

## Special issue article

# When bittersweet turns sour: Adverse effects of nostalgia on habitual worriers

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### ABSTRACT

*Nostalgic memories can be pleasant, albeit bittersweet, and have been found beneficial for well-being. This study demonstrated that for individuals who habitually worry, nostalgia may not be such a nourishing experience. Nostalgia was experimentally induced using a visual imagery task and resulted in positive affect. Although this was also the case for participants who habitually worry, these individuals subsequently showed more signs of anxiety and depression than habitual worriers in a control condition. The findings fit within a control theoretical perspective; as habitual worriers' actual chronic state of anxiety contrasts with nostalgic memories of a carefree past, this may instigate further rumination leading to distress. A more present-oriented time perspective, such as mindfulness, is discussed as being beneficial for habitual worriers. Copyright © 2012 John Wiley & Sons, Ltd.*

Mental traveling to the past may elicit nostalgic memories and feelings. Nostalgia has been defined as “a sentimental longing for the past” (e.g., Wildschut, Sedikides, Arndt, & Routledge, 2006) and may involve positively charged memories of places, things, music, people, or animals (e.g., Batcho, 1995). Nostalgia has been found associated with a large array of positive psychological consequences (e.g., Sedikides, Wildschut, Arndt, & Routledge, 2008). For instance, nostalgia may increase positive self-regard (Wildschut et al., 2006), enhance feelings of social connectedness (Wildschut et al., 2006; Wildschut, Sedikides, Routledge, Arndt, & Cordaro, 2010; Zhou, Sedikides, Wildschut, & Gao, 2008), buffer existential threat (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010; Routledge, Arndt, Sedikides, & Wildschut, 2008), and provide existential meaning (Routledge et al., 2011).

The nostalgic experience itself may consist of a mix of positive and negative emotions (e.g., Barrett, Grimm, Robins, Wildschut, Sedikides, & Janata, 2010; Batcho, 2007). Nostalgia, thus, implies a bittersweet affective undertone, which reflects the absence or loss of the once-cherished nostalgic object. Indeed, nostalgia has long been associated with homesickness and melancholia (e.g., McCann, 1941; Nawas & Platt, 1965; Rosen, 1975; Sedikides, Wildschut, & Baden, 2004), which made nostalgia featured in novels and poetry, in particular of the 19th century (e.g., Austin, 2002). Iyer and Jetten (2011) demonstrated that nostalgia may have positive or negative consequences, depending on the degree to which an individual experiences a continuity of identity between now and the nostalgic past. The present study investigated another condition under which nostalgia may have adverse consequences, namely habitual worrying.

### HABITUAL WORRYING AND NOSTALGIA

Worrying is an attempt to engage in mental problem solving of unresolved or uncertain issues or challenges. The object of worry may reside in the past or in the present but very often concerns the future (e.g., Borkovec, Robinson, Pruzinsky, & DePree, 1983). Although worrying is in essence an adaptive response, some people worry repetitively and persistently (Watkins, 2008). For these individuals, worrying can be considered as a mental habit, that is, thoughts that occur repetitively and automatically (Verplanken, Friberg, Wang, Trafimow, & Woolf, 2007; Verplanken & Tangelder, 2011; Verplanken & Velsvik, 2008; Watkins, 2008).

Similarly to other forms of repetitive thinking, habitual worrying may be approached from a control theoretical perspective (e.g., Carver & Scheier, 1990). Following this view, ruminative thinking is instigated when a discrepancy is perceived between the current state and a salient reference value (e.g., Martin & Tesser, 1996; Watkins, 2008). For a person who has developed a habit to worry, the current state is likely to be dominated by worry and anxiety. By bringing to mind a carefree and pleasant episode in the past, nostalgia may function as a salient reference value. This may thus contrast with the habitual worrier's actual chronically anxious state and instigate further rumination. As long as this rumination does not solve the discrepancy between the actual and desired state (which is unlikely), and the individual is not able to disengage from it (which must be particularly difficult for habitual worriers), unconstructive psychological consequences such as feelings of distress or depression may follow (e.g., Nolen-Hoeksema, 1991; Pyszczynski & Greenberg, 1987; Riese et al., 2009; Watkins, 2008; Wells & Matthews,

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1994). The hypothesis was thus tested that nostalgia elicits feelings of anxiety and depression among individuals with a strong habit to worry and thus turn the experience of remembering a pleasant past into a source of suffering in the present. The hypothesis was tested by experimentally manipulating nostalgia in a visual imagery task.

## METHOD

### Participants and Design

Participants were 203 respondents who completed an online experiment. The experiment was advertised at university-associated platforms in the USA and UK. Participants were only included if they had fully completed the study. Ten participants were removed from the data set because they had skipped the imagery task and one because of an excessive number of missing values. This left 192 participants in the study. Most participants came from either the USA (39%) or the UK (52%). There were 56 students from high schools or colleges, 128 students at universities, and 8 non-students. There were 50 men, 139 women, whereas three participants did not disclose their gender. The mean age was 23.1 years (*standard deviation* (*SD*) = 6.9 years).

Participants were randomly allocated to a nostalgia or a control condition on the basis of their birth month. The level of habitual worrying was measured.

### Procedure

The study started with a brief introduction and a consent form. Participants were made aware that they could withdraw at any moment and that submitting the study was considered as consent. They were then presented with demographic questions and were asked to indicate their birth month, which was used to route them to one of the two experimental conditions. Subsequently, assessments of mood and habitual worrying were presented, which were followed by a visual imagery task, a second assessment of mood, an assessment of feelings of anxiety and depression, and an assessment of nostalgic feelings, which served as manipulation check. To counteract potential residual negative feelings, the study ended by asking participants to write down their most positive feature. The complete session lasted, on average, 23 min. This did not differ statistically significant between the nostalgia or control conditions,  $M$ -nostalgia = 22 min,  $M$ -control = 24 min,  $t(190) = 0.88$ .

### Manipulation of Nostalgia

The nostalgia manipulation was delivered by means of a visual imagery task, which was inspired by Wildschut et al. (2006; Study 6). In the nostalgia condition, participants received the following instruction:

We now want you to concentrate on nostalgic memories. According to the Oxford Dictionary, nostalgia is defined as a "sentimental longing for the past." Specifically, think of a past event that makes you feel *most* nostalgic. Bring this nostalgic experience to mind. In order to help you to grasp

this experience, we want you to take a few minutes, relax, and concentrate on the past event that makes you nostalgic. Imagine yourself again in that situation. Imagine how the place or situation looks like, visual details, sounds, smells. Try to visualize this scene as clearly as possible. Immerse yourself in this nostalgic experience. How does it make you feel? Please write down in your own words what you see and feel. Describe the following details:

- (i) the place, situation or event that makes you feel nostalgic.
- (ii) things, people, sounds, smells.
- (iii) how it makes you feel being there.

Participants were then presented with three text boxes in which they wrote down the respective details of their visualization.

In the control condition, participants were presented with an identical task, except that instead of being asked to think of a nostalgic memory, they were asked to think of an everyday experience. The visualization instructions were identical as in the nostalgia condition.

### Emotion Ratings

The feelings that were reported as part of the visual imagery task were rated on valence by two judges. They were blind to conditions and did not see the other information about the imageries. They rated the entries independently as predominantly negative (−1), neutral or ambivalent (0), or predominantly positive (+1). They agreed on 186 of the 192 entries (95%). The remaining eight entries were solved by discussion.

### Manipulation Check

To check whether the nostalgia visual imagery task led to more nostalgic feelings than the control condition, participants completed 18 items of the Nostalgia Inventory, which presents potential objects of nostalgic memories (Batcho, 1995). Participants rated the extent to which they longed for these items of their past on five-point scales, ranging from "not at all" to "very much." High scores indicate strong feelings of nostalgia. The items were subjected to a factor analysis with VARIMAX rotation, which yielded a two-factor structure. The first factor included (ranked from high to low factor loadings) "not having to worry", "not knowing sad or evil things", "the way society was", "having someone to depend on", "feelings I had", "my pets", "the way people were", "TV shows, movies", and "someone I loved." The items were averaged,  $\alpha = .84$ . The second factor included "vacations I went on", "places", "my family house", "my family", "things I did", "music", "my childhood toys", "my school", and "my friends." The items were averaged,  $\alpha = .81$ .<sup>1</sup>

<sup>1</sup>The original scale published by Batcho (1995) contained two additional items ("heroes/heroins" and "church/religion"). Following Wildschut et al. (2006), who found that these items had restriction of range problems, these items were not included in the present study. Batcho (1995) also conducted a factor analysis but identified five factors. The first factor in her study largely overlapped with the first factor in the present study (i.e., seven of the nine items) and represents relatively abstract cognitive-emotional aspects of nostalgia. The other four factors in Batcho's study comprised more concrete aspects of individuals' experiences and their social environment. These factors were largely collapsed into the second factor in the present study.

## Mood

Mood was assessed twice during the session using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). This instrument contains 10 positive and 10 negative mood adjectives. The PANAS was administered at the beginning of the session and immediately following the visual imagery task. Responses were provided on five-point scales, ranging from "slightly or not at all" to "extremely." High scores indicate a strong mood. The positive and negative mood items were averaged in respective subscales,  $\alpha$ s = .84 and 0.90 for the positive and negative mood scales of the premeasure and 0.94 and 0.92 for the postmeasures, respectively.

## Habitual Worrying

Habitual worrying was assessed in two steps, following a variant of a paradigm developed by Verplanken et al. (2007). Participants were first asked to write down three thoughts that they sometimes have and that they found most worrying, uncomfortable, or upsetting. They were then presented with the Habit Index of Negative Thinking (HINT), which assessed the habitual quality of the thoughts written down in the thought-listing task. The HINT consists of 12 items, which represent core facets of habit, such as the experience of repetition and automaticity. The items followed the stem, "Having those worrying thoughts is something..." Sample items are "I do automatically", "I do unintentionally", "I find hard not to do", "I start doing before I realize it." Responses were given on five-point scales, ranging from "strongly disagree" to "strongly agree." High scores indicate a strong habit. The items were averaged,  $\alpha$  = .87.

## Anxiety and Depression

Feelings of anxiety and depression were assessed by the Hospital Anxiety and Depression Scale (HADS; Zigmund & Snaith, 1983). The HADS consists of 14 items. The instructions were adapted so as to turn the instrument into a state measure by asking participants to report on experiences as they occurred "at this very moment." Responses were given on four-point scales, whereas the labels were contingent on the content of the items. The items were coded such that high scores indicate strong symptoms of anxiety and depression. The items were averaged,  $\alpha$  = .89.

## RESULTS

### Descriptives and Correlations

In Table 1, the means, *SD*s, and intercorrelations of the 10 observed variables are presented.

### Manipulation Check

The means of the two subscales of the Nostalgia Index were tested between the nostalgia and control conditions. There

was no statistically significant difference for the first subscale,  $M$ -nostalgia = 3.19,  $M$ -control = 3.08,  $t(190) = 0.85$ . However, the second subscale was statistically different between the conditions in the expected direction,  $M$ -nostalgia = 3.49,  $M$ -control = 3.24,  $t(190) = 2.28$ ,  $p < .03$ . The prevalence of the more concrete items of the second subscale, compared with the more abstract content of the first subscale (see Footnote 1), made the former perhaps more relevant to this sample. Also, the items of the second subscale were more directly related to the instruction of the visual imagery task than the items of the first subscale. In any case, the significant difference on the second subscale suggests that the nostalgia manipulation was successful.

## Effects of Nostalgia on Emotions

### Emotion Ratings

The ratings of emotions that were collected during the visual imagery task were regressed on the nostalgia versus control condition (Condition), habitual worrying (HINT), and the Condition  $\times$  HINT interaction. To control for pre-existing mood, premeasured positive and negative mood were included as predictors as well. In the preparation of this analysis, as well as all analyses that follow, all variables were standardized. The control and nostalgia conditions were coded as  $-1$  and  $+1$ , respectively.  $R^2$  was 0.09. There was a statistically significant main effect of Condition,  $\beta = .23$ ,  $p < .001$ , suggesting that in the nostalgia condition, the scene elicited more positive feelings than in the control condition. No other effects were significant. The effect of nostalgia was thus independent of the level of habitual worrying, suggesting that habitual worriers too experienced positive affect from nostalgia.

### Mood

The positive and negative mood subscales on each occasion were uncorrelated. The effect of the nostalgia manipulation on mood was tested through two multiple regression analyses, that is, for positive and negative mood, respectively. In each respective analysis, the postmeasure of mood was regressed on the premeasure of mood, Condition, the HINT, and the Condition  $\times$  HINT interaction. The regression for positive mood yielded an  $R^2$  of 0.55. There was an expected statistically significant effect of the premeasure,  $\beta = .74$ ,  $p < .001$ , and importantly, a statistically significant effect of Condition,  $\beta = .13$ ,  $p < .01$ , indicating a more positive mood in the nostalgia condition. The effects of HINT and the Condition  $\times$  HINT interaction were nonsignificant. The regression for negative mood yielded an  $R^2$  of 0.57. Except for a statistically significant effect of the premeasure,  $\beta = .74$ ,  $p < .001$ , no other effects were significant. Taken together, these analyses suggest that the nostalgia manipulation increased positive mood and that this effect was independent of habitual worrying. Nostalgia had no effect on negative mood.

## Effects of Nostalgia on Feelings of Anxiety and Depression

To assess the effect of nostalgia on feelings of anxiety and depression, the HADS scores were regressed on Condition,

Table 1. Means, standard deviations, and correlations of the observed variables

Variable and range	<i>M</i>	<i>SD</i>	2	3	4	5	6	7
1. Habitual worrying	3.66	0.68	−0.27***	0.35***	−0.10	−0.19**	0.30***	0.47***
2. Positive mood premeasure	2.57	0.78		−0.04	0.06	0.73***	−0.05	−0.28***
3. Negative mood premeasure	1.90	0.82			−0.20**	0.03	0.76***	0.59***
4. Emotion ratings	0.51	0.74				0.23***	−0.29***	−0.25***
5. Positive mood postmeasure	2.57	0.95					0.01	−0.24***
6. Negative mood postmeasure	1.73	0.80						0.57***
7. Anxiety and depression	1.18	0.57						

Note: *SD*, standard deviation.

*N* = 192.

\*\**p* < .01.

\*\*\**p* < .001.

the HINT, and the Condition  $\times$  HINT interaction. To control for pre-existing mood, premeasured positive and negative mood were included as predictors as well.  $R^2$  was 0.48. There were statistically significant main effects of premeasured positive mood,  $\beta = -.17$ ,  $p < .002$ , premeasured negative mood,  $\beta = .49$ ,  $p < .001$ , and the HINT,  $\beta = .27$ ,  $p < .001$ . The main effect of Condition was nonsignificant,  $\beta = .08$ . Importantly, the Condition  $\times$  HINT interaction was statistically significant,  $\beta = .14$ ,  $p < .02$ . Simple slope analyses revealed that there was no statistically significant effect of Condition for participants with a weak worry habit (one *SD* below the mean HINT score),  $\beta = -.04$  (95% confidence interval between  $-0.22$  and  $0.13$ ). On the other hand, participants with a strong worry habit (one *SD* above the mean HINT score) in the nostalgia condition showed stronger feelings of anxiety and depression than strong worry habit participants in the control condition,  $\beta = .26$ ,  $p < .005$  (95% confidence interval between  $0.08$  and  $0.44$ ). These results, thus, support the hypothesis.

## DISCUSSION

The contemporary literature on nostalgia emphasizes the beneficial sides of this emotional experience (e.g., Sedikides et al., 2008; Wildschut et al., 2006). The present study indeed demonstrated that experimentally induced nostalgia resulted in positive affect. This was observed as more positively toned emotions that were reported during the visual imagery task, as well as an enhanced positive mood afterwards (note that both measures were controlled for pretest mood in the regressions). However, in spite of the initially positive experience of mental time traveling to the past, participants who had a strong habit of habitual worrying subsequently showed enhanced symptoms of anxiety and depression. This suggests that the tendency to worry is a condition under which the bitter aspect of nostalgia comes to the fore. Together with the findings by Iyer and Jetten (2011), who demonstrated identity discontinuity as such a condition, the present results may lead to further investigations into conditions that determine whether nostalgia has nourishing or maladaptive consequences. A salient contrast between present and past, for whatever reason, might emerge as a common theme underlying such conditions.

The habitual worriers' response to nostalgia can be understood from a control theoretical perspective; nostalgic

memories may function as a reference value that contrasts with the individual's chronic current worried state. This felt discrepancy may instigate further rumination. As such rumination tends to be dysfunctional among habitual worriers (e.g., Watkins, 2008), this may thus turn the positive memories into negative thoughts and cause distress. In essence, this can be regarded as failing self-regulation, which is typical of other forms of repetitive thinking, such as depressive rumination (e.g., Nolen-Hoeksema, 1991), repetitive regret (Roese et al., 2009), counterfactual thinking (e.g., Roese, 1997), or rumination associated with homesickness (Stroebe, van Vliet, Hewstone, & Willis, 2002).

The present study suggests that dwelling on a happy past is not beneficial for individuals who habitually worry. These individuals may thus be inclined to avoid such thoughts. However, once in a while, a happy past may present itself, for instance, in the form of smells or music (e.g., Barrett et al., 2010), which thus makes habitual worriers vulnerable to such distress. One way to mitigate such effects might be to develop mindfulness. Mindfulness is a state of consciousness characterized by awareness of the present moment and adopting an attitude of self-compassion (e.g., Brown, Ryan, & Creswell, 2007; Kabat-Zinn, 2003; Shapiro, Carlson, Astin, & Freedman, 2006). Mindfulness has favorable effects on mental health (e.g., Brown et al., 2007), which has also been found for individuals who suffer from habitual worrying (Verplanken & Fisher, 2012). Being more aware of the present moment and being more accepting of negative feelings that may arise from nostalgic memories may thus benefit habitual worriers in dealing with the felt discrepancy between past and present.

Some limitations of this study should be mentioned. Firstly, the participants consisted of a relatively homogeneous young student sample. Their age obviously limits the time span of nostalgic memories. However, there is no reason to believe that this would compromise the study; students do have nostalgic memories too, if only because most of them have moved away from home (cf. Stroebe et al., 2002). Another limitation is that although the format of the visual imagery task was identical in the two conditions, it is possible that participants in the nostalgia condition were more immersed in the task because of its emotional load. A piece of information against this argument is that participants in the two conditions spent equal amounts of time on the total experiment. Assuming that participants did not differ in time spent on the remainder of the experiment, there is no reason to believe that participants

in the nostalgia condition spent more time on the visual imagery task than control participants. Finally, the conclusions are limited by the fact that this is a single study. Replications with different manipulations of nostalgia, multiple dependent variables, and more varied samples would strengthen the external validity of the present conclusions.

Mental time traveling may have significant effects on the traveler's well-being (e.g., Zhang & Howell, 2011). Whether this has positive or negative consequences is dependent on the adopted time frame, target, and the individual's frame of reference. Understanding the psychodynamics of mental time traveling may thus provide better insight into when and why such journeys are beneficial or detrimental to well-being.

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