

Emotion

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The Temporal Evolution of Social Sharing of Emotions and Its Consequences on Emotional Recovery: A Longitudinal Study

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After an emotional episode individuals need to talk about their experiences in a repetitive process called social sharing of emotions. In the present study we adopted a longitudinal design over a 9-month period to achieve 2 main goals: First, we aimed to investigate the relationship between social sharing and recovery from an initial emotional experience; second, we tested a model of prediction of the perpetuation of social sharing over time. Findings confirm that social sharing is a common consequence of experiencing an emotion, regardless of participants' levels of education, which tends to diminish over time, leading to an increasing sense of recovery. The prolongation of social sharing is a maladaptive outcome of experiencing an emotion, and a poor recovery is a direct consequence of long-term self-perpetuating social sharing. The results have implications for the assessment of the role of both dispositional factors and characteristics of the eliciting event on the prolongation of social sharing of emotions.

Keywords: social sharing of emotions, emotional recovery, temporal evolution, longitudinal design

When individuals experience an emotion, they systematically share this experience with people around them. This *social sharing of emotion* has been observed in 80–95% of emotional episodes (Rimé, Mesquita, Philippot, & Boca, 1991) across cultures (e.g., Singh-Manoux & Finkenauer, 2001; Yogo & Onoe, 1998), as well as across different types of emotions (Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998). More intense emotions are shared more repetitively and for a longer period than less intense experiences (Rimé & al., 1998).

The Beneficial Effects of Social Sharing

Why do people reiterate their sharing of emotional episodes with different partners and on many occasions? A common sense, cathartic view of expression would predict that the more an emotion is shared, the more it is open upon emotional recovery. In addition to this, clinical research has demonstrated that exposure to trauma-related memories and cues leads to improvement in PTSD symptoms (Foa & Rothbaum, 1998). The perspective that "talking helps" has been supported by studies using the well-known "writing paradigm" (e.g., Lepore & Smyth, 2002; Pennebaker, 1997).

Examining the effects of disclosing past traumas in a written form, Pennebaker and his followers have observed that the phenomenon is associated with later health benefits as assessed by physicians' visits, reported symptoms, immunological functions, as well as many other indices of subjective well-being. A meta-analytic review confirmed the reality of such effects for 146 studies adopting the writing paradigm (Frattaroli, 2006). However, participants in these studies generally did not express themselves about a specific episode but rather about as many past emotional events as they wanted (Pennebaker, 2004). Indeed, in most expressive writing studies—actually, 132 of the 146 studies reviewed in the meta-analysis by Frattaroli (2006)—participants were likely to have switched subject and written about multiple topics during the writing session. It follows that writing studies were not generally designed to test whether putting a *specific* emotional episode into words leads to *recovery* from the emotional impact of that episode (Pennebaker, Zech, & Rimé, 2001; Rimé, 2009).

In other studies, participants spoke into an audiotape recorder about both stressful experiences and trivial topics. Kelley, Lumley, and Leisen (1997) found that rheumatoid arthritis patients assigned to the verbal disclosure group had less emotional disturbance and better physical functioning at a 3-month follow-up as compared with patients assigned to a control condition. Beneficial effects of reduction in cortisol levels at a 1-week follow-up and improvements in immune functioning at a 3-month follow-up were found for arthritis patients instructed to talk about stressful topics as compared with a nondisclosure group of patients in a study by van Middendorp and colleagues (2009). However, in these studies, as in those adopting the standard writing paradigm, no assessment was provided for the residual impact that an emotional episode continues to have after disclosure. In addition, observing health effects after disclosure sessions does not allow one to infer that emotional recovery was the mediator variable.

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Yet, correlational and experimental studies, which have directly examined the recovery effects of social sharing, have yielded unsupportive results. Correlational studies have investigated whether the extent of naturally developed sharing predicted the degree of emotional recovery from the initial emotional experience (for a review, see Rimé et al., 1998). These studies consistently suggested that *merely verbalizing* an experience is irrelevant to the emotional recovery from this experience. To illustrate, in two studies on emotional secrecy (Finkenauer & Rimé, 1998), when shared and secret episodes were compared for the intensity of the emotion they still elicited at recall, no significant difference was observed. Assessments of stressfulness and traumatic impact also totally failed to support the prediction that secret events are less easily recovered from than shared events.

In experimental studies adopting a movie-clip emotional induction, researchers have shown that talking about an acute laboratory stressor reduced the perceived levels of distress (Lepore, Ragan, & Jones, 2000) and increased the ratings of positive emotionality (Mendolia & Kleck, 1993) as compared with a no-talk condition. However, in these studies, it has also been found that the beneficial effects on participants' subjective recovery are highly dependent upon the reactions of the social context of disclosure (Lepore, Fernandez-Berrocal, Ragan, & Ramos, 2004; Nils & Rimé, 2012). The investigation of the relationship between social sharing and recovery was also the focus of experimental studies in which participants were assigned to various sharing conditions. In one of their studies, Zech and Rimé (2005) showed that subjective well-being indices were enhanced when people were instructed to talk about their emotional experiences, though no direct effect was evidenced on the emotional impact of these experiences over time.

In sum, evidence concerning the relationship between social sharing and emotional recovery is inconclusive. Furthermore, a systematic assessment of this relationship over time is lacking. In the present study we attempted to provide a stringent analysis of the relationship between social sharing and emotional recovery by adopting a longitudinal design over a 9-month period. For this purpose, a twofold assessment of emotional recovery was adopted, one relying upon self-reported measures and the other resulting from the comparison between the residual emotional impact of an experience and its initial emotional intensity.

The Fate of Social Sharing of Emotions

Another crucial and related question concerns the temporal evolution of social sharing. The frequency of social sharing and the number of sharing targets are both maximal in the hours after the shared episode, whereas a progressive extinction is the normal fate of the sharing process (Pennebaker & Harber, 1993; Rimé, Paez, Basabe, & Martinez, 2010). Observation of lay people reveals that individuals sometimes fail to manifest the usual extinction and continue to share a given emotional experience for a long time after it occurred. This might result from the fact that the experience maintained an important emotional impact despite the time which has passed. Following these observations, a temporal model of social sharing evolution has been proposed (Rimé, 2009), according to which, immediately after an emotion, the episode recurs in the subject's working memory increasing thoughts of this experience and the need to talk about it. As time passes, emotional

memories related to the episode become less frequent and their impact on current adaptation becomes progressively negligible, leading to a progressive extinction of social sharing manifestations. More intense emotions generate slower extinction slopes. Extinction is attributable, at least in part, to the fact that new experiences mobilize the subject's attention so that less and less resources are available for older memories. A final stage is then reached in which the memory of the emotional episode becomes "dormant." Recall will occur only if appropriate cues are met in the current context.

Research data have shown that emotional memories can occasionally fail to reach a dormant stage and may continue to elicit social sharing manifestations for a long time after the episode occurred. Such a "residual sharing of emotion" was demonstrated across eight different studies which were reviewed by Rimé and coll., 1998, evidencing that some emotional episodes still elicit intense emotions for a long period after their occurrence and that, when this happens, such episodes continue to arouse the need to talk about them as well as an actual social sharing. The question therefore arises concerning the reasons for the persistence of social sharing in such cases. Two contrasting points of view can be considered in this regard.

Modeling the Evolution of Social Sharing

According to a first perspective, the absence of extinction of social sharing results from the fact that the social sharing process can sometimes resemble mental rumination. Mental rumination is a common consequence of exposure to emotional experiences (Cann et al., 2011; Smith & Alloy, 2009; Watkins, 2008) that has frequently been found to be associated with social sharing processes (Rimé, Philippot, Boca, & Mesquita, 1992; Luminet, Zech, Rimé, & Wagner, 2000). Mental rumination has been defined as passively focusing one's attention on a negative emotional state and thinking repetitively about the causes, meanings, and consequences of that state (Nolen-Hoeksema & Morrow, 1991). It has been largely demonstrated to feed forward the emotional arousal related to an emotional episode (Wells & Papageorgiou, 1995) and to amplify the influence of negative cognitions on the person's depressive state in a downward cycle of negative thinking (e.g., Lyubomirsky & Nolen-Hoeksema, 1995). That the social sharing of emotion can take the form of mental rumination has been demonstrated in studies on corumination. Corumination has been defined as the reference to personal problems in dyadic interactions with significant others (Rose, 2002). It has been found to have both positive and negative consequences: It can help individuals to promote interpersonal intimacy and support, but, given the protracted duration of the phenomenon, it can also predict inadequate emotional adjustment and depressive disorders (Rose, Carlson, & Waller, 2007; Stone, Hankin, Gibb, & Abela, 2011). In sum, as is the case for self-perpetuating rumination, the excessive prolongation of the social sharing of emotion might be a dysfunctional process resulting from the social sharing process itself, which at different points in time is associated with a poor emotional recovery.

According to a second perspective, a prolonged sharing of an emotional episode might indicate that the episode remains problematic for the subject. Emotions result from the meaning analysis of supervening events (e.g., Frijda, 1986, 2006; Scherer, 1984).

When problematic elements are detected in an event or in the memory of an event, they automatically become the focus of attentional resources, thus eliciting mental reminiscences. Immediately after a negative episode has occurred, mental reminiscences are considered as a normal reaction which will not predict subsequent adjustment (e.g., Brewin, Dalgleish, & Joseph, 1996; McFarlane, 1992). However, in a classic article on emotion processing, Rachman (1980) insisted that when after some weeks or months an emotional experience keeps intruding on a person's mind, it signals the failure to emotionally process the experience. The author stressed that the longer the time that has passed since the trauma, the more likely it is that such manifestations will predict poor outcome. To sum up, this explanation considers that the prolonged sharing of an emotion results from the unresolved problematic character of the shared experience as an attempt to reduce its residual impact and attain emotional recovery.

Overview and Predictions

In the present article we intend to examine the issue of the causes and effects of prolonged open expression and talking about negative emotional experience in the conceptual framework of the social sharing of emotion (for review, see Rimé, 2009), which accents the fact that every emotional experience, whether positive or negative, whether part of current life or traumatic, elicits interpersonal exchange and communication. Up to now only few studies have investigated the predictors of the duration of emotional experiences (Verduyn, Delvaux, Van Coillie, Tuerlinckx, & Van Mechelen, 2009). Furthermore, the question of the evolution of social sharing and its effects upon emotional recovery has received very little empirical attention to date. The present study relied upon the data set of a longitudinal study conducted for other purposes, in which social sharing of emotion was assessed incidentally among a large variety of other measures. A cohort of women was followed up from the beginning of their pregnancy until delivery with the purpose of monitoring stress and life events which they experienced in current life in relation to the risk of premature delivery (Gisle, Baruffol, Rimé, & Thoumsin, 1998). Indeed, the present data offered the opportunity to investigate social sharing in the context of real-life situations in a large number of respondents from the general public. At three different times, participating women were assessed for emotional events which had occurred recently in their lives and their coping responses. In this context, the intensity of emotions elicited by the reported experiences and the extent to which they were socially shared was followed up. In conformity with previous studies (Rimé et al., 1991, 1992, 1998), social sharing is expected to be a repetitive phenomenon, declining over time. This decline is expected to be associated with a reduction in the emotional impact of the eliciting experience. However, for a portion of the sample, social sharing is not expected to reach the typical extinction. As a consequence, for this group of participants, the emotional impact of the initial experience will not be reduced over time, and the subjective sense of recovery will remain low.

Data described in the present study allowed us to test two competing hypotheses concerning the effects of social sharing upon emotional recovery, by adopting the Structural Equation Modeling (SEM; Bollen, 1989) approach to assess the best fitting model for the observed data. The first hypothesis predicts that

social sharing is a self-perpetuating phenomenon analogous to persistent mental rumination. At different points in time, sharing an emotional experience will negatively influence the individual's recovery from that experience, so that the more the individual keeps talking about the episode the less she/he is able to recover from the initial emotion. Following this hypothesis, the frequency of social sharing at a given point of measurement predicts the persistence of social sharing at the following phase of assessment and impact upon the individual's recovery from the initial experience. The second hypothesis predicts that social sharing results from the residual emotional impact of the original experience: After the original episode takes place, sharing negatively influences emotional recovery and it is the residual emotionality of the experience that will reactivate the process of social sharing. Following this second hypothesis, at a given measurement point the amount of emotional recovery from the original experience influences the frequency of social sharing as assessed at the subsequent phase of measurement. The two hypotheses differ in that the first considers the perpetuation of social sharing as a behavioral disposition resulting from the individual's characteristics and needs, whereas the second emphasizes the problematic aspects of the initial episode which makes the individual carry out further elaboration.

In addition, the data set considered in the present study offered a good opportunity to examine the characteristics of social sharing in relation to the socioeducational status of respondents. As most social sharing studies were conducted on university students and their relatives, it might be argued that verbally sharing an emotion is a behavior assuming high levels of literate education. This would seriously limit the generality of the view according to which emotions elicit a social sharing process. As women in the data set examined below were issued from various socioeducational levels of the population of their country, it should be possible to verify how far individuals with lower educational levels share their emotions as willingly as their more highly educated counterparts.

Method

Participants and Design

Participants came from a total sample of 457 pregnant women recruited at the prenatal care services of two major hospitals in Belgium. Data collection was run in French, and spread out across 22 months, with three phases, the first two respectively during the first and second 3-month period of participants' pregnancy, and the third shortly after delivery. Among the contacted persons, a total of 346 10–17 week pregnant women (75.7% of the total sample) agreed to participate in the first phase of the data collection. Along with the complete interview run for the project, each of the 346 participants were questioned about the impact of an emotional experience happening during the first weeks of their pregnancy or shortly before, and retested about this experience at the second and third phases of the research design. Among them, 172 women were able to recall a recent emotional experience happening during the specified period. As a result of attrition, this sample of participants decreased to 134 and 102 women, respectively, at the second and third phases of the research design. Consequently, the sample involved in all three phases of the data collection was composed of 102 women ($M_{\text{age}} = 25.6$; $SD = 4.9$), 13.7%

aged 20 or under, 40.2% aged 21–25, 27.5% aged 26–30, and 18.6% aged 31 or over. Of these women, 48.0% were in their first pregnancy, the others had 1.5 children on average ($SD = .8$); 52% of them had less than a high school diploma (4.9% had a primary school education, and 47.1% had finished secondary school), 24.5% were high school graduates, and 23.5% had a university degree.

Measures

The interviews covered many areas, but, for the purposes of the present study, only the sets of items corresponding to the emotional impact of the experience and its subsequent social sharing are considered.

Social sharing of the experience. At the first interview, participants were given a list of 70 emotional life events, adapted from Dorhenwend, Krasnoff and Askenasy (1978), and requested to select which, if any, episodes had occurred in the three months preceding the current interview. The subsequent questions referred to the negative episode of the highest emotional impact indicated by each participant from that list. At each phase of the data collection, participants rated, on two seven-point scales (1 = *not at all*; 7 = *very much*), (1) the frequency and (2) need for social sharing of the recalled experience in the days immediately preceding the interview. At the first interview, participants also provided an estimate of the amount of social sharing on a seven-point scale (0 = *never*; 6 = *six times or more*), and the delay since the experience and its sharing on a six-point scale (0 = *never*; 5 = *more than one month after*).

Emotional intensity of the experience. At the first interview, participants were invited to rate the intensity of the emotion elicited by the episode at the moment when it initially took place and by the recall of this episode at the current interview. These ratings were each collected on 10-point scales (1 = *not at all*; 10 = *extremely intense*). Ratings of current emotional intensity experienced when recalling the episode were also collected on a 10-point scale (1 = *not at all*; 10 = *extremely intense*) at the second and third interviews. Additionally, at each phase of the data collection, participants were requested to rate the extent to which they felt they had recovered from this experience (self-reported recovery) on a seven-point scale, ranging 1 = *not at all* to 7 = *very much*.

Procedure

Participants were contacted upon their first arrival at the prenatal care service. Women expecting twins and those not fluent in French were excluded. Those eligible were invited to take part in a study on the social consequences of pregnancy. Initially, participants were explained the goals of the study and informed about the phases of data collection. On agreeing to be involved, women were reassured about confidentiality of the provided information, and anonymity of the data.

Results

Characteristics of Social Sharing

At the first interview, the emotional experiences reported as most frequently shared concerned family and children (36.3%),

work and financial troubles (19.6%), and relationship with one's partner (10.8%). An analysis of the measures collected at the first interview (i.e., amount of social sharing and delay) revealed that the emotional experience was shared in 93.1% of cases, at least twice in 81.3%, and more than six times in 59.8%. In 69.3% of cases, the experience was shared initially on the day that it happened. Chi-square analyses were run to compare the amount of sharing and delay for the three categories of emotional events (family-children-partner vs. work-financial troubles vs. other) resulting in nonsignificant differences (respectively, $\chi^2(12; n = 102) = 7.80, ns$; $\chi^2(10, n = 102) = 8.42, ns$). In conformity with previous findings, social sharing of emotion was evidenced as a very general and predominantly repetitive phenomenon.

Chi-square analyses comparing the amount and delay of sharing across the three levels of participants' education did not reveal significant effects (respectively, $\chi^2(12; n = 102) = 10.83, ns$; $\chi^2(10, n = 102) = 12.93, ns$). Following this analysis, the hypothesis that more highly educated people share their emotions more willingly than their less educated counterparts was disconfirmed. To illustrate, at the first interview, 90.6% of women whose education was limited to primary or secondary school reported that they had shared the emotional episode. The corresponding figures for participants who had high school or university degrees were, respectively, 96.0% and 95.8%.

Participants' ratings of the need for social sharing and actual social sharing for all three phases of data collection (see the corresponding *Ms* and *SDs* in the diagonal of Table 2) were compared through a mixed-design ANOVA with the phase data collection as a *within subjects* factor (1st vs. 2nd vs. 3rd interview) and the participant's level of education as a *between subjects* factor (primary or secondary school vs. high school vs. university degree). For both need for sharing and actual social sharing only the main effect of the phase of data collection was found to be significant (respectively, $F(2, 198) = 4.23, p < .05$; $F(2, 198) = 5.89, p < .005$). Neither the other main nor the interaction effects were found to be significant ($F_s < .40, ns$). Trend analyses on the average levels of need for sharing and actual social sharing over time showed a significant decreasing linear trend (respectively, $F(1, 99) = 7.05, p < .01$; $F(1, 99) = 8.42, p < .005$), so that the sharing process appeared to diminish over time.

Participants were then classified into four categories corresponding to four different patterns of sharing perpetuation: (1) No sharing (21.6% of respondents);¹ (2) Sharing only at 1st interview (10.8%); Sharing at 1st and 2nd interview (18.6%); No extinction (i.e., Sharing reported at all three interviews, 49.0%). Interestingly, about half of the sample of the present study showed a protracted social sharing that did not reach any extinction during the 9-month research period. A comparison of the type of emotional event reported by participants (family-children-partner vs. work-financial troubles vs. other) across the four groups of sharing perpetuation revealed no significant effects ($\chi^2(6, n = 102) = 1.58, ns$). Similarly, a comparison of the participants' levels of

¹ The category "No sharing" included both participants declaring they never shared their experiences (6.9%) and those declaring they did not share their episode in the days preceding the first interview (but who had shared immediately after the initial experience).

education did not result in a significant effect ($\chi^2(6, n = 102) = 7.62, ns$). It follows that the duration of social sharing and its perpetuation cannot be correlated with the type of emotional experience reported by participants or with their levels of education.

Analyses on Emotion Indicators

Emotional recovery. Preliminarily, a one-way ANOVA was run on the index of initial emotional intensity with the sharing perpetuation (no sharing vs. sharing only at 1st interview vs. sharing at 1st and 2nd interview vs. no extinction) as a *between subjects* factor, to verify whether participants differed in their baseline ratings of emotional intensity. A marginally significant effect emerged, $F(3, 98) = 2.61; p = .06$, and a post hoc analysis revealed that this effect was exclusively attributable to a significant difference between the ratings of initial emotional intensity reported by the no-sharing and the no-extinction groups (respectively, $M = 6.77, SD = 2.91; M = 8.42, SD = 1.97; t(70) = -2.81, p < .05$ with Bonferroni's adjustment). Indeed, participants included in the no-sharing group scored the lowest on the level of initial emotional intensity, and participants in the no-extinction group scored the highest, with participants sharing only at 1st interview, and those sharing at 1st and 2nd interview scoring at the intermediate level (respectively, $M = 7.91, SD = 2.77; M = 7.95, SD = 2.04$).

This difference enabled us to run the subsequent analyses controlling for the baseline level of emotional intensity. The ratings of current emotional intensity at the first, second, and third interview were then each subtracted from the ratings of the initial of emotional intensity. This gave us an index of emotional recovery at, respectively, the first (Recovery1), second (Recovery 2), and third (Recovery 3) stages of measurement. Descriptive analyses for these variables are reported in the diagonal of Table 2. These indices of emotional recovery were entered into a mixed design ANOVA with the phase of data collection (1st vs. 2nd vs. 3rd interview) as a *within subjects factor*, and the sharing perpetuation

(no sharing vs. sharing only at 1st interview vs. sharing at 1st and 2nd interview vs. no extinction) and the participants' levels of education (primary or secondary school vs. high school vs. university degree) as two *between subjects* factors. Only the main effect of the phase of data collection was found to be significant, $F(2, 180) = 23.61, p < .001$, whereas neither the other main nor the interaction effects reached significance level ($F_s < 2.62, ns$). Trend analyses on the scores of emotional recovery showed a significant increasing linear trend, $F(1, 90) = 42.91, p < .001$, in that recovery significantly increased over time (see the corresponding *M*s and *SD*s in the diagonal of Table 2).

Scores of emotional recovery were also submitted to a trend analysis separately for each of the four groups of sharing perpetuation. As reported in Table 1, for each of these groups, emotional recovery was found to improve as time passed (see *F* values in Table 1, upper part). However, as an inspection of Table 1 reveals, the scores of emotional recovery for the no-extinction group were generally lower than for the other three groups, whereas the scores of emotional recovery for the no-sharing group were generally higher than for the other three groups. Contrast analyses were thus run on the indices of emotional recovery separately for the three phases of data collection to compare the scores of the nonextinction group with the scores of the other three groups and the scores of the no-sharing group with the scores of the other three groups. The first set of contrast analyses resulted in a nonsignificant effect for the ratings of emotional recovery at the first phase of data collection ($F(1, 98) = .80, ns$), but in a significant difference between the no-extinction group and the other three groups at the second and third phases (respectively, $F(1, 98) = 7.98, p < .01; F(1, 98) = 13.57, p < .001$). The second set of contrast analyses resulted in non significant effects at all three phases of data collection ($F_s(1, 98) < 3.46, ns$).

Self-reported recovery. An ANCOVA model was used to examine the levels of self-reported recovery controlling for the baseline level of emotional intensity, with the phase of data collection (1st interview vs. 2nd interview vs. 3rd interview) as a

Table 1
Ratings of Emotional and Self-Reported Recovery Across the Conditions of Sharing Perpetuation

Phases of data collection	No sharing (<i>n</i> = 22) <i>M</i> (<i>SD</i>)	Sharing 1st interview (<i>n</i> = 11) <i>M</i> (<i>SD</i>)	Sharing 1st and 2nd interview (<i>n</i> = 10) <i>M</i> (<i>SD</i>)	No extinction (<i>n</i> = 50) <i>M</i> (<i>SD</i>)
Recovery1 1st interview	2.77 (2.47)	1.27 (1.68)	2.21 (2.82)	1.68 (1.98)
Recovery2 2nd interview	4.55 (3.74)	4.09 (2.88)	3.21 (1.84)	2.30 (2.77)
Recovery3 3rd interview	4.91 (3.15)	5.00 (3.07)	5.68 (2.03)	3.07 (2.93)
Total scores	4.08 (2.77)	3.45 (1.95)	3.70 (1.72)	2.35 (1.95)
Linear trend analysis <i>F</i> (<i>df</i>)	11.68*** (1, 98)	17.78*** (1, 98)	26.67*** (1, 98)	11.23*** (1, 98)
	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)
Self-reported recovery 1st interview	4.33 (.64)	4.08 (.61)	4.07 (.45)	3.97 (.43)
Self-reported recovery 2nd interview	4.82 (.64)	4.57 (.61)	4.56 (.45)	4.46 (.43)
Self-reported recovery 3rd interview	5.39 (.57)	5.17 (.55)	5.16 (.40)	5.07 (.39)
Total scores	4.85 _a (.62)	4.61 (.59)	4.60 (.43)	4.50 _a (.42)
Linear trend analysis <i>F</i> (<i>df</i>)	9.67** (1, 98)	16.99*** (1, 98)	6.30* (1, 98)	2.60 (1, 98)

Note. Means for indices of self-reported recovery are adjusted for the covariate (initial emotional intensity). Fisher's *F*s for the linear trend analyses on the indices of self-reported recovery refer to unadjusted means. Means in a row sharing subscripts are significantly different at least at .05 alpha level as compared by Bonferroni's post hoc analysis.

* $p < .05$. ** $p < .005$. *** $p < .001$.

within subjects factor, the sharing perpetuation (no sharing vs. sharing only at 1st interview vs. sharing at 1st and 2nd interview vs. no extinction), and participants' levels of education (primary or secondary school vs. high school vs. university degree) as between subjects factors. This analysis resulted in a significant main effect of sharing perpetuation, $F(3, 89) = 3.53, p < .05$, after controlling for participants' baseline level of emotional intensity ($F(1, 89) = 4.41, p < .05$; $\beta = -.17, t = -2.10, p < .05$). Neither the other main nor any interaction effects reached significance level ($F_s < 1.69, ns$). Post hoc analyses comparing the estimated average ratings of self-reported recovery adjusted for the covariate effect are reported in Table 1 (lower part): These analyses showed that the no-sharing group scored higher than the other three groups on the level of self-reported recovery, and significantly higher than the no-extinction group.

To assess the evolution of individuals' self evaluation of emotional recovery across the four conditions of sharing perpetuation, trend analyses were run separately for each group of respondents on the scores of self-reported recovery. Results from these analyses showed a significant linear increasing trend in the level of self-reported recovery for all conditions of sharing perpetuation except for the no-extinction group (see F values in Table 1, lower part, referring to analyses on the nonadjusted scores). Finally, given that the average levels of self-reported recovery were respectively the lowest for the no-extinction group and highest for the no-sharing group, two sets of contrast analyses were run comparing the scores of the no-extinction group with the scores of the other three groups, and the scores of the no-sharing group with the scores of the other three groups, separately for each phase of data collection. The first set of analyses resulted in nonsignificant contrasts for the ratings of self-reported recovery at the first and second phases of data collection (respectively $F(1, 97) = .67, ns$, $F(1, 97) = 3.37, ns$) but in a significant difference between the no-extinction and the other three groups of sharing perpetuation at the third phase, $F(1, 97) = 27.41, p < .001$. The second set of contrast analyses showed that the ratings of self-reported recovery were significantly higher for the no-sharing group as compared with the other three groups at all three phases of data collection, $F_s(1, 97) > 5.19, ps < .05$.

Correlations between emotional intensity and social sharing measures. Table 2 contains the zero-order correlation coefficients between the indices of emotional intensity and social sharing measures. In line with previous studies on social sharing of emotions, ratings of emotional intensity were found to be significantly and positively associated with social sharing indicators, whereas the indices of recovery were found to be negatively associated with all social sharing indicators.

Structural Analyses

The Structural Equation Modeling (SEM; Bollen, 1989) approach was applied to the present data set, through the Lisrel software (Jöreskog & Sörbom, 1996). In the present study, the hypothesized pattern of relationships among variables was estimated through a path analysis model. In such a model, explanatory (exogenous) and dependent (endogenous) variables are all observed, and constructs are considered to be directly measured, not assessed by a specific measurement model. It follows that measurement errors are not estimated by the procedure. General indi-

ces of fit are associated with SEM models. For the purposes of the present study, only the chi-square of goodness-of-fit, RMSEA, GFI, and AGFI indices are considered (Bollen, 1989). In the present study the input for running the SEM path analysis model is the covariance matrix of the indices of emotional recovery (Recovery1, Recovery2, Recovery3) and ratings of the frequency of social sharing (Sharing1, Sharing2, Sharing3) at the three phases of data collection. To simplify the interpretation of the covariances, the zero-order correlation coefficients among the measures considered for analysis are reported in Table 2. Two alternative models were tested for the present study, in conformity with the hypotheses reported in the Introduction. According to the first set of expectations, protracted social sharing should be considered analogous to dysfunctional mental rumination: Its perpetuation over time will depend upon the sharing process itself. In SEM language, Sharing1 will positively influence Sharing2, which in turn will positively affect Sharing3. Additionally, at each time of assessment, the frequency of sharing will be predictive of a poor recovery, and the strength of this relation will increase as time passes. According to the second set of expectations proposed in the Introduction, at each phase of assessment, the residual emotionality resulting from the social sharing process (i.e., the emotional recovery) would reactivate the process of social sharing at the subsequent phase of measurement. Figure 1 displays the path analysis model for the first set of hypotheses. The general fit of the model was found to be extremely satisfactory ($\chi^2(7) = 2.45, p = .93$; RMSEA = .00; GFI = .99; AGFI = .98), and all paths were found to be significant at least for $p < .05$. The negative relationship between social sharing and emotional recovery increased in its absolute value moving from the first to the second phase of assessment, but it remained stable at the third assessment. Figure 2 displays the path analysis model for the second set of hypotheses. The indices of general fit for the model were good ($\chi^2(4) = 4.30, p = .37$; RMSEA = .00; GFI = .97; AGFI = .93), but not all paths were found to be significant for $p < .05$. More specifically, the hypothesis of a structural relationship between Recovery2 and Social Sharing 3 was not confirmed. Furthermore, the R -squared resulting from the structural equations accounting for the variance of the social sharing indices were found to be very low, as compared with those of the model in Figure 1. Overall, the present data seemed to give much greater confirmation to first set of hypotheses than to the second set.² At different times of measurement social sharing resulted from the social sharing process itself,

² Given that the two models assessed in the present study were not nested, no test is available for directly comparing the fit indices of each model with the fit indices of the other. The consideration of the two sets of fit indices can be made only at a descriptive level, and no inference can be made concerning the relative goodness of fit of each the two models. Furthermore, a look at the diagnostic information provided by the Lisrel procedure concerning the equality constraints imposed on the two models (i.e., the Modification Indices; Jöreskog & Sörbom, 1996) allowed us to verify whether some non-estimated relationships need to be included in each of the models, to build a comprehensive test of prediction including the structural parameters of both estimated models. Indeed, for both models, the Modification Indices given by the procedure did not exceed the value of 4, thus indicating that no other relationships could be estimated to improve the general fit of each of the models.

Table 2
Zero-Order Correlations Between Indices of Social Sharing and Emotional Intensity

	1	2	3	4	5	6	7
1. Emotional intensity 1 (initial)	7.88 (2.36)						
2. Emotional intensity 1 (current)	.64**	5.94 (2.90)					
3. Emotional intensity 2	.37**	.48**	4.74 (2.93)				
4. Emotional intensity 3	.38**	.46**	.57**	3.76 (2.99)			
5. Need for sharing 1	.30**	.51**	.39**	.41**	3.25 (2.16)		
6. Need for sharing 2	.19	.34**	.64**	.41**	.44**	2.98 (2.00)	
7. Need for sharing 3	.26**	.43**	.43**	.70**	.26**	.46**	2.65 (1.85)
8. Actual sharing 1	.31**	.54**	.35**	.36**	.62**	.22*	.27**
9. Actual sharing 2	.25*	.36**	.68**	.49**	.31**	.64**	.44**
10. Actual sharing 3	.28**	.36**	.49**	.68**	.26**	.49**	.71**
11. Self-reported recovery 1	-.25*	-.47**	-.21*	-.29*	-.50**	-.12	-.21*
12. Self-reported recovery 2	-.24*	-.32**	-.53**	-.43**	-.41**	-.40**	-.31**
13. Self-reported recovery 3	-.25*	-.42**	-.53**	-.65**	-.38**	-.53**	-.59**
14. Recovery 1	.23*	-.60**	-.22*	-.20	-.34**	-.23*	-.28**
15. Recovery 2	.42**	.04	-.68**	-.26**	-.15	-.47**	-.22*
16. Recovery 3	.42**	.05	-.27**	-.69**	-.17	-.25*	-.48**

Note. *M*s and *SD*s are provided in diagonal for all variables except for the indices of self-reported recovery for which *M*s and *SE*s are indicated. Descriptives for the indices of self-reported recovery are adjusted for the level of initial emotional intensity.

* $p < .05$. ** $p < .01$.

with emotional recovery negatively influenced by the persistence of social sharing.

Discussion

Data collected for the present study confirm that social sharing is a common consequence of experiencing an emotion, independent of how highly educated participants are. It is a repetitive phenomenon, which tends to diminish over time, leading to an increasing sense of recovery from the initial emotional experience. However, in half of the sample of the present study, social sharing processes failed to reach the typical extinction. For this group of people the initial impact of the emotional experience was higher than for the rest of the sample. Furthermore, the beneficial effects of time passing were reduced for these respondents as compared with the others: No significant increase was found in the scores of self-rated recovery over time, and the level of emotional recovery was found to be the lowest of the sample. By contrast, levels of recovery appeared highest for respondents who did not report social sharing of their experiences (and this difference was found to be statistically significant for the ratings of self-reported recovery). It might be that, for these individuals, the low impact of the original episode did not provide a relevant motivation for sharing their experiences over time.

A second goal of the present study was to test two competing hypotheses concerning the relationship between social sharing and emotional recovery. Social sharing was hypothesized as originating either from the sharing process itself or from the residual emotional impact of the original experience over time. In the first case, poor emotional recovery is a direct consequence of the sharing process; in the second case, emotional recovery will negatively influence the persistence of social sharing. This theoretical distinction implies that social sharing will either perpetuate as a consequence of the individual's dispositions and habits, or ensue from the problematic characteristics of the initial emotional episode which is still in need of cognitive elaboration. Data confirm the first expectation: Persistent social sharing appears to be comparable to dysfunctional mental

rumination (Nolen-Hoeksema & Morrow, 1991), and its perpetuation negatively influences the individual's emotional recovery. The present study has the merit of being the first, to our knowledge, to test a theoretical model concerning the temporal evolution of social sharing by adopting a cohort design. The adoption of SEM approach allowed us to test such hypotheses through two structural patterns of prediction, both having general indices of fit which contributed to our decision on the best predictive model.

Taken together with the findings concerning the nonextinction of social sharing, the structural analyses of the present study demonstrate that the prolongation of sharing processes is actually a maladaptive outcome of experiencing an emotion. An important implication of the present results is that, when social sharing prolongs over time, a focus should be put on the individual's characteristics, motivations, and habits of the protagonist of the original experience rather than on specific features of the episode. However, this does not mean that the perpetuation the social sharing is exclusively attributable to individual aspects and never to the problematic nature of the shared episodes. There might be cases in which the second factor prevails over the first. Indeed, the present results represent a suggestion for future research to concentrate on the analysis of the individual differences in the persistence of sharing processes for nonrecovered emotional experiences.

Finally, from a theoretical point of view, the results of the present study provide a contribution to disambiguate previous findings concerning the relationship between social sharing and emotional recovery (Zech & Rimé, 2005). The adoption of a longitudinal design allowed us to evaluate the impact of time passing and sharing processes on the two indices of recovery, thus evidencing that the perception of the benefits of sharing does not necessarily overlap with an effective emotional recuperation. As a consequence of this, particular caution should be observed by researchers of social sharing when measuring emotional recovery. Inconsistent and null findings might probably reflect the inadequacy of the adopted measurement model.

Table 2 (continued)

	8	9	10	11	12	13	14	15	16
3.39 (2.40)									
.34**		3.40 (2.22)							
.27**		.61**	2.64 (2.09)						
-.36**		-.17	-.21*	4.08 (.52)					
-.41**		-.42**	-.37**	.46**	4.57 (.52)				
-.33**		-.55**	-.55**	.33**	.42**	5.17 (.46)			
-.36**		-.20*	-.17	.33**	.15	.28**	1.97 (2.26)		
-.10		-.47**	-.26**	.00	.33**	.32**	.39**	3.15 (2.99)	
-.11		-.29**	-.44**	.09	.24*	.43**	.37**	.59**	4.16 (3.02)

Constraints to the Sharing Process

Findings from the structural analyses reported in the present study confirm that the evolution of social sharing of emotion parallels that of mental rumination. Both phenomena ensue from the emotional impact of the triggering experience, have some common basic characteristics, and both have positive and negative consequences. Social sharing of emotion has been defined as an interpersonal phenomenon (Rimé et al., 1992, 1998), and rumination processes can also develop in interpersonal contexts taking the form of coruminative interactions (Rose, 2002; Rose et al., 2007). Individuals can benefit from sharing their experiences with significant others because the process has been demonstrated to promote social integration and elicit manifestations of attachment and positive emotionality and attitudes (Christophe & Rimé, 1997; Collins & Miller, 1994; Espitalier, Tcherkassoff, & Delmas, 2002; Rimé, 2009). Similarly, studies on corumination have shown that the process enhances friendship and encourages social support, intimacy, and trust (Calmes & Roberts, 2008; Haggard, Robert, &

Rose, 2011). When sharing and rumination extend for a long period, both processes have maladaptive consequences: Their perpetuation contributes to the maintenance of a negative affect which in turn feeds forward the persistence of both processes. As a consequence of this cyclical sequence, depression or anxiety symptoms can develop, be maintained or even strengthened over time (Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008).

However, the final stage of social sharing might somewhat differ from the prolongation of mental rumination. When all possible partners for social sharing are saturated, the individual has nobody else to turn to, hence social sharing processes necessarily stop (Pennebaker & Harber, 1993). By contrast, intraindividual ruminative thoughts might perpetuate for years and degenerate into severe psychopathological symptoms or psychiatric disorders (Ehlers & Steil, 1995; Kasch, Klein, & Lara, 2001). The question then arises concerning the optimal duration of sharing processes to achieve the best adjustment of individuals with their original

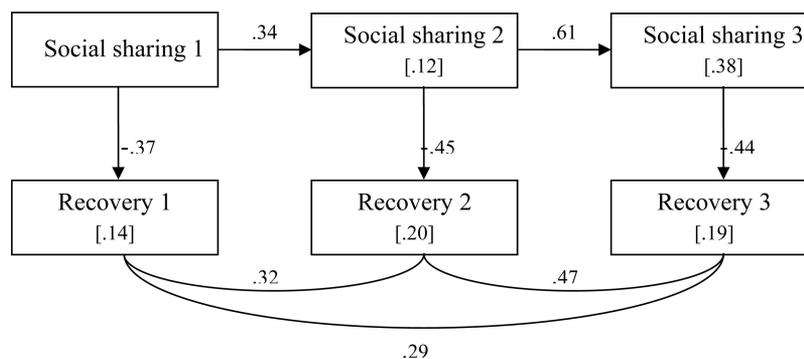


Figure 1. Path analysis model 1st hypothesis of relationships between social sharing and emotional recovery indicators. All paths were significant for $p < .05$. For the endogenous variables, the estimated R s-squared are reported in brackets in the squares.

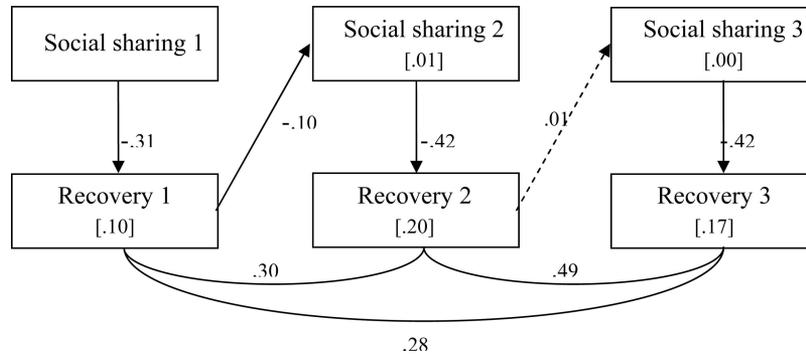


Figure 2. Path analysis model 2nd hypothesis of relationships between social sharing and emotional recovery indicators. All paths—except the dashed one—were significant for $p < .05$. For the endogenous variables, the estimated R s-squared are reported in brackets in the squares.

emotional experiences. From a lay person's perspective, it might be argued that individuals have at least two practical indicators to stop an excessive prolongation of sharing behavior. The first is a subjective need to socially share an emotional experience; the second is a perception of a supportive context available for listening to an emotional narrative. Future studies should consider modeling the impact of these two variables and their interactions with the characteristics of the emotional episode and the individual dispositions in a longitudinal investigation of social sharing of emotions.

Limitations and Future Perspectives

Despite promising outcomes, the present study does suffer from some limitations which might, however, encourage future research. First, the characteristics of the sample, made up of pregnant women, might raise some doubts on the generalization of our results to other populations. For instance, compared with men, women have been found to have higher levels of social support, which might be a protective factor against physical and emotional distress (Matud, Ibáñez, Bethencourt, Marrero, & Carballeira, 2003; Shumaker & Hill, 1991). Self-disclosure and corumination have been shown to have beneficial effects regarding women's social adjustment and life satisfaction, but they also contribute to a dysfunctional internalizing of problems and to the development of depressive disorders (Broderick & Korteland, 2002; Gore, Aseltine, & Colten, 1993; Rose, 2002). Furthermore, pregnancy is a period of life characterized by an emotional turmoil which might affect the way women react to their emotional experiences (e.g., Pearson, Lightman, & Evans, 2009; van Bussel, Spitz, & Demyttenaere, 2006). Depressive disorders have also been found to be associated with a tendency of pregnant women to engage in ruminative thinking, and perceptions of a lack of social support (Alfaraj, Spada, Nikčević, Puffett, & Meer, 2009). As a consequence of this, one might argue that women participating in the present study overestimated the impact of their emotional experiences and/or underestimated the availability of partners and occasions for social sharing. Despite these drawbacks, findings collected in the present study concerning the emotional impact of the initial experiences and frequency, delay, amount, and need for social sharing were perfectly in line with all previously published studies on social sharing of emotions (Rimé et al., 1991, 1992,

1998). A validation of the present results through the adoption of cohort designs on samples of individuals drawn from nonspecial populations would evidently increase the internal validity of research work on this subject.

Second, the present findings suggested that a considerable amount of individuals might differ from others in their failure to extinguish social sharing over time. These individuals approximately corresponded to half of the whole sample. Some individual characteristics or personality aspects (i.e., coping style, social integration, personality traits, etc.) may have prevented these people from stopping their sharing of emotional experiences. Unfortunately, data collected for the present study did not allow us to evaluate the specific features of this subgroup of people to distinguish them from the rest of the sample. Rimé (2007) argued that mere talking about an emotional experience in a social framework mostly elicits an empathic climate, which provides the sharing person with abundant sources of socioaffective benefits. However, the empathic climate dampens the cognitive processing of the emotional experience, which is critical for achieving emotional recovery. Future research should investigate the personal characteristics and motivations of individuals sharing their emotional experiences to put them in connection with the duration of social sharing processes and their perpetuation over time.

Finally, the present study left a question open concerning the differences between the way individuals evaluate their emotional recovery and the effective persistence of the emotional impact of an experience at a later time. The level of recovery of the nonextinction group was generally lower than for the other three groups of sharing perpetuation. However, while for the nonextinction group the ratings of self-reported recovery remained the lowest and substantially stable over the three phases of data collection, the index of emotional recovery was found to increase moving from the first to the other phases, in conformity with the trend observed for the rest of the sample. It is possible that the nonextinction individuals, even after a much longer time interval than for the other groups, normally reach an emotional recovery from their experience so that their sharing processes eventually stop. However it is also possible that these individuals may keep talking about their experiences because they feel that they have not yet recovered. Perceiving oneself as still overwhelmed by an emotional experience may decrease the individual's confidence in

sharing processes with the result of slowing down the process of recovering from the initial impact. Future investigation could test a comprehensive model of prediction of social sharing extinction including different indices of recovery and emotional persistence over time. Furthermore, adopting different measures of social sharing and emotional impact than self report indices would add more predictive power to this model by extending its application beyond the realm of subjective evaluations.

To conclude, the present study offered a contribution to the investigation on the factors promoting emotional recovery by showing that an excessive prolongation of sharing processes is predictive of a persistent subjective maladjustment with a distressing experience. Comparable with dysfunctional mental rumination, when sharing behaviors perpetuate over time the individual is taken in a downward spiral of negativity and unable to come to terms with a past upheaval. Finally, the investigation of the factors promoting emotional recovery has both important theoretical and applicative implications. From a theoretical point of view, it may appreciably contribute to the general understanding of the processes of emotion regulation for daily life experiences. From an applicative point of view, this research may provide suggestions for the psychological treatment of traumas and other emotional problems.

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