Posttraumatic Stress and Attributions in College Students after Tornado Exposure

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Introduction

Many adults will be exposed to a natural disaster at some point during their lifetime, with estimates ranging between 13-30% (Green & Solomon, 1995). A significant portion of those exposed will not respond well and may experience posttraumatic stress symptoms and/or other mental health difficulties (Briere & Elliot, 2000). Unfortunately, however, there has been little research conducted examining the long-term predictors of posttraumatic distress in adults exposed to natural disasters. In the literature, some recent research examining children exposed to tornadoes has focused on the role of attributions and exposure in predicting distress, with attributions being found to be very strong predictors (Lack & Sullivan, 2008). Attributions are defined as the reasons or explanations for an occurrence, and have not been well-researched in natural disasters.

The present study aimed to examine the relationship between posttraumatic stress symptoms, attributions, and level of exposure to a disaster in a college population. There were three hypotheses for this study: 1) There would be a positive relationship between distress and the level of exposure the individual had to the tornado; 2) There would be a positive relationship between distress and attributions; and 3) A combination of exposure level and attributions will be highly predictive of the level of distress associated with exposure to a tornado.

Results

Contrary to expectations, current levels of PTSD symptoms from the exposed (M = 30.24, SD = 9.84) and non-exposed groups (M = 31.85, SD = 9.99) were not significantly different (t = -1.18, p = .241), and indeed were both in the moderate range of symptom severity according to the Reaction Index criteria. Similar results were found on the Trauma Attribution Checklist. Comparing the exposed group (M = 8.69, SD = 5.32) to the non-exposed group (M = 8.86, SD = 5.87) showed there were no significant difference between the two groups (t = -0.21, p = .834). In addition, neither endorsed very high levels of overall attributions for the disaster or imagined disaster.

To test the first and second hypotheses, correlational analyses were run on the scores from the exposed group. Positive significant relationships were found between total RI score and TAC total score (r = .548, p < .001), self-report of distress during the tornado (r = .205, p = .029), and self-reported distress since the tornado (r = .348, p < .001). Consequently, the third hypothesis was tested with stepwise multiple regression analyses, using the three above variables to predict current distress (as measured by total RI score). The TAC total score entered on the first step and accounted for 37.6% of the variance in current distress, with neither of the other variables found to contribute significantly to the model.

Methods

Participants

A sample of 212 undergraduates from ATU participated in the current study. Participants were predominately Caucasian (85%), single (81%), female (69%), and between the ages of 18-23 (83%), with an equal distribution of freshmen, sophomores, juniors, and seniors. Over half (54%) reported positive for tornado exposure (defined as being within five miles of a tornado that touched down) in the last five years.

Procedures

Participants were recruited from undergraduate courses in psychology, sociology, and anthropology, with extra credit in those courses being offered in return for participation. All measures were completed online using QuestionPro survey software, with no identifying information connected to their responses. Participation took between 25-35 minutes.

Measures

A series of three questionnaires were completed by the participants, with a fourth questionnaire given only to those who reported exposure to a tornado. First, a demographic questionnaire was administered to obtain basic information about the individuals and to determine whether or not they were exposed to a tornado. Those who were exposed to the tornado then completed a modified version of the Tornado Exposure Questionnaire (Lack, 2008), assessing information pertaining to what they experienced, while the other participants proceeded to the Reaction Index (Frederick, 1985), a 20-item questionnaire measuring posttraumatic stress symptoms in the participants. Lastly, the Trauma Attribution Checklist (Knight & Sullivan, 2006), a 28-item self-report measure that asked questions concerning personal attributions, omen formations, and the meaning coming from the disaster, was adapted for use in adults and given to all participants.

Correlation table

		RI score	TAC score	During tornado, how distressed	Since tornado, how distressed
RI total score	Pearson Correlation	1	.622**	.205*	.348**
	Sig. (2-tailed)		.000	.029	.000
	N	115	113	113	114
TAC total score	Pearson Correlation	.622**	1	.230*	.363**
	Sig. (2-tailed)	.000		.015	.000
	N	113	113	111	112
During tornado, how distressed	Pearson Correlation	.205*	.230*	1	.639**
	Sig. (2-tailed)	.029	.015		.000
	N	113	111	113	113
Since tornado, how distressed	Pearson Correlation	.348**	.363**	.639**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	114	112	113	114

Discussion

As shown above, Hypotheses 1 and 2 were fully supported, with statistically significant relationships found between the variables of attribution, distress, and exposure. Hypothesis 3, however, was only partially supported, as the number of attributions alone was found to be a significant predictor of current distress. The findings of no difference in distress level between exposed and non-exposed undergraduates was unexpected, but not without precedent. Lack (2008) reported findings similar results in school-age children in Oklahoma, and both are among the top states in terms of number of tornadoes and tornado-related deaths (National Weather Service, 2009). These findings should spur further research examining the relationship between distress and attributions, as well as the level of what is considered "normative" distress in a disaster-prone area.

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