ($M = 11.94, SD = .10$) and in a higher grade ($M = 6.28, SD = .09$) relative to children with complete data. Due to these findings, age and grade were controlled for in subsequent analyses. No other significant demographic differences were found between these two groups (partially complete vs. complete).

Assessment of Normality

Descriptive information on all study variables are presented in Appendices A and B. All variables were found to be normally distributed with the exception of all four Absence variables (i.e., Absences 2005, Absences 2006, Absences 2007, and Absences 2008) and the variable “HURTE Threat.” All 4 Absence variables were found to be skewed (skewness value >1) as a significant portion of children had few absences. The skewed data within the 4 Absence variables as well as the “HURTE Threat” variable was successfully normalized via a log transformation.

Factor Analysis

Principal component factor analyses revealed that among the academic achievement variables (i.e., Math, Science, Social Studies, and English/Language Arts) within each year (i.e.,

2005, 2006, 2007, 2008) one factor emerged with an eigenvalue above 1. Appendix C depicts the factor analysis results and variable loadings on each factor. Therefore, a single academic achievement factor for each year was used in the main analyses. The four factors were subsequently named Achievement 2005, Achievement 2006, Achievement 2007, and Achievement 2008.

Correlation of Variables

Bivariate correlations between the predictor and criterion variables were conducted for the total sample and are presented in Appendices D and E. Regarding Absence and Achievement variables, all Absence variables (2005-2008) were significantly and positively correlated with one another. All Achievement variables (2005-2008) were also significantly and positively correlated with one another. Absences 2008 was significantly and negatively correlated with all Achievement variables (2005-2008). HURTE Threat, HURTE Loss, and UCLA PTSD-RI were significantly and negatively correlated with all Achievement variables (2005-2008). BASC Inattention/Hyperactivity was significantly and negatively correlated with Achievement 2006, 2007, and 2008. CRI_Homework was significantly and negatively correlated with Absences 2008 and significantly and positively correlated with Achievement 2005.

Regarding questionnaire variables, HURTE Threat, HURTE Loss and UCLA PTSD-RI were all positively and significantly correlated. BASC Inattention/Hyperactivity was positively and significantly correlated with HURTE Threat and UCLA PTSD-RI.

Hypothesis 1

Hierarchical Regression analyses were run for each post-storm year (2006, 2007, and 2008). In order to examine hypothesis 1, the combined Academic Achievement factor score was entered in the first step. Pre-storm attendance was entered in the second step. In step 3, hurricane exposure as measured by the HURTE variables Threat and Loss was entered. In step 4, PTSD symptoms as measured by the Index Summary Score of the UCLA PTSD Reaction Index were entered. The outcome variable was the combined Academic Achievement factor score.

2006 Achievement

In the first step (see Table 1), income and pre-storm Academic Achievement were significant predictors of post-storm Achievement [$F(4, 272) = 168.73$]. Steps 2 (pre-storm Absences) and 3 (Threat and Loss) were not significant. In step 4, PTSD Index was a significant predictor of post-storm Achievement [$F(8, 268) = 85.97$]. These variables accounted for 72% of the variance in post-storm Achievement.

Table 1.

Hierarchical Regression Analysis Assessing PTSD Symptom Severity as a Predictor of 2006 Achievement Test Scores.

Variable	Step One		Step Two		Step Three		Step Four	
	<i>B</i>	β	<i>B</i>	β	<i>B</i>	β	<i>B</i>	β
Age	.03	.05	.03	.05	.03	.04	.03	.04
Grade	.02	.03	.02	.03	.03	.04	.02	.03
Income	.06***	.13***	.06**	.12**	.05**	.12**	.05***	.11***
Pre-Storm	.79***	.79***	.79***	.79***	.78***	.78***	.77***	.77***
Achievement								
Pre-Storm			-.03	-.03	-.04	-.03	-.03	-.03
Absences								
Threat					-.05	-.02	-.02	-.01
Loss					-.01	-.03	-.01	-.02
PTSD Index							-.01*	-.07*

Note. $R^2 = .71***$ for Step 1; $\Delta R^2 = .001$ for Step 2; $\Delta R^2 = .002$ for Step 3; $\Delta R^2 = .004^*$ for Step 4. *** $P < .001$. ** $P < .01$. * $p < .05$.

2007 Achievement

In the first step (see Table 2), income and pre-storm Achievement were significant predictors of post-storm Achievement [$F(4, 238) = 145.85$]. Steps 2 (pre-storm Absences) and 3 (Threat and Loss) were not significant. In step 4, PTSD Index was a significant predictor of post-storm Achievement [$F(8, 234) = 75.25$]. These variables accounted for 72% of the variance in post-storm Achievement.

2008 Achievement

In the first step income and pre-storm Achievement were significant predictors of post-storm Achievement [$F(4, 177) = 85.34$]; however, Steps 2 (pre-storm Absences), 3 (Threat and Loss), and 4 (PTSD Index) were not significant.

Hypothesis 2

In order to examine hypothesis 2, a hierarchical regression analysis was conducted. Pre-storm attendance records were entered in the first step. In step 2, hurricane exposure as measured by the HURTE variables Threat and Loss were entered. In step 3 the Index Summary Score of the UCLA PTSD Reaction Index was entered and the outcome variable was post-storm attendance record. After accounting for pre-storm attendance, Hurricane Threat and Loss, PTSD

Table 2.

Hierarchical Regression Analysis Assessing PTSD Symptom Severity as a Predictor of Achievement Test Scores Following Hurricane Katrina in the 2007 Sample.

Variable	Step One		Step Two		Step Three		Step Four	
	<i>B</i>	β	<i>B</i>	β	<i>B</i>	β	<i>B</i>	β
Age	.03	.06	.04	.04	.04	.07	.04	.07
Grade	.01	.01	.01	.01	.00	.00	-.01	-.02
Income	.06**	.13**	.06**	.13**	.06**	.13**	.06**	.12**
Pre-Storm	.79***	.79***	.79***	.79***	.79***	.79***	.78***	.78***
Achievement								
Pre-Storm			-.03	-.03	-.03	-.03	-.03	-.02
Absences								
Threat					.00	.00	.05	.02
Loss					.01	.02	.02	.05
PTSD Index							-.01**	-.10**

Note. $R^2 = .71***$ for Step 1; $\Delta R^2 = .00$ for Step 2; $\Delta R^2 = .00$ for Step 3; $\Delta R^2 = .01**$ for Step 4. *** $P < .001$. ** $P < .01$. * $p < .05$.

symptom severity was not a significant predictor of post-storm attendance within any of the measured years (2006, 2007, and 2008).

Hypothesis 3

In order to examine hypothesis 3, mediational analyses as recommended by Baron and Kenny (1986) were conducted to examine if Homework Routines and Inattention/Hyperactivity serve as mediators between PTSD and Achievement. First, the independent variable (PTSD) was examined as a predictor of the two mediators (Homework Routines and Inattention/Hyperactivity). Second, the independent variable (PTSD) was tested as a significant predictor of the dependent variables (Achievement 2006, Achievement 2007, and Achievement 2008). Third, the mediator (Inattention/Hyperactivity) was tested as a predictor of the dependent variables (Achievement 2006, Achievement 2007, and Achievement 2008). The mediation model was then tested through hierarchical regression analyses.

Inattention/Hyperactivity did not hold as a mediator for the 2006 or 2007 samples. As predicted, Inattention/Hyperactivity did hold as a mediator in the 2008 sample. In this sample, PTSD was a significant predictor of Inattention/Hyperactivity (total $R^2 = .19$, R^2 change = .18, $F(1, 243)$ change = 54.42, $p < .001$, $\beta = .44$). PTSD also significantly predicted Achievement (total $R^2 = .27$, R^2 change = .03, $F(1, 177)$ change = 7.38, $p < .01$, $\beta = -.18$). Third, the mediator

(Inattention/Hyperactivity) was a predictor of Achievement 2008 (total $R^2 = .28$, R^2 change = .04, $F(1, 162)$ change = 9.15, $p < .01$, $\beta = -.20$). Finally, as depicted in Table 3, the mediational model held as PTSD no longer had a significant effect on Achievement after controlling for Inattention/Hyperactivity. Discrepant with hypothesis 3, after controlling for age, grade, and income, PTSD was not a significant predictor of Homework Routines.

Table 3.

Regression Analyses Testing Inattention/Hyperactivity as a Mediator of the Relationship between PTSD and Achievement 2008.

	Variable	β	R^2	R^2 Change	F Change
Step 1	Age	-.34**	.28***	.28***	15.50***
	Grade	.30*			
	Income	.43***			
	Inattention/Hyperactivity	-.20**			
Step 2	PTSD	-.11	.29	.01	2.16

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Hypothesis 4

In order to examine hypothesis 4, a hierarchical regression analysis was conducted. Child exposure to events associated with Hurricane Katrina, as measured by the HURTE, were entered in step 1. In step 2 the pre-storm Academic Achievement factor score was entered. In step 3, a two way interaction between the pre-storm Academic Achievement factor score and child

exposure to events associated with Hurricane Katrina, as measured by the HURTE, were entered.

The outcome variable was the Index Summary Score of the UCLA PTSD Reaction Index. It was

found that pre-storm academic achievement did not serve as a moderator in the relationship

between hurricane exposure and PTSD symptom severity.

Discussion

Hurricane Katrina inflicted traumatic experiences on many children in and around New Orleans. The literature suggests that traumatized youth can experience neurological changes which result in an impaired capacity for learning and memory (Kruczek & Salsman, 2006). Further, PTSD symptoms have been associated with decreased attendance (Broberg et al., 2005) and academic performance (Delaney-Black et al., 2002; Saltzman et al., 2001).

The current investigation was the first to examine the relationship between disaster exposure and academic achievement and attendance after controlling for pre-disaster academic variables. Further, the children's achievement and attendance was examined longitudinally to identify whether initial effects were maintained across time. Finally, the study is unique in that the children generally were underachieving, impoverished African American children.

Four to seven months post-Katrina, inattention/hyperactivity symptoms and hurricane exposure were significantly correlated with PTSD symptoms. Again the finding was consistent with prior research that found trauma in youth is associated with decreased attention (Dyson, 1990; Gardner, 1971; van der Kolk et al., 1996). In line with these findings, hurricane threat and loss as well as PTSD symptom severity reported 4-7 months post-Katrina negatively correlated with Achievement variables from all measured years (2005-2008). This is in agreement with previous research which has shown that trauma related distressed is associated with decreased

levels of achievement (Broberg et al., 2005; Delaney-Black et al., 2002; Rousseau and Drapeau, 2000; Saltzman et al., 2001).

Hypothesis 1, that PTSD symptom severity following Hurricane Katrina would show a negative correlation with post-storm achievement after accounting for pre-storm achievement and attendance was supported. This is consistent with research that found a correlation between PTSD symptoms and decreased achievement (Broberg et al., 2005; Delaney-Black et al., 2002; Rousseau and Drapeau, 2000; Saltzman et al., 2001). This occurred for both the 2006 and 2007 samples but not 2008. Perhaps over time, children's initial trauma and distress symptoms decreased, which allowed children to focus more of their attention on academic pursuits.

Hypothesis 2, that PTSD symptoms would predict attendance after accounting for pre-storm attendance was not supported. This is contrary to previous research that had found that increased anxiety symptoms are significantly correlated with decreased school attendance (Engberg & Morral, 2006). The findings may indicate that PTSD is uniquely related to school attendance. For example, individuals with PTSD and their parents may be motivated to return to normal routines as recommended in the literature as an important coping mechanism. Further, the children may have found support in the resumption of school attendance that was not

available at home. Finally, many children experienced overcrowding in their homes following the storm. Perhaps school provided a less crowded, more structured environment.

Although Hypothesis 3 was not supported in the 2006 and 2007 samples, this hypothesis, that PTSD symptoms would no longer have a significant effect on academic achievement after controlling for Inattention/Hyperactivity was supported in the 2008 sample. This indicates that decreases in academic achievement following the development of PTSD symptoms may indeed be a result of decreases in attention as suggested by Dyson (1990), van der Kolk et al. (1996), and Saltzman et al. (2001). It is possible that the initial neurological impact of traumatic stress on the attention areas of the brain do not immediately translate into academic deficits but, over time, they may result in academic impairment.

Hypothesis 4, that pre-storm academic achievement would serve as a moderator in the relationship between hurricane exposure and PTSD symptom severity was not supported.

Although, previous research has noted lower levels of academic achievement as a risk factor for PTSD symptom severity following a trauma (Silverman & La Greca, 2002) it is possible that other known risk factors served as significant predictors of PTSD symptoms. These risk factors may include self-esteem, relocation distance, optimism (Blaze & Shwalb, 2009), levels of

classmate support, negative life events (Moore & Varela, 2010), as well as behavior problems (Silverman & La Greca).

Implications

The finding that PTSD symptom severity in Hurricane Katrina resulted in decreased academic achievement after controlling for pre-disaster academic variables has important clinical implications. As PTSD symptoms are associated with a decreased academic achievement, it will be important for communities affected by future disasters to screen students for PTSD symptoms as these children may be at risk for academic decline. While several programs have proven effective in addressing PTSD in children affected by disasters (e.g., La Greca, Sevin, and Sevin (2005) in *After The Storm- A Guide to Help Children*) it will be important to integrate such programs with research regarding school routines following a disaster (e.g., Back-Wiklund et al., 2002; Broberg et al., 2005; Ronnmark, 2001) in order to develop interventions in the schools which can prevent academic decline.

Limitations

Child self-report measures were used in this investigation to measure PTSD symptoms and hurricane exposure experiences, and it is possible that teacher and parent reports could more accurately measure these constructs. Further, this study is limited by its correlational design.

While pre-storm and post-storm academic achievement data were used, it is possible that other factors were involved regarding the significant relationships found in this study. Finally, caution should be used in generalizing the results of this investigation as traumatic events carry with them unique characteristics which in turn, likely have unique effects on the individuals who experience them.

Future Research

The literature would benefit from further examination of the factors involved in the relationship between PTSD symptoms following a disaster and academic achievement over time, as this study found significant relationships between PTSD and academic performance within some years and not others. Further, the incorporation of teacher and parent reports of children's psychopathology and experiences would likely provide more accurate measurement for future studies. It is important to note that although previous studies found low academic achievement to be a risk factor for PTSD symptoms (Silverman & La Greca, 2002), in the current investigation, pre-storm academic achievement did not serve as a moderator in the relationship between hurricane exposure and PTSD symptom severity. Therefore, the relationship between these two factors should be further investigated. Finally, given that PTSD symptoms may result in a decrease in academic achievement among children affected by a disaster, it will be important

for researchers to develop programs in the schools which address this significant risk factor for academic decline.

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Appendix A

Means and Standard Deviations for Absences, HURTE Loss, HURTE Threat, UCLA PTSD-RI,
BASC Inattention/Hyperactivity and Cri_Homework

Variable	N	Min	Max	Mean	Standard Deviation
Absences 2005	314	0	136	7.34	9.59
Absences 2006	322	0	87	7.93	9.76
Absences 2007	309	0	80	9.36	10.63
Absences 2008	328	0	99	11.74	12.78
HURTE Loss score	325	0	9	3.00	2.26
HURTE Threat score	325	0	6	.67	.94
UCLA PTSD Reaction Index	325	0	52	14.58	11.44
Summary score					
Child Basc Inattention/Hyperactivity	279	31	85	49.88	11.17
Composite T-score					
Cri_Homework	292	0	20	16.69	3.60

Appendix B

Means and Standard Deviations for Academic Achievement Z Scores

Variable	N	Min	Max	Mean	Standard Deviation
2005					
Math	313	-2.63	2.82	-.08	1.07
Science	313	-2.56	2.57	-.16	1.00
Social Studies	313	-2.29	2.62	-.16	.99
English/Language Arts	313	-2.30	3.11	-.11	1.01
2006					
Math	327	-2.76	2.51	-.18	1.08
Science	327	-3.11	2.17	-.24	1.10
Social Studies	326	-2.42	2.81	-.21	1.05
English/Language Arts	328	-2.64	2.20	-.16	1.03
2007					
Math	315	-2.98	2.57	-.07	1.00
Science	273	-2.68	2.52	-.09	.96
Social Studies	273	-2.43	2.52	-.13	.93
English/Language Arts	314	-2.48	2.53	-.11	.98
2008					
Math	305	-2.43	2.48	-.09	1.01
Science	205	-2.67	2.48	-.23	1.05
Social Studies	205	-2.20	2.54	-.11	1.09
English/Language Arts	305	-3.69	2.17	-.13	1.00

Appendix C

Pattern/structure for Coefficients

Varimax Rotation of One Factor Solution for Academic Achievement 2005-2008				
Item	Component 1	Component 1	Component 1	Component 1
	2005	2006	2007	2008
English/Language Arts	.91	.90	.88	.89
Math	.88	.90	.88	.89
Science	.90	.93	.92	.92
Social Studies	.90	.92	.88	.92
% of variance explained	88.04%	83.04%	78.86%	81.63%

Appendix D

Correlation Matrix of Predictor, Demographic and Criterion Variables

Variable	1	2	3	4	5	6	7	8	9
1. Absences 2005	-	.48**	.35**	.34**	-.08	-.10	-.09	-.03	.05
2. Absences 2006		-	.47**	.40**	-.07	-.06	-.10	-.10	-.01
3. Absences 2007			-	.35**	.05	.02	-.02	.00	.03
4. Absences 2008				-	-.21**	-.17**	-.26**	-.27**	.08
5. Achievement 2005					-	.83**	.83**	.79**	-.24**
6. Achievement 2006						-	.87**	.83**	-.23**
7. Achievement 2007							-	.89**	-.19**
8. Achievement 2008								-	-.19**

Note. * $p < .05$. ** $p < .01$.

Appendix E

Correlation Matrix of Predictor, Demographic and Criterion Variables

Variable	10	11	12	13
1. Absences 2005	-.01	.03	.05	.03
2. Absences 2006	-.09	-.06	.04	-.04
3. Absences 2007	-.10	-.03	.04	-.09
4. Absences 2008	-.02	-.01	.06	-.17**
5. Achievement 2005	-.18**	-.22**	-.08	.15*
6. Achievement 2006	-.19**	-.28**	-.13*	.06
7. Achievement 2007	-.14*	-.28**	-.15*	.00
8. Achievement 2008	-.22**	-.26**	-.22**	-.05
9. Threat	.36**	.32**	.19**	-.04
10. Loss	-	.32**	.08	.03
11. PTSD Index		-	.42**	-.03
12. Inattent/Hyperact			-	-.06
13. Homework Rout.				-

Note. * $p < .05$. ** $p < .01$.

Appendix F

Informed Consent Form

1. **Study Title.** Predictors of Recovery in Children Evacuated from Hurricane Katrina
2. **Performance Sites:** Schools in Louisiana
3. **Names and Telephone Numbers of Investigators:** The following investigators are available for questions about this study, M-F, 8:00 a.m.-4:30 p.m.:

Mary Lou Kelley, Ph.D. (225)578-4113
4. **Purpose of the Study:** The purpose is to study the effects of Hurricane Katrina on the adjustment of children and their parents and identify factors that aid adjustment.
5. **Participant Inclusion:** Mothers and their children ages 7-14
6. **Number of Participants:** 400
7. **Study Procedures:** You and your child will spend approximately 1.5 hours completing several questionnaires, and return them to the researchers. You and your child may be asked to participate in a structured interview subsequent to completing the questionnaires. You and your child will be asked to complete the questionnaire packet at three, six and twelve month time periods. Your child's teacher will also be asked to complete two questionnaires as well.
8. **Benefits:** A greater understanding of variables related may be a possible benefit. Also, in the case of a needed referral for psychological services if you desire, will be available. Such referrals may include Baton Rouge Mental Health (225-922-9445) or the Psychological Services Center (225-578-1494). Some participants may even find it beneficial to have an opportunity to describe and recall their experiences during and after

Hurricane Katrina. Each mother and child pair who complete a packet of questionnaires may be compensated with a monetary and/or other form of reward.

9. **Risks:** You and your child may become upset while completing the questionnaires because there are questions related to your experiences associated with Hurricane Katrina. We will give referral cards for further psychological services to all participants in the case that they may become emotionally upset. Also, as a mandated reporter of abuse and neglect, **any disclosure or threat of abuse revealed during data collection will be reported to Child Protective Services immediately. You will be verbally notified of this risk prior to data collection. Also, the clinician will inform you if a report is warranted.**
10. **Right to Refuse:** Participants may choose not to participate or to withdraw from the study at any time without penalty.
11. **Right to Privacy:** Results of the study may be published, but no names or identifying information will be included in the publication. Participant identity will remain confidential unless disclosure is required by law.

This study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about participants' rights or other concerns, I can contact Robert C. Matthews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a copy of this consent form if signed by me.

Signature of Parent Participant

Date

The study participant has indicated to me that he/she is unable to read. I certify that I have read this consent form to the participant and explained that by completing the signature line above, the participant has agreed to participate.

Signature of Reader

Date

I grant permission for this study's researchers to access my child's past academic records, including his or her school lunch status, placements, and achievement test scores. I understand that my child's identifying information will be removed and coded to ensure privacy of the information. Also, I understand that by consenting to my and my child's participation in this study, I grant my permission for my child's teacher to complete questionnaires regarding my child's behavior and functioning.

Signature of Parent Participant

Date

Appendix G

Assent Form

1. **Study Title:** Predictors of Recovery in Children Evacuated from Hurricane Katrina
2. **Performance Sites:** Schools in Louisiana
3. **Names and Telephone Numbers of Investigators:** If you have any questions about the study, you can call Dr. Mary Lou Kelley at (225)578-4113 during the day.
4. **Purpose of the Study:** This study will look at how you, your family, and other children and families may have been affected by Hurricane Katrina.
5. **Participant Inclusion:** Mothers and their children ages 7-14
6. **Number of Participants:** 400
7. **Study Procedures:** You and your mother will spend about 1.5 hours answering some questions in a packet. Then you and your mom will return them to the researchers. You may be asked to answer more questions than others. Also, you will complete a question packet at three, six and twelve months. Your teacher will also be asked some questions as well.
8. **Benefits:** A better idea of how a hurricane may affect children and families. Also, you and your mom may get a reward after you and she complete your packets of questions.
9. **Risks:** You may become upset after thinking about what happened to you and your family during Hurricane Katrina. In case of this, we will give you cards with phone numbers and addresses of clinics that may help you if you do become upset. **Also, if you tell us that you have been abused, we will tell your mother as well as Child Protection.**
10. **Right to Refuse:** You may choose not to complete the packets or quit the study at any

time without any problem.

11. **Right to Privacy:** This study may be published, but your and your mom's names not be included in any publication.

_____ Child Participant's Age

Child Participant's Name

Child Participant's Signature

Date

Witness

Appendix H

UCLA PTSD Reaction Index

Here is a list of problems people sometimes have after very bad things happen. Please **THINK** about the bad thing that happened to you (Hurricane Katrina). Then **READ** each problem on the list carefully. **CIRCLE ONE** of the numbers (0, 1, 2, 3, or 4) that tells how often the problem has happened to you **in the past month**.

PLEASE BE SURE TO ANSWER ALL QUESTIONS.

HOW MUCH OF THE TIME DURING THE PAST MONTH	NONE	LITTLE	SOME	MUCH	MOST
1. I watch out for danger or things that I am afraid of.	0	1	2	3	4
2. When something reminds me of what happened, I get very upset, afraid or sad.	0	1	2	3	4
3. I have upsetting thoughts, pictures, or sounds of what happened come into my mind when I do not want them to.	0	1	2	3	4
4. I feel grouchy, angry, or mad.	0	1	2	3	4
5. I have dreams about what happened or other bad dreams.	0	1	2	3	4
6. I feel like I am back at the time when the bad thing happened, living through it again.	0	1	2	3	4
7. I feel like staying by myself and not being with my friends.	0	1	2	3	4
8. I feel alone inside and not close to other people.	0	1	2	3	4
9. I try not to talk about, think about, or have feelings about what happened.	0	1	2	3	4
10. I have trouble feeling happiness or love.	0	1	2	3	4
11. I have trouble feeling sadness or anger.	0	1	2	3	4
12. I feel jumpy or startle easily, like when I hear a loud noise or when something surprises me.	0	1	2	3	4
13. I have trouble going to sleep or I wake up often during the night.	0	1	2	3	4
14. I think that some part of what happened is my fault.	0	1	2	3	4

15. I have trouble remembering important parts of what happened.	0	1	2	3	4
16. I have trouble concentrating or paying attention.	0	1	2	3	4
17. I try to stay away from people, places, or things that make me remember what happened.	0	1	2	3	4
18. When something reminds me of what happened, I have strong feelings in my body, like my heart beats fast, my head aches, or my stomach aches.	0	1	2	3	4
19. I think that I will not live a long life.	0	1	2	3	4
20. I have arguments or physical fights.	0	1	2	3	4
21. I feel pessimistic or negative about my future.	0	1	2	3	4
22. I am afraid that the bad thing will happen again.	0	1	2	3	4

Appendix I

HURTE

Happened to You During the Hurricane - Child

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 (evacuated)	<input type="checkbox"/> in a car
<input type="checkbox"/> in a hotel/motel	<input type="checkbox"/> in an attic
<input type="checkbox"/> other (describe) _____	

2. Did windows or doors break in the place you stayed during the hurricane?
 - a. Yes
 - b. No

3. Did you get hurt during the hurricane?
 - a. Yes
 - b. No

4. At any time during the hurricane, did you think that you might die?
 - a. Yes
 - b. No

5. Did you see anyone else get hurt badly during the hurricane?
 - a. Yes
 - b. No

6. Did you have to go outside during the hurricane because the building you were staying in was badly damaged?
 - a. Yes
 - b. No

7. Did a pet you liked get hurt or die during the hurricane?
 - a. Yes
 - b. No

8. Did you get hit by anything falling or flying during the hurricane?
 - a. Yes
 - b. No

9. Was your mother or father with you during the hurricane?
a. Yes b. No
10. Overall, how scared or upset were you during the hurricane?
a. Not at all b. A little c. A lot d. A whole lot
11. Did you have to be rescued from the place you stayed during or after the hurricane?
a. Yes b. No

What Happened to You After the Hurricane

After the Hurricane

1. Was your home damaged badly or destroyed by the hurricane?
a. Yes b. No
2. Did you have to go to a new school because of the hurricane?
a. Yes b. No
3. Did you move to a new place because of the hurricane?
a. Yes b. No
4. Did one of your parents lose his or her job because of the hurricane?
a. Yes b. No
5. Has it been hard to see your friends since the hurricane because they moved or you moved?
a. Yes b. No
6. Did your family have trouble getting enough food or water after the hurricane?
a. Yes b. No
7. Were your clothes or toys ruined by the hurricane?
a. Yes b. No

8. Did your pet run away or have to be given away because of the hurricane?
a. Yes b. No
9. Did you have to live away from your parents for a week or more because of the hurricane?
a. Yes b. No
10. Has your family had to move in with friends or relatives since the hurricane?
a. Yes b. No
11. Overall, how upset about things have you been since the hurricane?
a. Not at all b. A little c. A lot d. A whole lot

Appendix J

The Childhood 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”.

How **often** does it occur at about the **same time** or in the **same way**?

0 = Never

1 = Rarely

2 = Sometimes

3 = Often

4 = Nearly Always

My Child...

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 chores) before play time.	0	1	2	3	4
15)...receives rewards or privileges for specific good behavior	0	1	2	3	4

(e.g., finishing homework or completing chores)	
My child...	
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
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)	
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 put things away after shopping	0 1 2 3 4
32)...is praised or rewarded for specific good behavior (e.g., at kitchen table or at school) each morning	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	
Does your child attend school?	YES NO
If you answered "NO," please skip #35 to #39. If you answered "YES," please continue.	
Has your child attended school in the past month?	YES NO
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 in 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
My child...					
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 K

Demographic Questionnaire

ABOUT YOU AND YOUR FAMILY

Please fill out the following background information about yourself and your family.

Read each item carefully.

Your age: _____

Your spouse's age: _____

Your child's age: _____

Your child's sex: _____

Your Child's School History:

Your child's current grade: _____

School your child attended BEFORE the hurricane? _____

(Circle one: Public or Private)

School your child attends NOW, after the hurricane? _____

(Circle one: Public or Private)

Race:

___ White

___ Black

___ Hispanic

___ Asian

___ Native American

___ Pacific Islander

___ Other

Marital Status:

___ Never Married

___ Married

___ Separated

___ Divorced

___ Widowed

Education: What is the highest level of education completed by?

Yourself

Your Spouse

- | | |
|---|---|
| <input type="checkbox"/> 6 th grade or less | <input type="checkbox"/> 6 th grade or less |
| <input type="checkbox"/> Junior High school (7 th , 8 th , 9 th grade) | <input type="checkbox"/> Junior High school (7 th , 8 th , 9 th grade) |
| <input type="checkbox"/> Partial high school (10 th , 11 th grade) | <input type="checkbox"/> Partial high school (10 th , 11 th grade) |
| <input type="checkbox"/> High school graduate | <input type="checkbox"/> High school graduate |
| <input type="checkbox"/> Partial college (at least 1 year) or specialized training | <input type="checkbox"/> Partial college (at least 1 year) or specialized training |
| <input type="checkbox"/> Standard college or university graduate | <input type="checkbox"/> Standard college or university graduate |
| <input type="checkbox"/> Graduate professional degree (Master's, Doctorate) | <input type="checkbox"/> Graduate professional degree (Master's, Doctorate) |

Past Income: What was the total annual income of your household **BEFORE** the hurricane?
(Combine the income of all the people living in your house right now as well as any government assistance.)

- | | | |
|--|--|---|
| <input type="checkbox"/> \$0-4,999 | <input type="checkbox"/> \$15,000-24,999 | <input type="checkbox"/> \$50,000-74,999 |
| <input type="checkbox"/> \$5,000-9,999 | <input type="checkbox"/> \$25,000-34,999 | <input type="checkbox"/> \$75,000-99,999 |
| <input type="checkbox"/> \$10,000-14,999 | <input type="checkbox"/> \$35,000-49,999 | <input type="checkbox"/> \$100,000 and up |

Current Income: What is the total and **CURRENT** annual income of your household?
(Combine the income of all the people living in your house right now as well as any government assistance.)

- | | | |
|--|--|---|
| <input type="checkbox"/> \$0-4,999 | <input type="checkbox"/> \$15,000-24,999 | <input type="checkbox"/> \$50,000-74,999 |
| <input type="checkbox"/> \$5,000-9,999 | <input type="checkbox"/> \$25,000-34,999 | <input type="checkbox"/> \$75,000-99,999 |
| <input type="checkbox"/> \$10,000-14,999 | <input type="checkbox"/> \$35,000-49,999 | <input type="checkbox"/> \$100,000 and up |

If you are unable to say what your annual income is, what is your monthly income?
\$ _____

Past Occupation: Please provide the following information about you and your spouse's job(s) **BEFORE** the hurricane.

About You

What was your occupation/job title? (If you were retired, please write “retired” and your past occupation. If you did not work outside the home, write “unemployed.”)

If employed, what kind of industry or company? (For example, elementary school, clothing store, hospital, restaurant, etc.)

If employed, what were your job duties? (Please be specific.)

If you were **unemployed before** the hurricane, were you seeking a new job? Yes/No

About Your Spouse

What was your spouse’s occupation/job title? (If they were retired, please write “retired” and their past occupation. If they did not work outside the home, write “unemployed.”)

What kind of industry or company did they work for? (For example, elementary school, clothing store, hospital, restaurant, etc.)

What were their job duties? (Please be specific.)

If your spouse was **unemployed before** the hurricane, were they seeking a new job?

Yes/No

Current Occupation: Please provide the following information about you and your spouse's job(s) **CURRENTLY**.

About You

What is your occupation/job title? (If you are retired, please write "retired" and your past occupation. If you do not work outside the home, write "unemployed." If your job is the same as it was before the hurricane, please write "same.")

If employed, what kind of industry or company? (For example, elementary school, clothing store, hospital, restaurant, etc.)

If employed, what are your job duties? (Please be specific.)

If you are **currently unemployed**, are you currently seeking a new job? Yes/No

About Your Spouse

What is your spouse's occupation/job title? (If they are retired, please write "retired" and their past occupation. If they do not work outside the home, write "unemployed." If their job is the same as it was before the hurricane, please write "same.")

What kind of industry or company do they work for? (For example, elementary school, clothing store, hospital, restaurant, etc.)

What are their job duties? (Please be specific.)

If your spouse is **currently unemployed**, are they currently seeking a new job? Yes/No

Family: Please list the age and sex of all those living in your household **BEFORE** the hurricane, including yourself, your spouse, other relatives, and all children.

<u>Relationship to you</u>	<u>Age</u>	<u>Sex</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>
_____	_____	<u>Male/Female</u>

What was the TOTAL number of people, including yourself, living in your home **BEFORE** the hurricane? _____

What was the TOTAL number of adults over 18, including yourself, living in your home **BEFORE** the hurricane? _____

What was the TOTAL number of adults under 18 living in your home **BEFORE** the hurricane?

Appendix L

BASC- Self Report of Personality (8-11 year form)

Directions:

This booklet contains sentences that young people may use to describe how they think or feel or act. Read each sentence carefully. For the first groups of sentences, you will have two answer choices: **T** or **F**.

Circle **T** for True if you agree with a sentence.

Circle **F** for False if you do not agree with a sentence.

Here is an example:

1. I like parties **T** **F**

For the second group of sentences, you will have four answer choices: **N**, **S**, **O**, and **A**.

Circle **N** if the sentence **never** describes you or how you feel.

Circle **S** if the sentence **sometimes** describes you or how you feel.

Circle **O** if the sentence **often** describes you or how you feel.

Circle **A** if the sentence **almost always** describes you or how you feel.

Here is an example:

2. I enjoy doing homework. **N** **S** **O** **A**

If you wish to change an answer, mark an X through it like this.

2. I enjoy doing homework. **N** **S** **O** **A**

Give the best response for you for each sentence, even if it is hard to make up your mind. There are no right or wrong answers. Please do your best, tell the truth, and answer every sentence.

Mark: T-True F-False

- | | | |
|---|---|---|
| 1. Things go wrong for me, even when I try hard. | T | F |
| 2. I can't wait for school to be over. | T | F |
| 3. I like everyone I meet | T | F |
| 4. Nothing ever goes right for me. | T | F |
| 5. I think I am a good person. | T | F |
| 6. My parents are always telling me what to do. | T | F |
| 7. I have some bad habits. | T | F |
| 8. I worry about little things. | T | F |
| 9. People tell me I should pay more attention. | T | F |
| 10. Sometimes, when alone, I hear my name. | T | F |
| 11. I always go to bed on time. | T | F |
| 12. My classmates don't like me. | T | F |
| 13. I tell the truth every single time. | T | F |
| 14. I used to be happier. | T | F |
| 15. I never get into trouble. | T | F |
| 16. I have never been in a car. | T | F |
| 17. Nothing goes my way. | T | F |
| 18. My parents are always right. | T | F |
| 19. I have too many problems. | T | F |
| 20. I wish I were different. | T | F |
| 21. I tell my parents everything. | T | F |
| 22. I have never been to sleep. | T | F |
| 23. If I have a problem, I can usually work it out. | T | F |
| 24. I never seem to get anything right. | T | F |
| 25. My friends have more fun than I do. | T | F |
| 26. I have never been mean to anyone. | T | F |
| 27. I get mad at my parents sometimes. | T | F |
| 28. I am not very good at anything. | T | F |
| 29. Nobody ever listens to me. | T | F |

- | | |
|--|-----|
| 30. My parents blame too many of their problems on me. | T F |
| 31. I don't like thinking about school. | T F |
| 32. My teacher understands me. | T F |
| 33. Nothing is fun anymore. | T F |
| 34. I feel good about myself. | T F |
| 35. I can't seem to control what happens to me. | T F |
| 36. I never break the rules. | T F |
| 37. I often worry about something bad happening to me. | T F |
| 38. I think that I have a short attention span. | T F |
| 39. Sometimes I want to hurt myself. | T F |
| 40. I often do things without thinking. | T F |
| 41. Other children don't like to be with me. | T F |
| 42. I think I am very creative. | T F |
| 43. I don't seem to do anything right. | T F |
| 44. I don't care about school. | T F |
| 45. I like who I am. | T F |
| 46. Nothing about me is right. | T F |
| 47. I have attention problems. | T F |
| 48. I just don't care anymore. | T F |
| 49. I wish I were someone else. | T F |
| 50. I have no teeth. | T F |
| 51. I always do what my parents tell me. | T F |

REMEMBER: Indicate how frequently each behavior occurs by circling

N- Never

S- Sometimes

O- Often

A- Always

- | | |
|--|---------|
| 52. I am good at schoolwork. | N S O A |
| 53. When I take tests, I can't think. | N S O A |
| 54. People say bad things to me. | N S O A |
| 55. I am bothered by thoughts about death. | N S O A |
| 56. I see things that others cannot see. | N S O A |
| 57. It is hard for me to keep my mind on schoolwork. | N S O A |
| 58. My parents expect too much from me. | N S O A |
| 59. I feel like I want to quit school. | N S O A |

60. Teachers make me feel stupid.	N S O A
61. I feel depressed.	N S O A
62. I like the way I look.	N S O A
63. I am blamed for things I don't do.	N S O A
64. My teacher is proud of me.	N S O A
65. I am afraid I might do something bad.	N S O A
66. I forget things.	N S O A
67. I feel like people are out to get me.	N S O A
68. I have trouble standing still in lines.	N S O A
69. Other kids hate to be with me.	N S O A
70. I can solve difficult problems by myself.	N S O A
71. No one understands me.	N S O A
72. I hate school.	N S O A
73. My looks bother me.	N S O A
74. I feel sad.	N S O A
75. I listen when people are talking to me.	N S O A
76. I feel like my life is getting worse and worse.	N S O A
77. I get upset about my looks.	N S O A
78. Someone else controls my thoughts.	N S O A
79. I am lonely.	N S O A
80. I am a dependable friend.	N S O A
81. I am disappointed with my grades.	N S O A
82. I am left out of things.	N S O A
83. I get nervous.	N S O A
84. I drink 50 glasses of milk every day.	N S O A
85. Even when I try hard, I fail.	N S O A
86. I am bothered by not getting enough sleep.	N S O A
87. My school feels good to me.	N S O A
88. My teacher gets mad at me for no good reason.	N S O A
89. My mother and father help me if I ask them to.	N S O A
90. I have trouble sitting still.	N S O A
91. I get blamed for things I can't help.	N S O A
92. If I get a bad grade, it's because the teacher doesn't like me.	N S O A
93. I am afraid of a lot of things.	N S O A
94. I have trouble paying attention to what I am doing.	N S O A

95. I see weird things.	N S O A
96. People tell me that I am stubborn.	N S O A
97. My classmates make fun of me.	N S O A
98. I am good at making decisions.	N S O A
99. People tell me that I am too noisy.	N S O A
100. My parents are easy to talk to.	N S O A
101. My mother and father like my friends.	N S O A
102. I fail at things.	N S O A
103. I get into trouble for not paying attention.	N S O A
104. Little things bother me.	N S O A
105. I sleep with my schoolbooks.	N S O A
106. I hear things that others cannot hear.	N S O A
107. I feel out of place around people.	N S O A
108. I am someone you can count on.	N S O A
109. I am proud of my parents.	N S O A
110. I am bothered by teasing from others.	N S O A
111. I worry but I don't know why.	N S O A
112. My parents are proud of me.	N S O A
113. I get mad at others.	N S O A
114. I worry when I go to bed at night.	N S O A
115. School is boring.	N S O A
116. My teacher trusts me.	N S O A
117. My parents trust me.	N S O A
118. I talk while other people are talking.	N S O A
119. People get mad at me, even when I don't do anything wrong.	N S O A
120. Teachers are unfair.	N S O A
121. I get so nervous I can't breathe.	N S O A
122. I give up when learning something new.	N S O A
123. Even when alone, I feel like someone is watching me.	N S O A
124. People tell me to be still.	N S O A
125. I feel that nobody likes me.	N S O A
126. I am dependable.	N S O A
127. I talk without waiting for others to say something.	N S O A
128. I like going to bed at night.	N S O A
129. My parents like to help with my homework.	N S O A

130. I want to do better, but I can't. N S O A
131. I have trouble paying attention to the teacher. N S O A
132. I worry about what is going to happen. N S O A
133. My parents listen to what I say. N S O A
134. I hear voices in my head that no one else can hear. N S O A
135. Other people find things wrong with me. N S O A
136. Other people make fun of me. N S O A
137. I like going places with my parents. N S O A
138. People act as if they don't hear me. N S O A
139. I get nervous when things do not go the right way for me. N S O A

Appendix M

BASC- Self Report of Personality (12-21 year form)

Directions:

This booklet contains sentences that young people may use to describe how they think or feel or act. Read each sentence carefully. For the first groups of sentences, you will have two answer choices: **T** or **F**.

Circle **T** for True if you agree with a sentence.

Circle **F** for False if you do not agree with a sentence.

Here is an example:

1. I like parties **T** **F**

For the second group of sentences, you will have four answer choices: **N**, **S**, **O**, and **A**.

Circle **N** if the sentence **never** describes you or how you feel.

Circle **S** if the sentence **sometimes** describes you or how you feel.

Circle **O** if the sentence **often** describes you or how you feel.

Circle **A** if the sentence **almost always** describes you or how you feel.

Here is an example:

2. I enjoy doing homework. N S O A

If you wish to change an answer, mark an X through it like this.

2. I enjoy doing homework. N S O A

Give the best response for you for each sentence, even if it is hard to make up your mind. There are no right or wrong answers. Please do your best, tell the truth, and answer every sentence.

Mark: T-True

F-False

- | | | |
|---|---|---|
| 1. I like who I am. | T | F |
| 2. I hate taking tests. | T | F |
| 3. Nothing goes my way. | T | F |
| 4. My muscles get sore a lot. | T | F |
| 5. People tell me I should pay more attention. | T | F |
| 6. Things go wrong for me when I try hard. | T | F |
| 7. I get mad at my parents sometimes. | T | F |
| 8. I used to be happier. | T | F |
| 9. I often have headaches. | T | F |
| 10. I don't care about school. | T | F |
| 11. I can never seem to relax. | T | F |
| 12. I always go to bed on time. | T | F |
| 13. My classmates don't like me. | T | F |
| 14. I worry about tests more than my classmates do. | T | F |
| 15. My parents are always right. | T | F |
| 16. If I have a problem, I can usually work it out. | T | F |
| 17. I never break the rules. | T | F |
| 18. I have not seen a car in at least 6 months. | T | F |
| 19. What I want never seems to matter. | T | F |
| 20. I worry about little things. | T | F |
| 21. Nothing is fun anymore. | T | F |
| 22. I never get into trouble. | T | F |
| 23. I tell the truth every single time. | T | F |
| 24. I never seem to get anything right. | T | F |
| 25. I have never been mean to anyone. | T | F |
| 26. My friends have more fun than I do. | T | F |
| 27. I like loud music. | T | F |
| 28. I always do what my parents tell me. | T | F |
| 29. No matter how much I study for a test, I am afraid I will fail. | T | F |
| 30. I cover up my work when the teacher walks by. | T | F |
| 31. I wish I were different. | T | F |

32. I have just returned from a 9-month trip on an ocean liner. T F
33. Nobody ever listens to me. T F
34. Often I feel sick in my stomach. T F
35. I think that I have a short attention span. T F
36. My parents have too much control over my life. T F
37. My teacher understands me. T F
38. I just don't care anymore. T F
39. Sometimes my ears hurt for no reason. T F
40. I don't like thinking about school. T F
41. I worry a lot of the time. T F
42. I get along well with my parents. T F
43. Other children don't like to be with me. T F
44. I wish I were someone else. T F
45. I tell my parents everything. T F
46. I can handle most things on my own. T F
47. I like to take chances. T F
48. I am sometimes jealous. T F
49. My parents are always telling me what to do. T F
50. I often worry about something bad happening to me. T F
51. I don't seem to do anything right. T F
52. I like everyone I meet. T F
53. I have attention problems. T F
54. Most things are harder for me than others. T F
55. I have some bad habits. T F
56. Other children are happier than I am. T F
57. I would rather be a police officer than a teacher. T F
58. I always do homework on time. T F
59. I take a plane trip from New York to Chicago at least twice a week. T F
60. I never quite reach my goal. T F
61. I feel good about myself. T F
62. Sometimes, when alone, I hear my name. T F
63. Nothing ever goes right for me. T F
64. I get sick more than others. T F
65. I give up easily. T F
66. My parents blame too many of their problems on me. T F

67. My teacher cares about me. T F
 68. Nothing about me is right. T F
 69. My stomach gets upset more than most people's. T F

REMEMBER: Indicate how frequently each behavior occurs by circling

- | N- Never | S- Sometimes | O- Often | A- Always |
|--|--------------|----------|-----------|
| 70. My school feels good to me. | N | S | O A |
| 71. I get so nervous I can't breathe. | N | S | O A |
| 72. I am proud of my parents. | N | S | O A |
| 73. Other kids hate to be with me. | N | S | O A |
| 74. I like the way I look. | N | S | O A |
| 75. People say bad things to me. | N | S | O A |
| 76. I am dependable. | N | S | O A |
| 77. I like it when my friends dare me to do something. | N | S | O A |
| 78. When I get angry, I can't think about anything else. | N | S | O A |
| 79. I get blamed for things I can't help. | N | S | O A |
| 80. I worry when I go to bed at night. | N | S | O A |
| 81. I feel like my life is getting worse and worse. | N | S | O A |
| 82. School is boring. | N | S | O A |
| 83. I forget things. | N | S | O A |
| 84. Even when I try hard, I fail. | N | S | O A |
| 85. My teacher trusts me. | N | S | O A |
| 86. People act as if they don't hear me. | N | S | O A |
| 87. I like to play rough sports. | N | S | O A |
| 88. I have trouble standing still in lines. | N | S | O A |
| 89. I can't seem to turn off my mind. | N | S | O A |
| 90. I am disappointed with my grades. | N | S | O A |
| 91. I get upset about my looks. | N | S | O A |
| 92. I feel like people are out to get me. | N | S | O A |
| 93. I feel depressed. | N | S | O A |
| 94. I sleep with my schoolbooks. | N | S | O A |
| 95. I listen when people are talking to me. | N | S | O A |
| 96. I stay awake for 24 hours without getting tired. | N | S | O A |

97. Teachers make me feel stupid.	N S O A
98. No one understands me.	N S O A
99. I feel dizzy.	N S O A
100. Someone wants to hurt me.	N S O A
101. I feel guilt about things.	N S O A
102. I like going places with my parents.	N S O A
103. I feel that nobody likes me.	N S O A
104. I am good at things.	N S O A
105. I am lonely.	N S O A
106. I can solve difficult problems by myself.	N S O A
107. I like to experiment with new things.	N S O A
108. I get nervous.	N S O A
109. My parents expect too much from me.	N S O A
110. I worry but I don't know why.	N S O A
111. I feel sad.	N S O A
112. I get bored in school.	N S O A
113. I have trouble paying attention to the teacher.	N S O A
114. When I take tests, I can't think.	N S O A
115. Teachers look for the bad things that you do.	N S O A
116. I am left out of things.	N S O A
117. I like to ride in a car that is going fast.	N S O A
118. I talk while other people are talking.	N S O A
119. When alone, I feel like someone is watching me.	N S O A
120. I want to do better, but I can't.	N S O A
121. My looks bother me.	N S O A
122. I hear voices in my head that no one else can hear.	N S O A
123. I am good at making decisions.	N S O A
124. I have trouble sitting still.	N S O A
125. I pay attention when someone is telling me how to do something.	N S O A
126. My parents are easy to talk to.	N S O A
127. Teachers are unfair.	N S O A
128. I have a hard time slowing down.	N S O A
129. I like going to bed at night.	N S O A
130. I see weird things.	N S O A
131. I get nervous when things do not go the right way for me.	N S O A

132. My mother and father like my friends. N S O A
133. People think I am fun to be with. N S O A
134. I feel like I have to get up and move around. N S O A
135. Other people find things wrong with me. N S O A
136. I like to make decisions on my own. N S O A
137. I like to be the first one to try new things. N S O A
138. Little things bother me. N S O A
139. I am blamed for things I don't do. N S O A
140. I worry about what is going to happen. N S O A
141. My mother and father help me if I ask them to. N S O A
142. I feel like I want to quit school. N S O A
143. I have trouble paying attention to what I am doing. N S O A
144. I fail at things. N S O A
145. My teacher is proud of me. N S O A
146. I feel out of place around people. N S O A
147. I like to dare others to do things. N S O A
148. I talk without waiting for others to say something. N S O A
149. Someone else controls my thoughts. N S O A
150. I quit easily. N S O A
151. I am slow to make new friends. N S O A
152. I do things over and over and can't stop. N S O A
153. My friends come to me for help. N S O A
154. People tell me to be still. N S O A
155. My parents listen to what I say. N S O A
156. I like to be close to my parents. N S O A
157. My teachers want too much. N S O A
158. When I get angry, I want to break something. N S O A
159. I get phone calls from popular movie actors. N S O A
160. I hear things that others cannot hear. N S O A
161. I get mad at others. N S O A
162. I have trouble sleeping the night before a big test. N S O A
163. I am liked by others. N S O A
164. People tell me that I am too noisy. N S O A
165. I feel that others do not like the way I do things. N S O A
166. I am someone you can rely on. N S O A

- | | |
|---|---------|
| 167. When I get angry, I want to hurt someone. | N S O A |
| 168. When I start talking, it is hard for me to stop. | N S O A |
| 169. People get mad at me, even when I don't do anything wrong. | N S O A |
| 170. I am afraid of a lot of things. | N S O A |
| 171. My parents trust me. | N S O A |
| 172. I hate school. | N S O A |
| 173. My parents are proud of me. | N S O A |
| 174. Ideas just race through my mind. | N S O A |
| 175. My teachers get mad at me for no good reason. | N S O A |
| 176. Other people are against me. | N S O A |

Vita

Audrey Baumeister graduated *magna cum laude* with a Bachelor of Science degree from the University of Florida in May 2005. She began her graduate studies at Louisiana State University under Dr. Mary Lou Kelley in August 2005. In May of 2008 she received her Master of Arts from Louisiana State University and in June 2010 completed her clinical internship at the University of Florida. At present Audrey is a postdoctoral associate at the University of Florida and will receive her Doctor of Philosophy in psychology from Louisiana State University in December of 2010.