

# A Preliminary Investigation of Family Coping Styles and Psychological Well-Being Among Adolescent Survivors of Hurricane Katrina

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The relation between family coping styles and psychological well-being was compared for adolescents (12–17 years) displaced by Hurricane Katrina and currently living in a relocation camp ( $n = 50$ ) and nonaffected adolescents ( $n = 31$ ) matched on age, race, and socioeconomic status. Adolescents in the Katrina sample reported a family mobilizing strategy that reflected an increased reliance and seeking of extra-familial, community-based support but lower self-esteem and more symptoms of distress and depression. Follow-up analyses suggested that the relations between group differences in participants' hurricane-related trauma experiences and greater psychological distress may be mediated in part by the family coping strategy; exposure to increased levels of community-provided support may have unintended consequences on adolescents' psychological health. These results highlight the importance of future research on both potential benefits and costs of family coping styles in adolescents affected by a large-scale disaster.

*Keywords:* trauma, family coping, adolescent health, natural disasters, Hurricane Katrina

Natural disasters often result in widespread physical destruction and social displacement compared with other forms of commonly investigated trauma (e.g., Briere & Elliott, 2000; Mizuta et al., 2005). In adolescents and adults, exposure to these events is associated with increased risk for psychological impairment (e.g., posttraumatic stress disorder [PTSD], major depression disorder [MDD]) and higher morbidity (e.g., cardiovascular disease; Flinn, 1999; Hadi & Llabre, 1998; McDermott, Duffy, & McGuinness, 2004; McNally, 2003; North, Kawasaki, Spitznagel, & Hong, 2004; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Research on adults shows that reliable social support and access to community-based resources (e.g., occupational opportunities) are among the strongest predictors of long-term mental and physical functioning following a traumatic event (e.g., Kaniasty & Norris, 1995; Ozer, Best, Lipsey, & Weiss, 2003). The quality and quantity of social support received by a family appear to be particularly important for mitigating the negative health consequences that often follow experienced trauma (Uchino et al., 1996).

Still, little empirical research exists on the role of family coping strategies on posttraumatic distress among adolescents exposed to a large-scale disaster. One possibility is

that because parental resources are limited in terms of time and energy, parents may be forced to make trade-offs between different types of coping behaviors such as providing higher levels of intimate social support (e.g., discussion of personal feelings) versus seeking agent-based, logistical support (e.g., professional counseling, job training, housing assistance, and the like). Additional concerns may be that certain types of family coping behaviors may have unintended consequences that actually compound the trauma caused by the original event (Wasserstein & La Greca, 1998). For example, extensive use of community-based resources may undermine children's and adolescents' confidence in their parents' ability to care for them and may highlight their vulnerability, potentially leading to a perception of social stigmatization and increased feelings of demoralization and psychological impairment.

In the present study, we investigated the relation between family coping styles and psychological functioning, comparing adolescents who lost their homes as a result of Hurricane Katrina and are currently living in a large, semipermanent, relocation camp and a sample of demographically matched adolescents who did not experience these events. Because of limited research on family coping styles among adolescents affected by large-scale disasters, the following two preliminary questions were addressed: (a) How do the family coping strategies and psychological well-being of the adolescent survivors compare with nonaffected adolescents? and (b) Do family coping styles affect the relation between hurricane-related experiences of adolescents and their psychological well-being?

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## Method

The present research was part of a larger study of stress responses of children, adolescents, and families displaced by Hurricane Katrina. The relocation site chosen for the present study (commonly referred to as "FEMA City" by the residents and wider community) was located near Baton Rouge, LA, and consisted of over 500 travel trailers at the time of assessment. The control participants were recruited from several towns in mid-Missouri (e.g., Columbia, MO) and selected on the basis of matching characteristics of the Katrina sample, including ethnicity, education, and several economic indices (e.g., history of governmental financial assistance, predisaster housing situation, current financial assets).

### Participants and Procedure

The participants included 81 (50 Katrina) adolescents between 12 and 17 years old ( $M = 14.4$  years; 59 girls). The data from the Katrina participants were collected about 2 months following the hurricane, from October 29, 2005 to November 2, 2005; at that time, the relocation camp had been populated for about 3 weeks. The data from the control participants were collected from August 17, 2006 to August 19, 2006. For both samples, families with children between 5 and 18 years old were targeted and asked to participate in the study "Child and Family Wellness after a Major Natural Disaster." Prospective participants were notified of their rights outlined by the University of Missouri Institutional Review Board, and once written consent was obtained from the children and their parents, participants over 11 years were asked to complete the survey; this typically took between 30 and 45 min to complete. Upon completion, participants were debriefed and given a small monetary payment (\$5).

Preliminary analyses of the demographic characteristics of the parents/guardians of the affected and nonaffected adolescents revealed nonsignificant differences ( $ps > .10$ ) for race (both samples were over 93% African American), mean education level (between 11th and 12th grade), prior history of government financial assistance (e.g., welfare, food stamps;  $> 67\%$  in both samples), likelihood of currently owning a car ( $< 27\%$ ), current income (between \$4,000 and \$6,000 per year), and current financial assets (e.g., savings, property value;  $< \$200$ ). The Katrina and control adolescents were similarly matched ( $ps > .10$ ) on age ( $Ms = 14.6$  and  $14.0$ , respectively) and gender (34 and 25 girls, respectively).

### Measures

The survey consisted of several standardized self-report instruments designed to measure psychological well-being and family functioning in adolescents and young adults. For some instruments, entire scales were administered to allow for a direct comparison across normative samples; for other instruments, partial scales were used that consisted of items representing the instrument's subscales (this enabled greater

breadth in the assessed traits). Each of the instruments have demonstrated reliable psychometric properties in young adult samples, and many of the scales have been used with similar adolescent and adult samples who had recently experienced a large-scale disaster (e.g., Ginexi, Weihs, Simmens, & Hoy, 2000; Kreuger & Stretch, 2003; Sumer, Karanci, Berument, Gunes, 2005; see also Joseph, 2000; Linton & Marriott, 1996).

Ten items from the Family Crisis Oriented Personal Evaluation Scale (F-COPES; McCubbin, Larsen, & Olson, 1987) were used to assess effective problem-solving behaviors in response to difficult family situations. The original instrument consists of five subscales designed to measure seeking social support (e.g., when our family has problems, we seek help from other family members); reframing (e.g., show that we are strong); seeking spiritual support (e.g., have faith in God); mobilization (e.g., seek professional help from community programs that help families in this situation); and passive appraisal (e.g., believe the problem will go away by itself). Two items from each subscale were included and ranged from 1 (*almost never*) to 5 (*almost always*). Across the 81 participants, Cronbach's alpha ( $\alpha$ ) was .60 for the two-item Mobilizing subscale but  $< .40$  for the remaining (two-item) subscales. We thus analyzed the two-item subscores as well as individual items for the latter subscales (see Footnote 1).

Global self-esteem was measured with the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). The instrument consists of 10 items and ranges from 1 (*rarely or never*) to 4 (*almost always*;  $\alpha = .69$ ). Subjective psychological distress was measured with the Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1997). The instrument consists of 22 items (which were revised to refer specifically to Hurricane Katrina;  $\alpha = .93$ ) and four factor subscales designed to measure symptoms of hyperarousal, disassociation, intrusive thoughts, and avoidance behaviors during the past week, ranging from 1 (*rarely or no days*) to 5 (*almost always or 7 days*). Symptoms of anxiety were measured with the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). All 37 items were administered and scored as yes or no responses ( $\alpha = .87$ ). Frequency of depressive symptoms (during the previous week) was measured with the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). All 20 items were administered and ranged from 1 (*rarely or less than 1 day*) to 4 (*almost always or 5–7 days*;  $\alpha = .83$ ).

### Statistical Analyses

Missing variables for the family coping and psychological variables were replaced with the sample means; 7% and 9% of item responses were replaced in the control and Katrina samples, respectively. Group comparisons were assessed by student's  $t$  tests, and effect sizes were estimated with Cohen's  $d$  (mean difference/mean standard deviation; Cohen & Cohen, 1988). Regression equations were used to test for moderation and mediation effects of family coping on the relations between hurricane experience and psychological functioning.

## Results

### *Question 1: How Do the Family Coping Styles and Psychological Functioning of the Affected Adolescents Compare With Nonaffected Adolescents?*

The mean values and group differences of the family coping strategies and psychological variables for the Katrina-affected and nonaffected samples are shown in the second and third columns of Table 1. The Katrina-affected group reported higher family mobilizing coping scores than did the nonaffected group; the group differences were not significant for the remaining coping scales.<sup>1</sup> Across the psychological measures and compared with the control participants, the Katrina group reported significantly lower self-esteem scores and higher symptoms of distress and depression. The higher distress scores were largely because of group differences for avoidance distress symptoms,  $t(79) = 2.93, p < .01, d = .68$ .

### *Question 2: Do Family Coping Styles Affect the Relation Between Hurricane-Related Experiences of Adolescents and Their Psychological Well-Being?*

Correlations between the family coping strategies and psychological measures are shown in the remaining columns of Table 1. The only family variable to show consistent relations with the psychological variables was for mobilizing coping; specifically, higher mobilizing coping was associated with lower self-esteem scores and higher psychological distress and depression scores. We next examined whether mobilizing coping was a potential moderator of the relation between hurricane experience and self-esteem, psychological distress, and depression scores. For each of the psychological scores, the coping variable was separately entered as a predictor along with the sample variable (coded 0 for the control group and 1 for the Katrina group) and the Mobilizing  $\times$  Sample interaction term. None of the interaction terms for these equations were significant ( $ps < .10$ ), suggesting no moderation effects.

Next, we addressed the question of whether mobilizing coping behaviors was a potential mediator of the relation between the adolescent's hurricane experience and their psychological functioning (Baron & Kenny, 1986). To test this pattern, we needed to demonstrate that hurricane experience (the group category variable) was related to the psychological scores; that hurricane experience was related to mobilizing coping; that mobilizing coping was related to the psychological scores; and finally, that the significant relations between the group-category variable and the psychological scores were significantly reduced when mobilizing coping was statistically controlled. Each of these criteria was met for the self-esteem, distress, and depression scores ( $ps < .05$ ). Using simultaneous regressions, we found that the previously significant relations between group and the self-esteem scores ( $b = -2.97, p < .01$ ), psychological distress scores ( $b = 8.65, p < .05$ ), and the depression scores ( $b = 4.50, p < .05$ ) became insignificant ( $ps > .05$ ) once mobilizing was controlled ( $bs = -1.97, 5.13$ , and

3.04, respectively). According to the Sobel (1988) test, mobilizing coping was a significant mediator for self-esteem ( $Z = -2.38, p < .05$ ) and psychological distress ( $Z = 2.22, p < .05$ ), and a mediator for depression approached significance ( $Z = 1.91, p = .06$ ). These findings suggest that mobilizing coping fully mediated the relation between the adolescent's hurricane experience and lower self-esteem and higher symptoms of distress, and partially mediated the relation between hurricane experience and higher symptoms of depression.

## Discussion

In keeping with research on children exposed to Hurricane Andrew (Vernberg, La Greca, Silverman, & Prinstein, 1996), adolescents exposed to and displaced by Hurricane Katrina reported lower self-esteem and higher internalizing symptoms and symptoms of distress than demographically matched adolescents who did not experience these events; for both groups, mean anxiety and depressive scores exceeded clinical cut-off levels for adolescent populations, according to conservative suggestions (see Brooks & Kutcher, 2001, p. 365; Stallard, Velleman, Langsford, & Baldwin, 2001, p. 200). The Katrina participants also reported that their families engaged in more mobilizing coping strategies (the tendency to seek nonfamilial, community-based support) than the nonaffected participants.

There was also preliminary support for the suggestion that mobilizing coping styles may partially mediate the influence of the hurricane and relocation experience on adolescent's psychological functioning (see also Wasserstein & La Greca, 1998). For both samples, adolescents in families that relied on more community-based support reported lower self-esteem, higher psychological distress, and more symptoms of depression than did adolescents in families that used less community resources. Although mobilizing community resources may be a necessary component of postdisaster adjustment, it may be that certain elements of these processes may contribute to adolescents' stress responses by making their vulnerability (e.g., homelessness) more explicit and socially salient; increased reliance on extrafamilial support may result in more frequent memories of the trauma caused by the original event (e.g., via discussion with outside community members) and/or increase the perception of social stigmatization and demoralization. Another possibility is that mobilizing coping represents a proxy for other factors that are more central to stress responses, such as greater family needs (e.g., in terms of housing and monetary resources) and/or higher levels of impairment across multiple family members.

Although this study provides early support for the impor-

<sup>1</sup> Examination of the individual coping items revealed nonsignificant group differences ( $ps > .10$ ) for the seeking social support, reframing, and seeking spiritual support items and a significant group difference for the passive appraisal item that endorsed the belief that problems go away by themselves (McCubbin et al., 1987),  $t(77) = 2.39, p < .05$ .

Table 1  
Group Differences and Correlations Between the Family Coping and Psychological Functioning Variables

I. Group	Group differences				Correlations												
	Control		Katrina		d	t	1	2	3	4	5	6	7	8	9	10	
	M	SD	M	SD													
2. SS	3.43	0.79	3.17	1.06	-.28	-.13	-.31***	-.07	-.03	-.12	-.03	-.03	-.36***	-.46***	-.50***	-.46***	-.57***
3. R	3.72	0.94	3.66	0.87	-.07	.08	.29***	.12	.18*	.07	.08	.07	-.34***	-.13	.11	.37***	.50***
4. SP	3.79	0.68	3.90	0.77	.15	.08	.29***	.12	.18*	.07	.08	.07	-.34***	-.13	.11	.37***	.50***
5. M	2.05	1.05	2.94	1.09	.83	.38	3.62***	.15	.18*	.07	.08	.07	-.34***	-.13	.11	.37***	.50***
6. P	3.13	0.97	3.28	1.10	.14	.07	0.60	.23**	.04	.04	.07	.07	-.34***	-.13	.11	.37***	.50***
7. RSES	32.79	3.39	29.83	5.36	-.66	-.30	3.05***	<.01	.08	.08	.07	.07	-.34***	-.13	.11	.37***	.50***
8. IES-R	53.81	14.26	62.46	19.50	.51	.23	2.14**	.06	.08	.08	.07	.07	-.34***	-.13	.11	.37***	.50***
9. RCMAS	42.77	4.87	41.71	5.93	-.20	-.09	-0.84	-.02	.15	.15	-.05	-.05	-.34***	-.13	.11	.37***	.50***
10. CES-D	41.46	8.67	45.96	10.37	.47	.22	2.02**	.01	.10	.10	.09	.09	-.34***	-.13	.11	.37***	.50***

Note. The group differences represent mean values for the control group (coded 0) and the Katrina group (coded 1). The family coping strategies are seeking social support (SS), reframing (R), seeking spiritual support (SP), mobilizing (M), and passive appraisal (P). The psychological variables are self-esteem (Rosenberg Self-Esteem Scale; RSES), psychological distress (Impact of Events Scale-Revised; IES-R), anxiety (Revised Children's Manifest Anxiety Scale; RCMAS), and depression (Center for Epidemiologic Studies Depression Scale; CES-D). Dashes used for Group differences indicate that data were not applicable.  
\*  $p < .10$ . \*\*  $p < .05$ . \*\*\*  $p < .01$ .

tance of consideration of potential cost-benefit trade-offs of family coping behaviors on the psychological well-being of adolescents exposed to a large-scale disaster, the results are preliminary and should be considered tentative. Further research is needed to investigate the long-term impact of family interaction styles in high-risk populations from multiple sources (e.g., adolescent, parent, and teacher reports) of data collection. Nonetheless, the present findings suggest that family coping behaviors may play an important role in children's resilience in the aftermath of a large-scale disaster but caution that overexposure to agent-based, logistical resources may be related to exacerbated symptoms of psychological distress in some adolescents.

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