Perceived Benefit and Mental Health After Three Types of Disaster

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The study of growth and perceived benefit after traumatic events has been hailed as one of the most promising directions for stress research. This research, however, has been limited by several methodological limitations. These limitations are addressed in this prospective study, which examines perceived benefit and mental health adjustment after 3 different types of disaster. Survivors of a tornado in Madison, Florida, had the highest rates of perceived benefit, followed by survivors of a mass killing in Killeen, Texas, and survivors of a plane crash in Indianapolis, Indiana. Perceived benefit 4-6 weeks postdisaster predicted posttraumatic stress disorder 3 years later. Perceived benefit moderated the effect of severity of disaster exposure on mental health diagnosis change over time. Without perceived benefit, as exposure severity increased, the amount of recovery decreased. If benefit was perceived, as exposure severity increased, the amount of recovery increased. Implications for clinical interventions and future research are discussed.

Increased attention has been paid recently to the perceived benefit phenomenon, the process by which those who have experienced traumatic events report benefit and growth as a result of their experiences. The perceived benefit phenomenon has been called one of the most promising directions in stress research (Thoits, 1995). This claim is based on (a) research documenting that many, if not most, people who have experienced a wide range of negative events attest to the beneficial effects of these stressors (Affleck, Tennen, Croog, & Levine, 1987; Affleck, Tennen, & Rowe, 1991; Burt & Katz, 1987; Curbow, Somerfield, Baker, Wingard, & Legro, 1993; Ebersole & Flores, 1989; Lehman et al., 1993; McMillen, Zuravin, & Rideout, 1995; Mendola, Tennen, Affleck, McCann, & Fitzgerald, 1990; Park, Cohen, & Murch, 1996; Reissman, 1990; Taylor, Wood, & Lichtman, 1983; Thompson, 1985); (b) a body of research that has found perceived benefit to be positively associated with posttrauma adjustment (Affleck et al., 1987; Affleck et al., 1991; McMillen et al., 1995; Mendola et al., 1990; Thompson, 1985), although there are some exceptions (Lehman et al., 1993; Park et al., 1996); and (c) the accessibility of perceptions of benefit as therapeutic targets.

Theory is rapidly being developed regarding who and why people perceive benefit after trauma, but these perceptions may be related to adjustment, and how clinicians may intervene to encourage the processing of potential benefits (e.g., Affleck & Tennen, 1996; Aldwin, 1994; Calhoun & Tedeschi, 1991; McMillen et al., 1995; Schaefer & Moos, 1992; Tedeschi & Calhoun, 1995). These efforts, however, are constrained by several methodological problems in the research on which theory development is based: the use of cross-sectional methods, not assessing types of perceived benefit, and using different questions to assess benefit across studies. We describe each of these limitations briefly below; then we describe the present study, which addresses these limitations.

Limitations in Perceived Benefit Research

Most of the studies of benefit have measured benefit and adjustment at the same time, often years after the negative event occurred. Prospective methods allow researchers to address several key perceived benefit questions. Do perceptions of benefit develop over a period of time, or are they perceived soon after the traumatic event? Do types of perceived benefit change over time? Finally, does perceived benefit predict later adjustment? It is particularly important to study perceived benefit prospectively, because in the short term, severity of the event and perceived benefit may confound one another. Events that are the most severe may lead to the most severe initial symptoms, but they may also offer the most potential for growth (Park et al., 1996; Tedeschi & Calhoun, 1996). Only one prospective study of perceived benefit is known to these researchers. Affleck et al. (1987) followed heart attack patients for 8 years. Those who perceived benefit 7 weeks post heart attack were at decreased risk of experiencing another heart attack or dying during the 8 years of the study. Benefits were reported at equal rates 7 weeks and 8 years post heart attack. Changes in life philosophies and religious views appeared to increase slightly over time.

Most of the studies examining the relationship between perceived benefit and adjustment have not assessed different types of perceived benefit. It is important to study perceived benefit types because benefits of one type may be related to certain kinds of outcomes, whereas benefits of other types may be re-
lated to other outcomes. Both Tedeschi and Calhoun (1995) and Schaefer and Moos (1992) suggested three category typologies of potential benefit after trauma. They largely agreed on two of these categories: perceived changes in the self and perceived changes in relationships with others. The additional categories in their typologies were changed philosophies of life (Tedeschi & Calhoun, 1995) and enhanced coping skills (Schaefer & Moos, 1992).

The examination of perceived benefit has also been hampered by the different measures used to assess perceived benefit across studies. Consequently, little is known about the kinds of events that produce the most or least amount of perceived benefits. The work of Park et al. (1996) could be considered an exception. They asked college students to pick the event that caused them the most distress in the year before the study. They reported no statistical differences in perceived benefit scores across types of negative events. However, the differences between types of negative events experienced by first-year college students may not parallel the dramatic distinctions inherent in the experience of the major types of traumatic events.

In this study, we addressed these aforementioned methodological problems through a prospective study of victims at three disaster sites, using identical measures and assessing benefit types. The disasters include one each from three different types: a technological, a criminal, and a natural disaster. The study sites are described below.

The Study Sites

The Madison, Florida, Tornado

Just before 5:00 a.m. one April morning in 1988, the small northern Florida town of Madison (population circa 3,500) abruptly awoke to the proverbial "sound like a freight train." A tornado cut a path a mile (almost 2 km) wide and 12 miles (approximately 19 km) long right through Madison. The tornado was nondiscriminating. It twisted through upper-, middle-, and lower-income neighborhoods alike, destroying everything in its path. In all, 30 structures were completely destroyed, and 70 were severely damaged. The townspeople credited the timing of the tornado as the reason only 4 people were killed and 17 were injured in the face of so much property destruction. The tornado received an official rating of F-4 on a severity scale ranging from F-0 to F-6 (F-6 being the most severe). Other information on this disaster is reported elsewhere (North, Smith, & Spitznagel, 1994).

The Indianapolis Ramada Inn Plane Crash

On October 20, 1987, at 9:12 a.m., an A-7 Corsair U.S. Air Force jet crashed into a Ramada Inn hotel lobby in Indianapolis, Indiana. The pilot of the plane, a major in the Air Force, signaled a mayday call shortly before the crash when he lost engine power. Severe weather conditions precluded the plane from a successful landing. As the pilot attempted a second approach, it became clear to the pilot that a crash was imminent. He ejected shortly before the plane crashed into the hotel where 170 people had been staying. Ten people were killed. Nine of these were hotel employees. The pilot suffered minor injuries.

The Luby's Cafeteria Mass Shooting in Killeen, Texas

A Luby's cafeteria in Killeen, Texas, was almost full with lunch-hour customers on October 16, 1991, when a man drove a truck through the front window, injuring several customers. The driver emerged from the truck shooting. He walked through the dining room, systematically shooting his trapped victims at point-blank range. Soon it became apparent to some of the customers that he was preferentially shooting women, especially those who made eye contact with him. Police arrived quickly, and 15 min after the shooting began, they cornered and shot the gunman. The gunman then fatally shot himself. Twenty-four persons, including the gunman, were killed. It was billed as the deadliest mass shooting in U.S. history. The carnage was extensive, with seasoned police officers and emergency medical personnel reporting that they had never seen so much bloodshed in one place. Other information on this disaster and its aftermath is reported elsewhere (North, Smith, & Spitznagel, 1994).

Method

Participants

Survivors of these three disasters were interviewed 4–6 weeks after the incident (Time 1) and again 3 years later. Participant recruitment differed by site. Recruitment at the Indianapolis plane crash site focused on employees of the Ramada Inn because the disaster occurred when few guests were present and most of the dead were employees. Forty-six of the 62 (74%) surviving hotel employees were interviewed 4–6 weeks after the plane crash, regardless of whether they were on site at the time of the crash. Forty-one of these 46 (89%) were reinterviewed 3 years later.

At the Madison tornado site, a list of all affected residences was generated, and participants were located with the aid of both the local sheriff and the director of the mental health center. To avoid oversampling women, we sampled men from the household when possible. Forty-two participants were interviewed 5 weeks posttornado. There was a completion rate of 89%, with five refusals by potential participants. Thirty-nine of these 42 participants (93%) were reinterviewed 3 years after the tornado.

At the Killeen site, researchers elected to interview all customers, employees, and police officers who were present at the time of the shooting, as well as off-duty employees of the restaurant. In addition, we included some individuals who lived in an apartment building directly behind the restaurant and who had been aware of the commotion and were frightened by it. Many of these people received victims escaping the shooting into their homes. One hundred thirty-six of the 165 (82%) eligible persons were located and interviewed 6–8 weeks after the shooting. Of those not interviewed, 5 could not be located and 22 refused participation. One person consented but did not complete the interview. One hundred sixteen of the original 136 participants (85%) were interviewed at the 3-year follow-up.

For analyses of all sites combined, Time 1 and follow-up data were available for 195 participants.

Measures

Perceived benefit. We asked participants at all three sites identical questions about perceived benefit. Participants responded yes or no to the following question: "Sometimes even the most awful events have their good outcomes, at least in part. Can you think of anything positive that came about as a result of the [plane crash/tornado/shooting]?

Benefit type. Those who answered yes to the perceived benefit in-
The responses to the open-ended perceived benefit question from the three sites were read independently by two readers and coded. Discrepancies were reconciled by the two initial coders, with disagreements decided by J. Curtis McMillen. There were problems with coding some of the follow-up interviews from the Killeen, Texas, site. Some interviewers had become familiar with the interim codes that were initially used for these answers and, for a small number of responses, they wrote down these numbers instead of recording the verbatim responses of participants. It was possible to code these into the broader categories of personal growth or enhanced closeness but not into the finer categories involving type of growth or enhanced closeness. Interrater agreement ranged from 88.3% to 93.6% for the larger categories of growth or enhanced closeness; agreement rates ranged from 94.6% to 100% for the finer distinctions of benefit type. Kappa coefficients, indicative of strength of association between the two raters correcting for chance agreement, were as follows: Time 1 personal growth, .78; Time 2 personal growth, .65; Time 1 enhanced closeness, .82; and Time 2 enhanced closeness, .88.

Mental health. We assessed mental health through portions of the Diagnostic Interview Schedule/Disaster Supplement (DIS/DS; Robins & Smith, 1983). The DIS/DS includes the Diagnostic Interview Schedule, as well as questions related directly to disaster survival. The modified version of the DIS contained symptom criteria for the third and revised third editions of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III and DSM-III-R, respectively; American Psychiatric Association, 1980, 1987). We assessed lifetime prevalence, incidence, and recurrence for four major mental health diagnoses at all sites and at each interview using DSM-III-R criteria. The diagnoses were major depression, generalized anxiety disorder, alcohol abuse–dependence, and posttraumatic stress disorder. Incidence rates at follow-up were not high enough for each of these diagnoses to be used as dependent variables.

In this study, we used two mental health dependent variables: current diagnosis of posttraumatic stress disorder (PTSD) at the 3-year follow-up (with recency of symptoms occurring in the past month) and diagnosis change. This change score was computed by subtracting the number of diagnoses (up to four) for which a respondent met diagnostic criteria at the follow-up interview (with recency of symptoms in the past month) from the number of diagnoses for which the respondent met diagnostic criteria at the initial interview. The change score has a potential range of -4-4, with higher scores indicating more recovery. Although change scores were once highly criticized, they produce results identical to those of other methods, such as using residual scores, yet they are easier to interpret. Thus, they are now recommended as the dependent variable of choice for assessing change processes, as long as Time 1 scores are included as a covariate (Dalecki & Willis, 1991; Gillespie & Streeter, 1994). The number of predisaster diagnoses (0-4) for which the respondent met lifetime diagnostic criteria was also used as a covariate in many analyses.

Satisfaction with family and friends. The DIS/DS also assesses life satisfaction in several domains. Two domains are of interest as dependent variables for the analyses with the independent variables of perceived enhanced closeness. On the Satisfaction With Friends (four items) and Satisfaction With Partner (five items) scales, respondents indicated how often they had experienced certain elements of life using a 4-point scale ranging from 0 (never) to 3 (almost all the time). Several items were reverse scored. Aggregated across sites, alpha coefficients for the follow-up satisfaction scores were .67 for friend satisfaction and .83 for partner satisfaction.

Characteristics of the disaster. Several characteristics of the disaster experience were important to measure and were assessed through single-item questions in the DS. All items were scored either 0 (it did not occur) or 1 (it did occur). These items focused on whether respondents thought that they were going to die during the disaster, were injured, knew anyone who died in the disaster, and saw or did anything they found disgusting during or immediately after the disaster. A severity of exposure index was created by adding the scores of these four disaster characteristics.

Mental health services. Because mental health services may confound the relationships between benefit and mental health, we also included a crude measure of mental health services for analyses. Unfortunately, mental health service questions differed by site. We asked all participants if they received "counseling" after the disaster. At all sites, at both the initial and follow-up interview, those who reported being directly in the disaster or having friends in the disaster were asked if they saw a "doctor or other health professional or counselor because of being upset by the [tornado/plane crash/shooting]." All were also asked three questions at follow-up about whether they "consulted a psychiatrist, psychologist, counselor, or other mental health professional for problems with a) drug abuse b) using too much alcohol and c) emotions or nerves." We also asked survivors of the plane crash and the tornado about "counseling that was offered at the [disaster site]" and about seeking counseling elsewhere. At follow-up, we asked them about the duration and onset of such services. The participants from the Killeen shooting were asked specifically about different kinds of services. For purposes of this study, we considered participants to have received mental health services if they answered affirmatively to any of the questions about mental health service use. Overall, 72.3% of the sample had received some form of mental health service after the disaster.

We plugged missing values for all independent and dependent values, using random substitution methods as suggested by Gibson (1992). We sorted cases using random numbers, within disaster site, and we plugged missing values using the value of the case above. One variable had seven missing values; no other variable had more than three missing values.

Limitations

The most significant limitation in this study is the use of a single item to assess rates of benefit. Since this study began, new measures have been developed to measure the extent of benefit perceived from negative events (Park et al., 1996; Tedeschi & Calhoun, 1996). Another limitation in this study involves the limited range of dependent variables. Certain types of benefit may be only related to adjustment in certain domains. Thus, it is not possible to ascertain from these data what kinds of perceived benefit may be most helpful. Finally, although the data are prospective in nature, it is not possible to draw causal conclusions. Several unmeasured personality factors may be related to both perceived benefit and adjustment. Among the most important concepts not measured in this study are predisaster optimism, self-efficacy, and locus of control.
Results

Perceived benefit was common across all disaster sites, but rates varied widely across disasters. They are reported in Table 1. Those in the Ramada Inn plane crash had the lowest rates of perceived benefit (55% 1 month postcrash and 35% 3 years postcrash). Survivors of the Madison, Florida, tornado had the highest rates of perceived benefit (90% 1 month posttornado and 95% 3 years posttornado). A similar pattern emerged among the three sites when looking at types of benefit perceived. The plane crash group had the lowest rates of perceived enhanced closeness and perceived personal growth. Those from the Madison tornado site had the highest levels of both types of perceived benefit. Over time, there appeared to be a slight decrease in the percentage of respondents who reported enhanced closeness as a perceived benefit. Responses indicating perceived personal growth increased slightly over the 3 years.

To address who perceived benefit, we used logistic regression analyses with several different dependent variables: benefit at Time 1, benefit at follow-up; and Time 1 and follow-up enhanced closeness and personal growth benefits. Dummy codes for the disaster site were forcibly entered with gender, service use, and number of preincident diagnoses; the characteristics of the disaster were entered with forward selection. Disaster site predicted benefit in all analyses. People who thought they were going to die were more likely to report personal growth as a perceived benefit soon after the disaster and at follow-up. The number of preincident mental health diagnoses predicted benefit at follow-up. The more preincident diagnoses, the more likely the participants were to perceive benefit. No variables other than site predicted either benefit at Time 1 or enhanced closeness.

To prospectively assess the relationship between perceived benefit and adjustment, we used logistic and ordinary least-squared regression analyses. Logistic regression was used with current diagnosis of PTSD at follow-up as the dependent variable. Although the diagnosis change variable qualifies as a limited dependent variable (nine categories), its distribution was normal and, thus, ordinary least-squared regression was used for analyses with it and the two satisfaction dependent variables. We conducted two analyses for each dependent variable: first with Time 1 perceived benefit and again with enhanced closeness and personal growth as the benefit independent variables.

For analyses with the PTSD dependent variables, the dummy codes for disaster site, the Time 1 benefit variables, and the number of preincident mental health diagnoses were forcibly entered, with age, gender, service use, and the characteristics of the disaster allowed to enter with forward selection. Service use was not allowed to enter because all 27 of the participants who continued to qualify for a PTSD diagnosis 3 years postdisaster had received mental health services. As Table 2 indicates, the odds of having PTSD at follow-up increased if respondents had a higher number of preincident diagnoses, were female, were injured, and did not perceive benefit at Time 1. Enhanced closeness and personal growth did not predict current PTSD.

For the diagnosis change dependent variable, the dummy codes for the disaster site, the Time 1 benefit variables, and the number of mental health diagnoses at Time 1 were forcibly entered with age, service use, gender, and the characteristics of the disaster allowed to enter through forward selection. Only the number of postincident diagnoses predicted diagnosis change [unstandardized regression coefficient = .70, F(1,193) = 167.04, p < .001, total r² = .52].

To test whether the effect of benefit on mental health moderated the effect of the severity of exposure to the disaster on mental health, we entered Severity × Benefit interaction terms in subsequent steps. There was no Severity × Benefit interaction with the current PTSD variable, but the Severity × Perceived Benefit interaction was related to diagnosis change (unstandardized regression coefficient = .18), t = 2.06, p = .04, total r² = .53. If there was no benefit perceived at Time 1, as severity increased, the amount of recovery decreased. If benefit was perceived at Time 1, as severity increased the amount of recovery increased. This interaction is graphed in Figure 1.

For analyses with the Life Satisfaction scales, the dummy codes for disaster site, the appropriate Time 1 satisfaction score, and the benefit variables were entered forcibly, and then age, gender, and the characteristics of the disaster were allowed to enter through forward selection. Time 1 benefit was not related to follow-up partner or friend satisfaction. Perceived enhanced closeness at Time 1 was related to friendship satisfaction at follow-up [unstandardized regression coefficient = .54, F(1, 193) = 4.66, p = .03, total r² = .09]. Other than Time 1 satisfaction scores, no other variables were related to friendship or partner satisfaction. There were no noted interactions between severity of disaster exposure and benefit.

Discussion

In this study, we addressed several limitations in previous research on the perceived benefit phenomenon by using prospective methods, assessing benefit types, and using the same measure of perceived benefit across different types of severely negative events. It is only the second study, to our knowledge, to assess the relationship between perceived benefit and adjustment.

Table 1

Percentage of Disaster Victims Who Perceived Selected Benefit Types by Disaster

<table>
<thead>
<tr>
<th>Time postdisaster</th>
<th>Overall</th>
<th>Plane crash</th>
<th>Tornado</th>
<th>Shooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>4–6 weeks</td>
<td>74.7</td>
<td>54.6</td>
<td>90.5</td>
<td>76.3</td>
</tr>
<tr>
<td>Any kind of benefit**</td>
<td>45.3</td>
<td>11.4</td>
<td>61.9</td>
<td>51.1</td>
</tr>
<tr>
<td>Closeness**</td>
<td>19.9</td>
<td>13.6</td>
<td>35.1</td>
<td>17.0</td>
</tr>
<tr>
<td>Community became closer**</td>
<td>21.7</td>
<td>2.3</td>
<td>40.5</td>
<td>22.2</td>
</tr>
<tr>
<td>Increased efficacy</td>
<td>2.7</td>
<td>2.3</td>
<td>2.4</td>
<td>3.0</td>
</tr>
<tr>
<td>Material gain</td>
<td>7.7</td>
<td>2.3</td>
<td>14.3</td>
<td>7.4</td>
</tr>
<tr>
<td>3 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any kind of benefit**</td>
<td>67.2</td>
<td>35.0</td>
<td>94.7</td>
<td>69.2</td>
</tr>
<tr>
<td>Closeness**</td>
<td>25.6</td>
<td>7.5</td>
<td>52.3</td>
<td>23.0</td>
</tr>
<tr>
<td>Growth**</td>
<td>26.7</td>
<td>17.5</td>
<td>47.4</td>
<td>23.0</td>
</tr>
<tr>
<td>Community became closer**</td>
<td>8.3</td>
<td>0.0</td>
<td>23.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Increased efficacy</td>
<td>3.7</td>
<td>5.0</td>
<td>2.6</td>
<td>3.5</td>
</tr>
<tr>
<td>Material gain*</td>
<td>3.1</td>
<td>0.0</td>
<td>10.5</td>
<td>1.8</td>
</tr>
</tbody>
</table>

* Chi square was significant at p < .05. ** Chi square was significant at p < .01.
Table 2
Logistic Regression Results Predicting PTSD Diagnosis at 3-Year Follow-Up

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter estimate</th>
<th>SE</th>
<th>Odds ratio</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plane crash vs. shooting</td>
<td>-1.18</td>
<td>0.71</td>
<td>0.31</td>
<td>.10</td>
</tr>
<tr>
<td>Tornado vs. shooting</td>
<td>-1.92</td>
<td>1.07</td>
<td>.15</td>
<td>.07</td>
</tr>
<tr>
<td>No. of preincident diagnoses</td>
<td>0.77</td>
<td>0.26</td>
<td>2.15</td>
<td>.00</td>
</tr>
<tr>
<td>Perceived benefit</td>
<td>-1.26</td>
<td>0.55</td>
<td>0.28</td>
<td>.02</td>
</tr>
<tr>
<td>Injury</td>
<td>-1.19</td>
<td>0.51</td>
<td>3.29</td>
<td>.02</td>
</tr>
<tr>
<td>Gender</td>
<td>-1.28</td>
<td>0.55</td>
<td>0.28</td>
<td>.02</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.08</td>
<td>0.58</td>
<td></td>
<td>.06</td>
</tr>
</tbody>
</table>

**Note.** 2 log-likelihood = 122.9, $\chi^2(6, N = 195) = 33.86, p < .001.
PTSD = posttraumatic stress disorder.

That a cognitive phenomenon such as perceived benefit relates to PTSD may offer some support for social–cognitive information-processing models of PTSD (e.g., Horowitz, 1986). In Horowitz's model, PTSD symptoms occur because traumatic events contain large amounts of information that lie outside normal experience so the brain does not have a quick way of processing it with existing schemata. Thus, this information is shunted out of awareness, where it remains active and unprocessed. The "completion" principle of the information-processing model maintains that information of this nature will keep trying to enter consciousness for processing until reality and cognitive schemata match. When the event is processed, symptoms are expected to abate. Perceiving benefit may be a sign that the traumatic material is available for processing or has been processed.

Although the results from these two prospective studies offer the strongest evidence to date that perceiving benefit after negative events may have positive consequences, it remains premature to suggest a causal relationship between perceived benefit and adjustment. One unexplored alternative is that the people who perceive benefit are simply those with the highest capacities to cope. Others have suggested that people who are predisposed to optimism (Affleck & Tennen, 1996), who are open to new experiences (Tedeschi & Calhoun, 1996), who have cognitively complex self-representations (Affleck & Tennen, 1996) and, in general, who have the hardiest personalities (Tedeschi & Calhoun, 1995) are those who are most likely to perceive benefit and cope effectively. It is intriguing that in this study, a higher number of preincident mental health diagnoses predicted perceived benefit. This may be the first evidence that those whose lives are in the worst shape may have the most to gain from adverse experiences. Another alternative explanation is that the
use of mental health services confounds the relationship between perceived benefit and mental health; that is, postdisaster counseling may promote both improved mental health and perceptions of benefit. Results from this study suggest that there is no such confound. Service use was related neither to perceived benefit nor to diagnosis change. Service use was positively associated with PTSD diagnosis. Everyone who continued to qualify for PTSD diagnosis 3 years postdisaster had received mental health services. This is one of the most confounding hypothesis would predict.

Only one type of perceived benefit was related to life satisfaction. Perceived enhanced closeness at Time 1 predicted friend satisfaction at follow-up. Perceived enhanced closeness did not predict partner satisfaction as was expected. This may be the result of minimal variance in the partner satisfaction measure. Most disaster survivors reported being highly satisfied with partners at both measurement times. The general perceived benefit indicator was unrelated to either life satisfaction measure. This offers support for a type-specific effect of benefit on adjustment. In other words, some types of benefit may relate to certain aspects of postdisaster adjustment but not to others.

In this study, the Indianapolis plane crash site had the lowest rates of perceived benefit, whereas the Madison, Florida, tornado site had the highest rates of perceived benefit. Several explanations are discussed that are based on differences in the type of disasters experienced, and the community context of the disasters. These differences include the size of the communities where the disaster occurred, the corporate response to the disasters, and the type of support needed after the disasters. The rates of perceived benefit corresponded with the size of the towns in which the disasters occurred. One possibility is that smaller communities are better able to rally to the aid of victims. A disaster in a small town may be a defining event for that community, whereas a disaster that occurs in a large city affecting the same numbers of people may be seen as a defining event for those directly involved but not for the community itself. Similarly, the differences in rates of perceived benefit between the Indianapolis and Killeen sites may be explained by the corporate response from the affected companies. Many survivors of the Killeen shooting noted the positive response of their employer in their answers to the question about perceived benefit. None of the Indianapolis plane crash survivors noted such a positive response from their employer. It may also be easier for communities and neighbors to respond supportively after certain kinds of disasters. People may be more comfortable and experienced in offering aid after a natural disaster than after criminal or technological disasters. In addition, the victims of the tornado needed tangible aid (housing, food), which may be easier for many people to provide than emotional assistance. All of these interpretations are based on the possibility that certain kinds of disasters or certain kinds of communities lead to an increase in social outpouring to victims and that this outpouring leads to perceptions of benefit. People who receive the most support may be those most likely to report that they became closer to others as a result of the event. Increased support may also provide opportunities to process the event, leading to an increased chance of concluding that one has experienced personal growth after the disaster.

It is also notable that perceived personal growth appeared to increase over time whereas perceived enhanced closeness with others appeared to decrease over time. Interpretation is complicated because the measurement instrument limited responses to the perceived benefit question and did not probe for additional perceived benefit types. As time progressed, personal growth may have become more salient to victims, but increased personal closeness may have remained as a perceived benefit as well. Alternatively, enhanced closeness may fade over time as people get back into the routines of daily life. Personal growth may not occur or be noticed until well after the crisis has passed.

Few variables predicted whether benefit would be perceived, after controlling for the disaster site. Those who thought that they might die were more likely to report personal growth. In addition, those with a higher number of preincident mental health diagnoses were more likely to report perceived benefit at follow-up. One interpretation for both of these findings may be that the disaster served as something of a wake-up call for certain kinds of disaster survivors. Those who had severe problems before the disaster and those who faced a life-threatening situation may have been more likely to reassess their lives and their futures in the disaster's wake.

Although a causal link between perceiving benefit and adjustment cannot yet be established, it may be time to generate clinical interventions that help clients process potential benefits to their experiences. Calhoun and Tedeschi (1991) offered some initial ideas in this area. They suggested that clinicians can bring into sharper focus the benefits being implied by a client and that they can point out benefits that they observe. They encouraged clinicians to focus on "benefits that are congruent with the individual's fundamental assumptions about the world and its nature" (p. 50). Benefit-enhancing components could be incorporated into a number of clinical methodologies currently in use with persons who have experienced or are experiencing stressful events. Such methodologies include support groups for survivors, critical incident debriefings (e.g., Bell, 1995), peer counseling with others who have survived similar experiences, writing interventions (e.g., Pennebaker, 1993), and individual therapy geared toward reducing PTSD symptoms. Components could include simply asking clients open-ended questions about how people may benefit from such an experience, writing about potential benefits, asking clients to assess potential benefits in specified life domains, or helping clients develop plans on how to grow from a specific experience.

Clinical introduction of the perceived-benefit concept is not without risk. Some events may be too catastrophic to envision benefits. In addition, it may be harmful to introduce the topic before clients are able to consider such issues. Both errors could be interpreted as insensitive and jeopardize the clinical relationship. Clients who are encouraged to search for benefit and find none may become more demoralized. It seems that clinical introduction of the benefit concept may be most appropriate for clients who can recall the traumatic event and who have begun processing what the event means to their lives.

The results suggest continued research into the perceived-benefit phenomena. Future work should concentrate on disentangling the relationships among coping strategies, benefits perceived, and adjustment. Such work should be longitudinal in nature, use the new perceived benefit measures, assess benefit types, and test both type-specific hypotheses and hypotheses.
derived from social—cognitive processing theories. In addition, if and when new benefit-enhancing interventions are generated, they should be tested to assess whether they lead to desired changes in information processing and lifestyles after negative experiences.

References


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