


**To Attribute or Not to Attribute,
That is the Post-Traumatic Question**

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Introduction

- Between 13-30% of people will be exposed to a natural disaster at some point
- Many of those will experience long-term mental health difficulties, including mood, anxiety, and substance use
- Prediction of who will respond negatively will allow for focused interventions on those most likely to react negatively

Green & Solomon (1995)

Predictors of Distress

- Many factors have been studied and proposed
 - Trauma characteristics
 - Cognitive processing of the trauma
 - Individual characteristics
 - Environmental characteristics
- Of the most extensively studied factors...
 - Dissociative experiences (ES = .35)
 - Perceived social support (ES = .28)

(Green et al., 2001; Ozer et al. 2003)

Treatment of PTSD

- Cognitive-behavioral therapy hinges on the theory that it is one's interpretation of events, not the event itself, that drives our reactions
- Changing these interpretations (via cognitive restructuring or exposure therapy) leads to reduction of symptoms after they have developed

(Cohen et al., 2009)

Treatment of PTSD

- If these symptom-inducing interpretations were identified *before* they caused anxiety or mood symptoms, they could be modified to prevent PTSD development
- But what type of cognitions would be most useful to change?
 - Research in other areas suggest the importance of attributions

Attributions

- A reason or explanation for an occurrence
- *Causal* attributions are statements saying some factor(s) contributed to an event
- Attributions people have about trauma may influence self-perception, peer relationships, level of distress, and PTSS

(Peterson & Seligman, 1984; Joseph et al., 1993; Dollinger et al., 1981)

Attributions

- People are more distressed if they
 - Make more attributions
 - Place external blame for event (unless towards chance or God)
 - Have global, internal, stable attributions

(Downey et al., 1990; Rubonis & Bickman, 1991; Bulman & Wortman, 1977)

Problem Formulation

- Given the conflicting or non-conclusive nature of previous studies examining predictors of PTSS, research examining new predictors was needed
- Attributions were specifically targeted for assessment across three studies
- In addition, other factors that had previous support for predictive value (e.g., coping skills, trauma exposure, etc.) were also assessed for their contribution to distress

Study 1

- Designed to assess and track the presence of PTSS in children exposed to a tornado, while also examining the roles that multiple factors play in maintaining distress
 - Re-exposure to environmental cues
 - Exposure to disaster-related media
 - Attributions
 - Coping style
 - Demographic variables,

Study 1 Method

- Two school districts in Oklahoma that had experienced devastating tornadoes gave permission for data collection
- Children in grades 3-6 (ages 8-12) and their parents were targeted as participants.
- Packets were sent home to the parents of all children in grades 3-6
- Children completed packets of questionnaires in groups during school hours

Study 1 Method

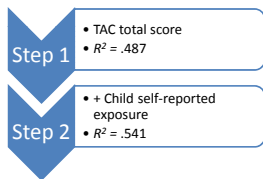
Time 1 (13 months post)	Time 2 (19 months post)
<ul style="list-style-type: none">• Parent<ul style="list-style-type: none">• Consent• Demographics• TEQ-P• Child<ul style="list-style-type: none">• Assent• TEQ-C• RI• TAC• Kidcope	<ul style="list-style-type: none">• Parent<ul style="list-style-type: none">• Consent• Child<ul style="list-style-type: none">• Assent• RI• TAC• Kidcope

Study 1 Participants

- 102 children, mean age 10.4 years (SD = 1.23)
- Majority were Caucasian (90.9%)
- 21.8% in 3rd grade, 15.5% in 4th grade, 25.5% in 5th grade, 37.3% in 6th grade
- 47.3% male, 52.7% female

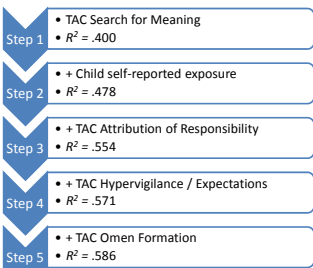
Study 1 Results

- At Time 1, attributions were found to be most predictive of total PTSS



Total model: $F(2, 82) = 49.29, p < .001$

Study 1 Results



Total model: $F(5, 82) = 25.94, p < .001$

Study 1 Results

- Next, Time 2 distress was attempted to be predicted from Time 1 variables
- TAC total score entered on the first step, but only accounted for 12.3% of the variance in total RI score ($F(1, 57) = 9.10, p = .004$)
- When individual TAC scales were examined, only Attribution of Responsibility scale was found to be significantly predictive, accounting for 13.4% of the RI variance ($F(1, 57) = 10.58, p = .002$)

Study 2 Method

- Follow-up to Study 1, with two different school districts in Oklahoma that had experienced tornadoes
- Again, children in grades 3-6 (ages 8-12) and their parents were targeted as participants
- Packets were sent home to the parents of all children in grades 3-6
- Children completed packets of questionnaires in groups during school hours

Study 2 Method

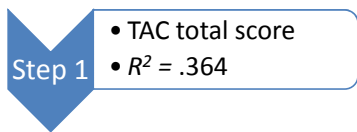
Time 1 (6 months post)	Time 2 (12 months post)
<ul style="list-style-type: none">• Parent<ul style="list-style-type: none">• Consent• Demographics• TEQ-P• Child<ul style="list-style-type: none">• Assent• TEQ-C• RI• TAC	<ul style="list-style-type: none">• Parent<ul style="list-style-type: none">• Consent• Child<ul style="list-style-type: none">• Assent• RI• TAC

Study 2 Participants

- 96 children, mean age 9.85 years (SD = 1.34)
- Majority were Caucasian (80.2%) or Native American (10.9%)
- 28.3% in 3rd grade, 23.8% in 4th grade, 31.7% in 5th grade, 14.9% in 6th grade
- 45.5% male, 54.5% female

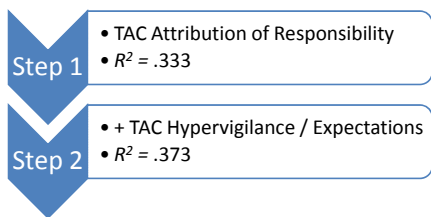
Study 2 Results

- At Time 1, attributions were again found to be most predictive of total PTSS



Total model: $F(1, 96) = 50.34, p < .001$

Study 2 Results



Total model: $F(2, 96) = 23.89, p < .001$

Study 2 Results

- Next, Time 1 variables were used to predict Time 2 distress scores

Step 1

- TAC total score
- $R^2 = .345$

Total model: $F(1, 34) = 18.90, p < .001$

Study 2 Results

Step 1

- TAC Attribution of Responsibility
- $R^2 = .353$

Step 2

- + TAC Hypervigilance / Expectations
- $R^2 = .431$

Total model: $F(2, 34) = 12.35, p < .001$

Study 3

- After examining attributions in children, an exploratory study using adults was conducted
- To maximize comparability between samples
 - The adult version of the Reaction Index was used to assess for PTSD symptoms
 - As there were no comparable measures designed to assess post-trauma attributions in adults, the TAC was used as the measure of attributions

Study 3 Method

- Participants were solicited directly from introductory courses in psychology, sociology, and anthropology at a mid-size university in Arkansas
- Potential participants were given a web address that took them to an online survey, where they completed a demographic questionnaire and a Tornado Exposure Questionnaire (TEQ)
- Those participants who endorsed recent exposure to a tornado (defined as being within five miles of a tornado that touched down within the last five years) then completed the adult version of the RI and the TAC

Study 3 Participants

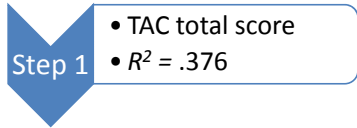
- 115 undergraduate students, 83% between 18-23
- Predominately Caucasian (85%)
- 31% male, 69% female
- Equal distribution across class standings

Study 3 Results

		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

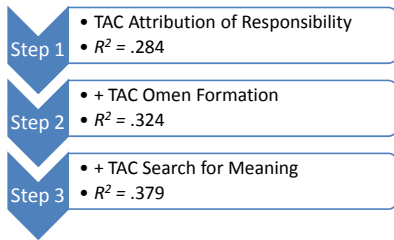
Study 3 Results

- As in previous studies, a multiple regression using exposure and attributions to predict distress was run



Total model: $F(1, 110) = 67.27, p < .001$

Study 3 Results



Total model: $F(3, 110) = 23.78, p < .001$

Conclusions

- Across all three studies, attributions were significant predictors of long-term distress
 - Attribution of responsibility
 - Search for meaning
- Those who attempt to find someone or something to blame have much worse outcomes than those not placing blame

Conclusions

- These findings support CBT and the role that our interpretations of events play in maintaining distress
- Incorporating these results into treatment and prevention should be next step
 - Doing screenings for maladaptive attributions in the months following the disaster and referring for treatment
 - Adding modules into existing treatments to specifically address attributions

Questions?
