



## The benefits of expressive writing after the Madrid terrorist attack: Implications for emotional activation and positive affect

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This study examined the effects of expressive narrative writing in 607 participants. Compared with a control group, the participants randomly assigned to write about their feelings and thoughts after the Madrid train attack on M11 report less negative emotions related to the recall of the collective trauma at a 2-month follow-up after the attacks. However, no effects were found on positive affect, probably because the study had only one writing session of brief duration. Stronger feelings of joy, use of positive words, and low use of negative words in the narratives predicted low emotional activation at follow-up.

Traumatic events (such as terrorist attacks of March 11th (M11) in Spain, perpetrated by Al-Qaeda) have severe consequences for direct victims and affect a large population. Following these events, people generally need some type of processing for these events, even if not all individuals benefit from verbal discussion. Under these circumstances, expressive writing can be employed to cope with trauma. Because expressive writing was beneficial for the participants who write about a trauma that they have not themselves lived (Fratarolli, 2006), it seems reasonable to think that people not directly involved in a collective trauma could benefit from this type of intervention.

Previous studies (Pennebaker, 2004) indicated that the individuals who use a large number of positive emotion words, moderate number of negative words, and more cognitive words (introspective and causal) showed a subsequent improvement. Fivush, Edwards, and Mennuti-Washburn (2003) have found that participants who were able to create a coherent and emotionally cohesive account of what happened, after the S11 trauma, through the use of cognitive processing and emotion words, showed improved physical and psychological health. Briefly, since experimentally induced emotional expression has been associated with positive adjustment, even in the case of indirect traumas, we aim to test the effects of an intervention on psychological adjustment and its associations with cognitive processes and emotion words.

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## Method

### Participants

The sample comprised 607 participants (30.8% male and 69.2% female, average age = 28.95) from five Spanish autonomous regions: Andalusia, the Basque Country, Castile-Leon, Catalonia, and Madrid. Undergraduate students were asked to participate in a study on the effects of terrorist attacks. Students completed a questionnaire (34%,  $N = 206$ ) and recruited two other persons of the general population (66%,  $N = 401$ ). Of the final sample, 5.3% were directly affected by the attacks; and 26% knew someone who was affected.

### Measures

Izard's Differential Emotion Scale (*DES*; Izard, Dougherty, Bloxom, & Kotsch, 1974; in Páez, Basabe, Ubillos, & González-Castro, 2007) was used to assess both positive (joy) and negative emotions (sadness, anger, and fear) related to the recall of the traumatic event. The mean of scores for the negative emotions was used as an index of *emotional activation*. The participants answered on 7-point scales. *Cronbach's* alpha was good ( $\alpha = 0.73$ ).

*Positive affect* was measured with one dimension of the *PANAS* (Watson, Clark, & Tellegen, 1988, in Páez *et al.*, 2007). The subscale consisted of 10 adjectives, expressing the extent to which the participant has experienced positive emotions in the last month. The participants responded using a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely*). The reliability coefficient was satisfactory ( $\alpha = 0.79$ ).

In order to obtain the *linguistic dimensions* we used the Linguistic Inquiry and Word Count (*LIWC*; Ramírez-Esparza, Pennebaker, García, & Suría, in press, for the Spanish version).

### Procedure

The participants were asked to answer the questionnaires 1 week after the M11 attacks, 3 weeks afterwards, and 2 months after the events. In Time 2, participants were randomly assigned to write, in a 10–15 minutes session, either about their feelings and thoughts after the Madrid terrorist attacks of M11 ( $N = 353$ ) or about recent social activity ( $N = 254$ ).

## Results and discussion

We carried out a 2 (Group) by 3 (Time) multiple analysis of variance, mixed-factors repeated measurement, on responses to emotional activation and positive affect scales.

There was a main effect of emotional activation: individuals felt more negative emotions related to the event at both baseline and 3 weeks after M11, but at 2-month follow-up they reported feeling better ( $F_{\text{Time}(2, 602)} = 238.96, p < .001, \eta_p^2 = .447$ ). A main effect of positive affect ( $F_{\text{Time}(1, 602)} = 5.83, p < .01, \eta_p^2 = .018$ ) shows that this improved after 2 months (Table 1).

A significant interaction was found between expressive writing conditions and time ( $F_{\text{Group} \times \text{Time}(2, 602)} = 30.82, p < .001, \eta_p^2 = .114$ ). The participants who wrote about terrorist attacks reported less negative emotions related to the recall of the event 2 months later ( $M = 3.99, SD = 1.23$ ) than control group ( $M = 4.93, SD = 1.25$ ).

Correlations showed that low negative emotions related to the recall of the event at Time 3 were predicted by feelings of joy at Time 1 ( $r(603) = -.30; p < .05$ ), greater

**Table 1.** Means (and standard deviations) of emotional activation and positive affect by expressive writing conditions

	Expressive writing			
	Experimental		Control	
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )
Emotional activation (Time 1)	6.05	(0.99)	6.06	(1.02)
Emotional activation (Time 2)	5.20	(1.22)	5.35	(1.21)
Emotional activation (Time 3)	3.99	(1.23)	4.93	(1.25)
Positive affect (Time 2)	2.73	(0.80)	2.74	(0.82)
Positive affect (Time 3)	2.83	(0.90)	2.92	(0.92)

Note. Time 1, first week (baseline); Time 2, 3 weeks later (expressive writing session); and Time 3, 2 months after the events. Expressive writing: Experimental, expressive writing about M11 ( $N = 353$ ); Control, writing about recent social activity ( $N = 254$ ).

use of positive words ( $r(351) = -.09$ ;  $p < .05$ ), and lower use of negative words ( $r(347) = .11$ ;  $p < .05$ ).

The participants who wrote about feelings and thoughts after M11 showed a decrease in negative emotions related to the collective trauma. On the other hand, there were no significant effects of expressive writing on positive affect, a partial measure of general well-being. Positive affect was not improved probably due to the brevity of the writing session. Expressive writing studies with fewer than three sessions and with sessions of less than 15 minutes are less effective (Frattaroli, 2006). Feelings of joy during the first week and positive words used in the narrative predicted a lower level of negative emotions related to the event. On the contrary, a higher amount of negative emotion words reinforces negative activation. This pattern suggests that some aspects of expressive writing, such as positive reframing (i.e. positive emotion words) could alleviate negative emotions at a 2-month follow-up, while emphasizing negative experience is not helpful. Although the study has limitations (use of self-report scales, a limited measure of subjective well-being, and snowball sampling), we believe that our results contribute to validate the beneficial effects of expressive writing on emotional activation after collective trauma.

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