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SOCIAL SUPPORT FOLLOWING A DISASTER

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## Abstract

Thirty-nine victims of a natural disaster were interviewed six weeks after tornadoes touched down in their communities in east central Ohio and west central Pennsylvania. Data were gathered as part of a pilot study for a subsequent investigation of mental health help-seeking following natural disasters. The present study hypothesized that perceived availability of social support would moderate the stress associated with the disaster, resulting in a negative correlation with a measure of psychological symptomatology. Results yielded no significant correlations. Instead, measures of the severity of, and distress caused by disruption of social networks were significantly and positively correlated with measures of anxiety, depression, and somatization. It is suggested that the severity of the event and the concomitant stressors caused by disruption of the individual's social network may override the beneficial buffering effects of social support found in past studies.

## Social support following a natural disaster

A natural disaster often results in severe consequences for its victims. Individuals and families must often cope with the loss of or damage to their homes and other property, as well as with personal injury and death or injury to family, friends, relatives, and other members of the individual's social network. The injuries, in some cases, may be long-lasting, and the effects of the physical damage may be exacerbated by inadequate financial resources and insurance coverage.

Despite the severity of damage associated with a natural disaster, research on the psychological consequences of a disaster has been surprisingly inconclusive, and has often produced conflicting results (see Green, 1982; Perry and Lindell, 1978). In general, studies that have taken a psychodynamic approach and have applied in-depth clinical interviews have yielded higher rates of psychological impairment (Lifton and Olson, 1976; Chamberlin, 1980; Boyd, 1981; Titchener and Kapp, 1976; Logue, Hansen, and Struening, 1979). On the other hand, sociological and behavioral assessments of the incidence of mental illness following a natural disaster have tended to show lower degrees of impairment (Kilijanek and Drabek, 1979; Penick, Powell, and Sieck, 1976; Quarantelli and Dynes, 1976; Taylor, 1977). Therefore, it is important that future studies attempt to establish the presence or absence of psychological symptoms and to determine the factors that may be related to their presence or

absence.

### Social Support

A variable that has been implicit in many past studies has been the impact of the disaster upon the individual's social network, and the provision of support to the victim following the disaster. Reference is often made to the disruption of an individual's social network following a disaster. Again, the evidence is somewhat conflicting in this area. Ollendick and Hoffmann (1982) and Penick, et al., (1976) point to a small degree of family disruption, while Powell and Penick (1983) reported strained family relationships, and Lifton and Olson (1976) report nearly complete social disruption.

The few studies that have explicitly assessed the importance of social support in buffering the effects of stress from disasters have all derived from studies of Three Mile Island (Fleming, Baum, Gisriel, and Gatchel, 1985; Bromet and Dunn, 1981; Bromet, 1980). The lack of studies examining the buffering relationship is surprising given the vast amount of literature investigating social support as a moderator of stressful life events (see Cohen and Wills, 1985; Kessler, Price, and Wortman, 1985, for reviews of this literature). Fleming et al., (1985) were able to provide support for the buffering hypothesis in a well-controlled study of behavioral, psychological, and physiological symptoms of stress following the accident at Three Mile Island (TMI). They found evidence for buffering effects of

emotional support one year following the accident.

However, as the authors have pointed out in these and other articles (Baum, Fleming, and Davidson, 1983; Collins, Baum, and Singer, 1983; Baum, Gatchel, and Schaeffer, 1983), the accident at TMI had many unique qualities (i.e., no visible damage, no clear "low point"--the point at which the most severe damage occurs, technological vs. natural disaster) that limit its generalizability to the study of natural disasters.

The present study, in looking at a different disaster setting (i.e., one that was natural, involved severe physical damage and injuries, and had a clear "low point") was designed to test the following hypotheses: 1) Overall levels of psychological distress among victims of a natural disaster will be higher than those for normal populations; 2) Overall levels of perceived availability of social support will be significantly negatively correlated with overall levels of psychological symptomatology; 3) In particular, appraisal support and tangible support should be most significantly correlated with levels of psychological symptomatology because of the need for tangible (i.e., financial and labor) assistance, and the need for accurate appraisal of resources necessary to cope with a highly threatening event.

#### Method

##### Description of Subjects and Disaster Site

Thirty-nine victims of a major natural disaster volunteered

to participate in this investigation that served as pilot work for a forthcoming longitudinal study. All subjects had directly experienced a series of tornados that swept over areas of Ohio and Pennsylvania on May 31, 1985. The tornados resulted in extensive property damage and loss of life. Two separate communities, approximately 40 miles apart, were selected from the disaster region to serve as research sites. Tornado victims were recruited from two communities to provide subjects with a broad range of demographic characteristics.

Residents in region one (located in central east Ohio) were recruited via door-to-door screening within the most heavily damaged areas. Approximately two-thirds of the sample in this region was selected in this manner. If residences had been completely destroyed, the names and location of these persons were solicited from neighbors, and they were then contacted personally. Approximately one third of the sample from region one was thus contacted. Prospective subjects first completed a brief self-report screening instrument to assess level of psychological distress, extent of physical injury to anyone in their household, and estimated property damage. From this group of 36 subjects, 24 agreed to be interviewed. Selection criteria for all subjects were as follows; scoring one standard deviation above the average on a screening instrument (for any of five subscales pertaining to post disaster increases in anxiety, depression, somatization, family conflict or decreased family

cohesion), reporting excessive use of alcohol since the disaster, or having more than 300 dollars of property damage. Independent t-tests indicated that subjects who agreed to be interviewed did not differ significantly on any of the selection criteria from those who refused to participate.

Recruitment of subjects from region two (central west Pennsylvania) was more difficult as almost all residents had been relocated due to severe property damage. A partial list of relocated residents was obtained from city officials and these individuals were contacted by phone. From this group, 15 people agreed to participate (see footnote 1). The screening instrument was not given as all subjects from region two were eligible to participate by virtue of their property damage. The screening instrument was later administered to these subjects during the interview session. Subjects from both regions were paid 50 dollars for their participation in the interview.

### Materials

The four hour interview session was composed of structured interviews, questionnaires and scales administered in a standardized sequence. These instruments were used to assess an extensive range of feelings and behaviors related to the disaster. Of these instruments, three were particularly relevant to the present report. To assess perceived availability of social support, the Interpersonal Support Evaluation List (ISEL) (Cohen, Mermelstein, Kamarck and Hoberman, 1985) was administered

to subjects. The reported data indicating excellent reliability data across five separate studies. Internal reliability estimates as computed by coefficient alphas ranged from .88 to .90 overall. Subscale reliability estimates ranged from .62 to .82. Cohen et al. also report adequate convergent validity data with structural and behavioral measures of social support, and discriminant validity data with measures of social desirability and social anxiety. The four subscales measure tangible support, appraisal support (someone from whom to seek advice), belonging support (someone with whom to engage in leisure activities), and self-esteem support (perceptions of others' evaluations).

A second measure, the Brief Symptom Inventory (BSI), was used to provide information on subject awareness of psychological distress (Derogatis and Spencer, 1982). Twenty items comprising three subscales (anxiety, depression and somatization) and a total psychological distress score were obtained from this self-report instrument. Reliability and validity data for all subscales and the total psychological distress score have been reported by Derogatis and Meliseratos (1983), and achieve acceptable psychometric standards.

The third measure considered in this study were derived from a structured interview, Behavior Prior to and During the Disaster (BPDD), developed by members of the research team investigating the present disaster. The items considered in this study pertained to the individual's assessment of the severity of



injury to one's family and other household members, and of the distress caused by injury, loss, or disruption of the individual's social network.

In addition to these measures, a number of other measures were administered in order to assess other aspects of the subjects' experiences and responses to the disaster (see footnote 2).

### Procedure

All subjects were interviewed within six weeks following the disaster. This relatively short span of time between the event and our contact with victims helped to provide indices of maladjustment that were likely to be less affected by intervening events. When data is collected six months (Lindy, Grace and Green, 1981) or even one year (Bolin, 1982) after the disaster, measurement of resulting psychopathology is often confounded by various events and experiences that transpire over time.

Following the interview, any questions from the subjects about the procedure or interview were answered by the interviewer.

### Results

Mean scores of the disaster victims on all three subscales of the BSI indicated that their level of distress was significantly different from that of the normal population for depression ( $t = 4.96$ ,  $df = 753$ ,  $p < .01$ ), anxiety ( $t = 7.40$ ,  $df = 753$ ,  $p < .01$ ), and somatization ( $t = 2.99$ ,  $df = 753$ ,

$p < .01$ ,). As stated in the Methods section, victims were selected based on both the screening measure and amount of damage. Thus the selection was intentionally biased. However, only one of the victims was included in the study solely because of the score on the screening measure.

Scores on the depression and total symptom scales were moderately positively skewed, and scores on the somatic subscale were severely skewed. Therefore, the former scales were transformed by computing the square roots of the scores, while the latter subscale was transformed by computing base 10 logarithms.

Pearson-product moment correlation coefficients were computed for the BSI, the ISEL, and their respective subscales and are presented in Table 1. None of these correlations reached significance except for the intercorrelations of the subscales. By contrast, several of the questions from the BPDD regarding the severity of and distress caused by disruption of the individual's social networks were significantly correlated with symptom and support variables (see Table 2).

#### Discussion

The results of this study are only preliminary and must be treated with some caution. The data come from a pilot study designed mainly to determine the length, comprehensibility, and reliability of the measures employed. Consequently, no effort was made to obtain a random sample of disaster victims.

The data are important, however, in that they provide a field test of the effects of the perceived availability of social support under conditions of severe stress. They also provide the first field test of the general population Interpersonal Support Evaluation List (ISEL) as a measure of the perceived availability of social support of various functions of social support.

The lack of significant correlations between social support and psychological symptomatology was surprising in light of past research on the buffering effects of social support (i.e., Cohen et al., 1985; Fleming et al., 1985). The tornadoes and their consequences obviously were highly stressful as evidenced by the scores on the Brief Symptom Inventory (BSI) subscales. Several possible reasons for the failure of social support to evidence any buffering effects following this stressful event are offered below.

The first factor has to do with the non-representativeness of the sample. Although those who were not interviewed did not differ from those who were interviewed on the screening measure, it is possible that those who refused to complete the screening measure differed in symptomatology, in social support, and/or severity of damage.

The second is the severity of the event itself. It is possible that the coping resources and perceived availability of support that are effective in less threatening situations are insufficient to deal with the major stressors arising in the

first two months following a natural disaster.

The third explanation in light of other data that have been presented is that the disruption of the social network and the reciprocal demands placed upon a person by an individual's social network have negated the normally beneficial effects of perceived availability of social support. This is particularly evidenced by the fact that the strongest correlation with symptomatology is the inconvenience of staying with others.

These results suggest that more attention should be paid to the social demands or strains that can be exacerbated by a highly stressful event.

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Footnotes

1. Information on the total number of phone contacts made was not available.

2. Other measures employed in the study included: 1) a Demographics questionnaire; 2) a questionnaire assessing knowledge of resource alternatives; 3) an Attribution of Responsibility for Problems and Solutions; 4) a repression-sensitization scale; 5) a questionnaire concerning the media; 6) a Beliefs questionnaire assessing various perceptions of psychological symptom clusters; 7) the Diagnostic Interview Schedule, a psychiatric diagnostic structured interview; 8) a questionnaire assessing help-seeking for the symptom clusters identified by the DIS.

Table 1

Intercorrelations between scales of symptomatology and social support  
(n = 34)

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Scales	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. BSI Total	--	.90*	.91*	.84*	-.10	-.20	-.06	-.08	.03
2. Depression		--	.72*	.67*	-.06	-.21	-.06	-.16	.01
3. Anxiety			--	.71*	-.01	-.08	-.01	-.04	.15
4. Somatic				--	-.06	-.09	-.05	-.05	.01
5. ISEL Total					--	.92*	.94*	.91*	.87*
6. Appraisal						--	.81*	.78*	.73*
7. Tangible							--	.84*	.77*
8. Belongingness								--	.68*
9. Self-esteem									--

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\* p < .001

Table 2

Correlations between symptom scales and injury to others and distress from injury to others and social network disruption

	Brief Symptom Inventory Scales							
	Total		Depression		Anxiety		Somatic	
<u>Injury</u>								
1. to spouse	.21	(20)	.32*	(20)	.27	(20)	.04	(20)
2. to children	.36**	(35)	.34**	(35)	.38**	(37)	.13	(37)
3. to other family members	.40***	(35)	.35**	(35)	.33**	(37)	.35**	(37)
4. to other household members	.37**	(35)	.37**	(35)	.31**	(37)	.20	(37)
<u>Distress from loss of:</u>								
5. family contacts	.37*	(19)	.40**	(19)	.51**	(20)	.29	(20)
6. neighborhood contacts	.28*	(31)	.26*	(31)	.36**	(32)	.26*	(32)

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\*  $p < .10$ ; \*\*  $p < .05$ ; \*\*\*  $p < .01$

Number of subjects in parentheses

Table 2

Correlations between symptom scales and injury to others and distress from injury to others and social network disruption

	Brief Symptom Inventory Scales			
	Total	Depression	Anxiety	Somatic
<u>Distress from</u>				
<u>injury to:</u>				
7. spouse	.44* (12)	.50** (12)	.35 (12)	.36 (12)
8. children	.38 (13)	.38 (13)	.20 (20)	.34 (13)
9. other				
relatives	.45** (18)	.26 (18)	.46** (18)	.56*** (18)
10. friends	.34** (32)	.18 (32)	.46*** (33)	.18 (33)
<u>Distress from:</u>				
11. relocation	.28* (28)	.19 (28)	.31* (29)	.27* (29)
12. inconvenience of				
others staying				
with you	.57*** (20)	.40** (20)	.57*** (22)	.44** (22)

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\* p<.10; \*\* p<.05; \*\*\* p<.01

Number of subjects in parentheses