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## Quick Response Report #138

# Effects of Written Disclosure on Post-Disaster Psychological Adjustment and Symptomatology

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## **RESEARCH QUESTION**

There is considerable evidence that the experience of extremely stressful events can lead to both short- and long-term psychological and physical health risks. This risk is exacerbated when the stressor is external and uncontrollable, such as the case of a natural disaster. Interventions designed to reduce distress and promote psychological adjustment have the potential to greatly reduce the psychological and physical costs associated with a natural disaster (Freedy and Donkervoet 1995). Interventions applied immediately after the traumatic experience, when individuals' physical and psychological resources are at their lowest, may be effective in facilitating adjustment and in preventing the development of significant post-traumatic symptomatology (e.g., post-traumatic stress disorder). There is also evidence that individuals experiencing a natural disaster may particularly benefit from expression/disclosure interventions in the first few weeks after the disaster (Pennebaker and Harber 1993).

One stress management intervention, a structured writing task that involves the expression of thoughts and feelings associated with a traumatic event, has been shown to reliably reduce stress and improve both mental and physical health (Pennebaker 1993; Smyth 1998). Several elements of this intervention makes it particularly desirable for use in natural disaster situations: 1) It is brief and easily administered; 2) It does not require large numbers of trained personnel; 3) It is "portable" and can be administered to individuals under almost any circumstances; and 4) It can be used to address the stress caused by any disaster (i.e., it is not disaster-specific).

The purpose of this study was to evaluate the efficacy of a brief structured writing task on post-disaster adjustment. We contrasted an emotional disclosure writing task with a time management writing exercise (placebo control) and assessment only (no treatment control).

Specifically, we hypothesized that those individuals completing the "active" form of writing would show improved adjustment, fewer psychological symptoms, and fewer physical symptoms at a three-month follow-up, relative to the control groups.

## **METHODOLOGY**

This study employed a three-group experimental design. An emotional disclosure intervention (experimental condition) was compared with a time management intervention (placebo control condition) and an assessment-only condition (no treatment control condition). Persons who reported moderate to high distress resulting from flooding during Hurricane Floyd were randomly assigned to either the experimental or placebo control condition. Individuals with minimal distress resulting from the hurricane served as no treatment controls.

Participants were run individually or in small groups. Students were screened orally to determine eligibility and were provided with an informed consent form. After giving their consent, participants filled out self-report measures of disaster-related losses, psychological reactions, and physical symptoms. The Impact of Events Scale-Revised (Weiss and Marmar 1997) served as a measure of post-traumatic symptoms, including intrusions (e.g., recollections of the event, nightmares), hyperarousal (e.g., exaggerated startle response, sleep disturbance), and avoidance (e.g., staying away from reminders of the event, trying not to think about it). Emotional reactions to the hurricane were assessed using the Negative Affect Scale (Watson, Clark, and Tellegen 1988), while physical symptoms were measured with the Physical Symptom Index (Moos, Cronkite, and Finney 1990). Both of these scales yield global scores, with higher values representing greater psychological or physical symptomatology.

A single questionnaire item, "How much have you been affected by flooding?" (from 1 = "not at all" to 4 = "a great deal"), was used for purposes of group assignment. Individuals reporting low distress (rating = 0 or 1) were assigned to the assessment-only condition; persons acknowledging more distress (rating = 3 or 4) were randomly assigned to either the experimental condition or placebo control condition. After completing the questionnaire packet, assessment-only subjects completed an evaluation form, were given information on free flood counseling services, and were dismissed. Subjects in the other two conditions were taken to a quiet room, alone or in small groups, for a 20-minute writing task. Participants assigned to different conditions went to different rooms to avoid contamination. Participants were assured of anonymity, instructed in the writing protocol, given a writing booklet, and left alone for 20 minutes. At the conclusion of this period, the experimenter collected the writing book and distributed an evaluation form and information on local counseling resources. The experimenter checked for distress level prior to dismissing subjects. Although no participants were judged to be highly distressed following the writing task, a licensed clinical psychologist was on hand to provide support had it been needed.

The instructions for the writing tasks were provided by the experimenter. Participants in the emotional disclosure (experimental) group received the following instructions:

You have recently gone through an event that may have been quite stressful or traumatic. Over the next 20 minutes, we want you to write about your experiences with the hurricane and flooding. Don't worry about grammar, spelling, or sentence structure. The important thing is that you write about your deepest thoughts and feelings about the experience. You can write about anything you want, but whatever you choose, it should be something that has affected you very deeply. If you find that your writing leads you to write about other, related topics, feel free to do so. It is critical, however, that you let yourself go and touch those deepest emotions and thoughts that you have. Some people find this writing upsetting, and may cry or feel sad or depressed afterwards. This is quite normal, and we will allow you as much time as you want when you have finished writing to compose yourself.

Participants in the time management (placebo control) group were given these instructions:

Over the next 20 minutes, we want you to write about an assigned topic. You should write about the specific topic in detail without discussing any of your thoughts and feelings surrounding the topic, but rather focused on a factual description. Many people's schedules have been greatly disrupted by the recent hurricane and flooding. We are interested in how you plan to manage your time. We want you to write about your plans for the upcoming week. Again, describe them in detail without referring to your thoughts or feelings associated with them.

Participants were contacted by phone from two to three months after the study for a follow-up assessment, which repeated the distress measures from the pretest questionnaire (Impact of Event Scale, Negative Affect Scale, Physical Symptoms Index). Phone calls were conducted by trained psychology graduate students. In all, 19 (70%) of the experimental group, 23 (88%) of the placebo control group, and 31 (55%) of the no treatment group completed the follow-up assessment. The individuals who were successfully contacted did not differ from those who could not be reached on any of the pre-intervention measures.

## **SAMPLE CHARACTERISTIC**

Students and staff at East Carolina University were recruited to participate. The campus is located in a larger geographic area that was subjected to flooding from Hurricane Floyd. General eligibility criteria for the study included currently living in an area affected by the hurricane and being at least 18 years old. In order to test the intervention with individuals who were significantly impacted by the disaster, participants in the two writing groups were also required to have experienced major or total structural damage to their residence as a result of the disaster or to have been forced to evacuate their residence due to the hurricane. The vast majority of participants were undergraduate students enrolled in psychology classes (average age of participants = 20 years). Students were offered extra credit in their psychology classes in exchange for their participation. A total of 109 persons (76 females and 33 males) participated in the study. Of these, 27 were assigned to the experimental condition, 26 to the placebo control condition, and 56 to the assessment-only condition.

## FINDINGS

A one-way ANOVA was conducted to evaluate the extent to which participants were impacted by the hurricane. Responses to the item "How much have you been affected by flooding?" (from 1 = "not at all" to 4 = "a great deal") were compared across groups. Participants in the two writing groups reported moderate levels of disaster impact (means = 3.0 and 3.2, respectively), and they did not differ from one another ( $p = .28$ ), suggesting successful random assignment to condition. In contrast, participants in the no treatment condition, who were recruited as a comparison group, were significantly less affected (mean = 1.8,  $ps < .001$ ).

The specific hypotheses regarding the effects of emotional disclosure on psychological and physical symptoms were tested by comparing distress levels of the groups at the three-month follow-up, controlling for baseline distress. Dependent measures included post-trauma reactions such as intrusions, hyperarousal, and avoidance (Impact of Event Scale-Revised), negative emotions (Negative Affect Scale) and physical symptoms (Physical Symptom Index).

The first analysis focused on the effect of condition on post-trauma symptoms at follow-up, controlling for baseline levels. This analysis was performed for the two writing groups only. Contrary to our prediction, there were no significant condition effects for intrusions [ $F(1,40) = 1.195, p > .05$ ], hyperarousal [ $F(1,40) = 2.118, p > .05$ ], or avoidance [ $F(1,40) = .007, p > .05$ ]. Means on these variables at each assessment period are displayed in Figures [1](#), [2](#), and [3](#). (Although the no-treatment group was not included in the analysis, their post-trauma symptom means are included in the figures for comparison purposes.)

We then conducted comparisons among the three groups on negative affect at the three-month follow-up, controlling for baseline affect. The expressive writing condition showed a marginally significant trend towards a greater reduction in negative affect relative to the other groups ( $F = 2.09, p = .065$ ). [Figure 4](#) displays this finding. A similar analysis comparing physical symptoms at the follow-up assessment, controlling for baseline levels, failed to reveal a significant difference among the three conditions ( $p > .05$ ). [Figure 5](#) graphically illustrates these data.

In summary, our findings fail to demonstrate the effectiveness of expressive writing as an intervention to alleviate post-disaster psychological and physical symptoms. Limitations of the study include: a relatively small sample size (only 19 and 23 participants, respectively, completed both assessments in the experimental and placebo control conditions), which adversely affects statistical power; a brief intervention (a single 20-minute writing session), which may not have been of sufficient strength to impact post-disaster adjustment; and a relatively long follow-up period (approximately three months). The one trend toward improvement in negative affect in the expressive writing group relative to the control groups suggests that this intervention strategy may have promise for persons impacted by disaster and warrants additional investigation under more favorable study conditions (i.e., larger sample, larger "dose" of the intervention).

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