

Postdisaster Psychosocial Intervention: A Field Study of the Impact of Debriefing on Psychological Distress

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Objective: Following a catastrophic natural disaster, the authors evaluated whether brief psychological intervention (debriefing 6 months later) reduced disaster-related psychological distress as measured by the Impact of Event Scale. **Method:** Two groups of subjects who had been exposed to Hurricane Iniki in Hawaii were assessed before and after participating in a multihour debriefing group. The intervention aimed to provide ventilation of feelings, normalization of responses, and education about normal psychological reactions to the disaster in a context of group support. To provide a partial control for the passage of time, the pretreatment assessment of the second group was concurrent with the posttreatment assessment of the first group. **Results:** A repeated measures analysis of variance indicated that Impact of Event Scale scores were reduced in both groups after the treatment. **Conclusions:** There is preliminary empirical support for the effectiveness of postdisaster psychological intervention and for the feasibility of treatment research in postdisaster environments.

(Am J Psychiatry 1997; 154:415–417)

Psychological debriefing is a crisis intervention designed to relieve and prevent event-related distress in normal people experiencing abnormally stressful circumstances (1–5). Debriefing relies on three therapeutic ingredients: ventilation in a context of group support, normalization of responses, and education about post-event psychological reactions. Treatment usually consists of a single extended session.

Mitchell (1) pioneered debriefing with emergency workers such as paramedical personnel, police, and firemen, and Raphael (2) used a similar approach to address the distress of disaster workers. Studies of debriefing have been equivocal, suggesting high levels of client satisfaction but no differential impact on psychometric measures (6, 7). The present study is the first, to our knowledge, to introduce a partially controlled design for psychosocial intervention after natural disasters, a treatment context previously resistant to outcome research (8). The research was done after Hurricane Iniki, which struck the Hawaiian island of Kauai on Sept. 11, 1992, and was among the most costly natural disasters in U.S. history.

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The authors thank Joycelyn Iwata for help with data gathering and Drs. J. Fairbank, B. Raphael, and J. Mitchell for comments on earlier versions of the paper.

METHOD

Two groups were debriefed at separate times. Group 1 was debriefed 6 months after Hurricane Iniki. Before debriefing, participants were asked to complete the Impact of Event Scale (9). Approximately 90 days later, group 1 was readministered the Impact of Event Scale. We scheduled group 2 for psychological debriefing the same week we retested group 1. This gave us the opportunity to obtain pretreatment Impact of Event Scale scores for group 2 concurrently with group 1 posttreatment scores. Group 2 was retested 90 days later. The interventions were similar for both groups. Group 2 served as a partial control for time and as a replication group.

There were 29 participants in group 1, but four were lost to follow-up, leaving 25 for data analysis. Group 2 comprised 22 people, all of whom participated except one, who was ill on the day of the debriefing. Three of the 21 who underwent debriefing were lost to follow-up, leaving 18 for data analysis. Overall subject retention was 86%.

There were 43 research participants with complete treatment data. All were Kauai residents exposed to the hurricane. The first group comprised 25 people who, at the time of the study, were staff members of a temporary postdisaster counseling project funded by the Federal Emergency Management Agency (FEMA). Most (80%) had no prior working experience in mental health, having been hired to provide community outreach as peer counselors. The second group comprised 18 regular staff members of the local mental health center. This group included professionals, paraprofessionals, and administrative and clerical staff members.

The two groups were comparable in age (table 1) and did not differ with respect to marital status or ethnicity. There were significantly more women than men in both groups ($\chi^2=3.9$, $df=1$, $p<0.05$). Group 2 was significantly more educated than group 1 ($t=2.49$, $df=40$, $p<0.02$), reflecting more advanced degrees among the staff of the mental health center. The Impact of Event Scale pretreatment scores for both groups were not significantly different and were approximately at the level of distress described by Horowitz et al. (10) in a group of nonpatients who had lost a parent 8 weeks earlier (mean=22.8, $SD=9.6$).

TABLE 1. Characteristics of Participants in Psychological Debriefing After a Hurricane

Variable	Group 1 (N=25)		Group 2 (N=18)	
	N	%	N	%
Female sex	23	92	11	61
Ethnicity				
Caucasian	11	44	11	61
Hawaiian/part-Hawaiian	6	24	2	11
Filipino	5	20	3	17
Japanese	3	12	2	11
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Age (years) ^a	41.7	10.8	42.1	10.0
Schooling (years)	14.8	2.5	17.4	2.8
Rating of damage ^b	4.0	1.0	3.9	1.4
Impact of Event Scale score				
Before intervention				
Total	19.0	11.4	24.8	10.9
Intrusion subscale	12.1	7.2	14.5	7.2
Avoidance subscale	6.8	5.7	10.3	7.0
After intervention				
Total	12.3	8.3	16.8	12.3
Intrusion subscale	7.9	5.6	10.0	6.7
Avoidance subscale	4.4	4.6	6.8	6.5

^aMeans are based on less than full group Ns because of missing data.

^b6-point scale.

Exposure to Hurricane Iniki was measured with a 6-point scale. Scale points were 1=no damage, 2=damage only to property outside the home, 3=minor damage to home, 4=major damage to home but it could be lived in, 5=major damage and home temporarily uninhabitable, and 6=home demolished. The two groups had experienced comparable very substantial property damage, corresponding to major damage to one's home, although the home could still be lived in. Eight of the 43 subjects' homes were completely demolished by the storm (group 1, N=3; group 2, N=5). Six persons' homes were uninhabitable for an extended period.

We used the Impact of Event Scale to evaluate hurricane-related psychological distress; it is an event-referenced scale widely used to measure distress in response to a variety of traumatic events (8). The 15-item 4-point scale (score of 0, 1, 3, or 5) measures the frequency of intrusive and avoidant symptoms experienced in the past month and yields total, intrusion, and avoidance scores. Zilberg et al. (9) reported internal consistencies of 0.78 for intrusion and 0.82 for avoidance. Split-half reliability was reported as 0.86. Participants were queried about age, sex, education, and the physical damage their homes suffered.

In the psychological intervention, we sought to achieve the three goals of normalization, education, and psychological support. The group sessions began with a brief description of their purpose. The purpose of gathering data was also explained, and full written consent was obtained. However, it was made clear that gathering the data was an incidental purpose of the groups. Participants were then invited to share with the group their experiences with Hurricane Iniki, beginning with where they were when they first heard about the hurricane. The immediacy and intensity of experiences made sharing reactions easy.

The facilitator (C.M.C.) invited a description of the experience touching on its cognitive, affective, and behavioral components. Description of the most terrifying moments was also invited. The facilitator encouraged and acknowledged the intensity of the experience and emphasized the universality of reactions and the fact of competent survival. Perceived failure was reframed as something to be expected in a disaster.

We found that adding a didactic component to our debriefing protocol was very helpful to the participants. Following the approxi-

mately 3 hours of group process, 2 hours of lecture on postdisaster recovery were provided, describing reactions to disaster, phases of recovery, and what to expect in a postdisaster psychological environment. The facilitator in charge of the psychological debriefing gave the lectures.

RESULTS

We analyzed the data with an analysis of variance (ANOVA) for repeated measures. The repeated measures (within-group factor) were the pretreatment and posttreatment Impact of Event Scale total scores for each group. The between-group factor evaluated the differences between group 1 and group 2. Damage experienced and amount of education were covariates. The within-group treatment effect was highly significant ($F=21.13$, $df=1$, 40 , $p<0.001$), whereas the between-group difference was not significant ($F=2.62$, $df=1$, 40 , $p>0.11$). The degree of damage to property did not significantly affect the outcome of treatment ($t=1.01$, $df=41$, $p=0.32$), nor did level of education have a significant treatment effect ($t=0.22$, $df=41$, $p=0.83$). There were no significant group-by-treatment interactions.

To evaluate whether treatment effectiveness differed as a function of professional status as a mental health clinician, we did a similar repeated measures ANOVA combining the two treatment groups and using clinician versus nonclinician status as the grouping factor. The results of the ANOVA were significant for treatment effectiveness ($F=20.32$, $df=1$, 41 , $p<0.0001$). The grouping factor ($F=1.72$, $df=1$, 40 , $p>0.19$) and the interaction ($F=0.50$, $df=1$, 41 , $p>0.48$) were not significant, indicating that treatment was effective for both clinicians and nonclinicians.

We tested for the possibility that the decrease in distress might have been due merely to the passage of time by using a t test for independent means to evaluate the difference between the pretreatment Impact of Event Scale scores of group 2 and the posttreatment scores of group 1. Group 1 and group 2 did not differ significantly in pretreatment level of distress ($t=1.69$, $df=41$, $p>0.10$) (table 1). Despite the passage of time, the pretreatment distress scores for group 2 were significantly higher than the posttreatment scores for group 2 ($t=4.27$, $df=41$, $p<0.0001$). The continued distress of group 2 before treatment suggests that the change in Impact of Event Scale scores of group 1 was not merely due to the passage of time.

To assess treatment effectiveness for both avoidance and intrusion, we did additional repeated measures ANOVAs, entering the pretreatment and posttreatment scores on the avoidance and intrusion subscales; the between-group factor was group membership. Both avoidance and intrusion scores were significantly reduced after the intervention (for avoidance: $F=9.49$, $df=1$, 41 , $p<0.003$; for intrusion: $F=18.13$, $df=1$, 41 , $p<0.0001$).

A mean total Impact of Event Scale score of 35 is often considered to approximate clinical levels of distress (10). To evaluate whether treatment was effective with participants whose distress was comparable to

clinical levels, we did a repeated measures ANOVA including only the data on the 14 participants whose total Impact of Event Scale scores were 25 or above (to obtain a group mean consistent with the clinical cutoff); the pretreatment mean was 38.0 (SD=8.2) for group 1 and 32.3 (SD=6.2) for group 2. The treatment effect remained highly significant ($F=13.97$, $df=1, 12$, $p=0.003$); posttreatment Impact of Event Scale means were 27.2 (SD=5.2) for group 1 and 18.8 (SD=9.4) for group 2.

DISCUSSION

The decrease in Impact of Event Scale scores from before to after treatment in group 1, and its replication with group 2, suggests that this postdisaster intervention contributed to a substantial reduction in hurricane-related distress that was attributable, at least in part, to the intervention. The study would have been improved by administering the pretreatment Impact of Event Scale to group 2 members concurrently with the administration to group 1, as well as immediately before debriefing. However, it is not readily feasible in a post-disaster situation to withhold treatment from a group in the interests of research evaluation. In this study, we took advantage of the vagaries of the scheduling of clinical interventions to obtain data that might otherwise have been impossible to collect.

The composition of our groups partially confounded status as a disaster survivor and status as a mental health worker. However, the results of the ANOVA we conducted to examine differential treatment effects as a function of clinician status were not significant. Also, the majority of participants in both groups were not clinicians. In group 1, only five of the participants had formal training or experience in mental health work, while the rest had varied backgrounds before being trained to serve as community-based paraprofessional disaster counselors. In group 2, only about one-half of the participants were involved in direct care, while the remainder filled administrative and clerical positions. Finally, prevailing attitudes at the time of this research would not have permitted us to study treatment outcome in a group from the general population; for example, FEMA prohibits efforts to evaluate its postdisaster counseling programs.

Another limitation is the use of a single measure of postdisaster distress. While the Impact of Event Scale is widely considered to be a very good measure of this variable (8), it would have been valuable to obtain treatment outcome data on other responses to disaster such as anger, depression, anxiety, and substance abuse and on other modalities such as psychophysiology.

A wide variety of interventions, administered by clinicians of widely different training and experience, have been grouped under the rubric of "psychological debriefing." The treatment in this study may well have diverged from others that may be more or less effective. One obvious difference, for example, is the length of time between the event and the intervention. Tradition-

ally, debriefing interventions occur a relatively short time—from a day to several weeks—after a potentially traumatic event. While the interventions we report occurred 6 months and 9 months after the hurricane, the elevated Impact of Event Scale scores before treatment in *both* groups suggest that the hurricane experience was still vivid and contemporaneous in impact. In view of the equivocal results cited by Raphael et al. (11) for immediate debriefings (albeit not in a natural disaster context), the present results have led Raphael (personal communication, September 1995) to speculate that perhaps debriefing should occur somewhat later after the event than had been previously assumed. A parallel view has been expressed by Mitchell (personal communication, October 1995), who emphasizes the importance of psychological readiness in considering the timing of an intervention that uses debriefing. A second difference in our use of debriefing was the provision of more extensive didactic information as part of the intervention.

In our view, this demonstration of the feasibility of this type of research should stimulate reformulation of the debriefing model to require obtaining assessment and follow-up data as part of the intervention. This is desirable because follow-up assessment permits screening for continued distress and, thus, evaluation of the continued need for treatment. Finally, the data from this study seem to support allocating resources to move treatment outcome research in postdisaster contexts to the stage of random-assignment clinical trials, as has been called for by Raphael et al. (11).

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