**Supplementary Materials**

An Appraisal Profile of Nostalgia

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| Wijnand A.P. van Tilburg  King’s College London | Martin Bruder  University of Konstanz and German Institute for Development Evaluation |
| Tim Wildschut and Constantine Sedikides  University of Southampton | |
| Anja S. Göritz  University of Freiburg | |

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**Exploratory Factor Analysis on Emotion Ratings in Study 1**

We ran an exploratory factor analysis (with varimax rotation) on the 32 emotions examined in Study 1 (Table S1). This analysis revealed four factors with eigenvalues greater than 1. Negative emotions loaded on the first factor and positive emotions loaded on the second factor. Indeed, the extracted scores for the first and second factor were significantly (*p* < .001) correlated with the pleasantness appraisal ratings: *r*(1124) = -.336, and *r*(1124) = .608, respectively. Emotions associated with a sense of loss loaded on the third factor. Corresponding extracted factor scores indeed correlated with the irretrievable loss appraisal, *r*(1124) = .459, *p* < .001. Emotions characterized by caring for others loaded on the fourth factor.

Nostalgia loaded on the third factor. The factor analysis thus placed nostalgia among other emotions associated with loss, which included longing, melancholy, homesickness, loneliness, grief, and sadness. Nostalgia’s loadings on the other factors were: *r*f1(1124)= -.039, *r*f2 (1124)= .317, and, *r*f4(1124)= -.079. Collectively, the four factors accounted for 45.1% of all variance in nostalgia. To place this into context using some other emotions, these amounts were emotions 60.9% for loneliness, 66.4% for gratitude, and 64.4% for anger. These results emphasize that nostalgia is considerably distinct from other emotions, consistent with the main analyses.

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| Table S1  *Emotions and Factor Loadings (Study 1)* | | | | |
|  | Factor | | | |
| Emotion | 1 | 2 | 3 | 4 |
| Nostalgia |  |  | .51 |  |
| Anger | .68 |  |  |  |
| Fear | .58 |  |  |  |
| Disgust | .68 |  |  |  |
| Joy |  | .78 |  |  |
| Guilt | .66 |  |  |  |
| Pride |  | .71 |  |  |
| Embarrassment | .70 |  |  |  |
| Gratitude |  | .72 |  |  |
| Contempt | .70 |  |  |  |
| Sympathy | .47 |  |  | .54 |
| Self-Pity | .61 |  |  |  |
| Disappointment | .64 |  |  |  |
| Homesickness |  |  | .52 |  |
| Relief |  | .56 |  |  |
| Contentment |  | .73 |  |  |
| Shame | .75 |  |  |  |
| Regret | .70 |  |  |  |
| Longing |  |  | .65 |  |
| Despair | .65 |  |  |  |
| Melancholy |  |  | .63 |  |
| Grief | .44 |  | .44 |  |
| Loneliness | .46 |  | .51 |  |
| Bitter | .67 |  |  |  |
| Enthusiasm |  | .79 |  |  |
| Sadness | .47 |  | .47 |  |
| Love |  | .56 |  | .42 |
| Tenderness |  | .59 |  |  |
| Empathy |  |  |  | .63 |
| Awe |  | .68 |  |  |
| Relaxation |  | .61 |  |  |
| Beloved |  | .65 |  |  |
| Eigenvalue | 6.94 | 6.16 | 2.82 | 1.82 |
| *Note:* Factor loadings below .40 are omitted for clarity. | | | | |

**Inferential Tests of the Euclidian Distances between Appraisal Profiles in Study 1**

To reflect how strongly the appraisal profile of nostalgia differed from that of comparator emotions, we calculated the Euclidean distance between nostalgia and each other emotion on the five appraisal dimensions. We aimed to evaluate the Euclidean distances statistically. We estimated confidence intervals using a bootstrapping approach (5,000 bootstraps) in which we estimated the 95% confidence intervals surrounding the Euclidean distances. We estimated these confidence intervals using a script that we created in *R*.

We conducted each bootstrap using the following sequence: we (a) randomly drew 1125 observations from our dataset (with replacement); (b) calculated the correlations between the 32 emotions and the five appraisal dimensions; (c) Fisher z transformed these correlations; and (d) calculated the Euclidean distance between nostalgia and each of the comparator emotions based on the Fisher z scores. This involved calculating the difference between nostalgia and each comparator emotion in terms of their Fisher z transformed correlations with the five appraisals, squaring these five differences, summing them, and then taking their square root; (e) we stored the resultant 31 Euclidean distances for that particular bootstrap and moved on to the next one (see Van Tilburg & Igou, 2016, and Jacoby & Armstrong, 2014, for use of bootstrapping procedures to estimate confidence regions in multidimensional models). After conducting 5,000 bootstraps, we obtained the 2.5% and 97.5% percentile Fisher z distance scores for each comparator emotion. These scores were transformed back into correlation coefficients, corresponding to the 95% confidence intervals. We summarize these results in Table S2.

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| Table S2  *Bootstrapped Confidence Intervals for Euclidean Distances* | | |
|  | 95% Confidence Interval | |
| Comparator emotion | Lower bound | Upper bound |
| Anger | 0.711 | 0.788 |
| Fear | 0.672 | 0.758 |
| Disgust | 0.532 | 0.640 |
| Joy | 0.496 | 0.609 |
| Guilt | 0.592 | 0.693 |
| Pride | 0.301 | 0.425 |
| Embarrassment | 0.543 | 0.652 |
| Gratitude | 0.317 | 0.438 |
| Contempt | 0.634 | 0.727 |
| Sympathy | 0.593 | 0.689 |
| Self-Pity | 0.554 | 0.660 |
| Disappointment | 0.684 | 0.768 |
| Homesickness | 0.298 | 0.419 |
| Relief | 0.331 | 0.467 |
| Contentment | 0.469 | 0.574 |
| Shame | 0.549 | 0.658 |
| Regret | 0.634 | 0.724 |
| Longing | 0.226 | 0.354 |
| Despair | 0.672 | 0.763 |
| Melancholy | 0.357 | 0.481 |
| Grief | 0.657 | 0.741 |
| Loneliness | 0.567 | 0.674 |
| Bitter | 0.683 | 0.768 |
| Enthusiasm | 0.480 | 0.591 |
| Sadness | 0.702 | 0.781 |
| Love | 0.193 | 0.318 |
| Tenderness | 0.183 | 0.310 |
| Empathy | 0.482 | 0.600 |
| Awe | 0.233 | 0.358 |
| Relaxation | 0.422 | 0.537 |
| Beloved | 0.224 | 0.355 |

However, simply testing if these confidence intervals included the Euclidean distance of zero (they did not) is problematic. First, distances below zero are impossible. Second, a Euclidean distance of zero is only possible if the appraisal profile of a comparator emotion is identical to that of nostalgia, and even then chance alone would increase distance above 0. To remedy this, we created a more realistic and conservative benchmark for evaluating the Euclidean distances.

Specifically, we estimated the bootstrapped confidence interval for the Euclidean distance between two simulated variables. Both variables had the same correlations with the five appraisal dimensions as nostalgia. Simultaneously, we set the correlation between these two simulated variables to *r* = 0. These specifications generated two uncorrelated variables with identical appraisal profiles. Thus, we created two normally distributed variables that were random within the confines of a predefined correlation matrix (Table S3). Any Euclidean distance between these simulated variables generated by the bootstrap approaches is thus by definition caused by chance alone; after all, the variables do not differ in their appraisal profiles. Consequently, we reasoned that the corresponding upper bound of the confidence interval shows the upper range of Euclidean distances that would be generated by chance alone. Emotions located at a distance from nostalgia greater than this simulated upper bound are significantly more different from nostalgia than expected purely based on chance. The 95% confidence interval of this simulated benchmark (*M* = 0.092) was [0.038, 0.153]. Indeed, all comparator emotions were located well above the upper bound of this interval (i.e., above 0.153, see Table S2). These results indicate that, in terms of appraisal profiles, all comparator emotions differed from nostalgia to a greater degree than would be expected by chance alone.

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| Table S3  *Correlation Matrix (Excluding Correlations Between Appraisals)* | | |
|  | Random variable 1 | Random variable 2 |
| Random variable 1 | 1 | 0 |
| Random variable 2 | 0 | 1 |
| Pleasantness | .36 | .36 |
| Irretrievable loss | .09 | .09 |
| Distance | .06 | .06 |
| Reflection | .03 | .03 |
| Uniqueness | .12 | .12 |

**Post-Hoc Corrections for Multiple Testing**

We applied post-hoc corrections for multiple testing to the results of all studies. In these analyses, we report *p*-values after sequential Holm-Šidàk post-hoc correction (Abdi, 2007). Note that we did not carry out corrections to the (a priori) predicted associations between nostalgia and the cognitive appraisals, and in particular: (a) the five correlations between nostalgia and pleasantness, irretrievable loss, distance, reflection, and uniqueness (Study 1); (b) the five simple effects of pleasantness, irretrievable loss, distance, reflection, and uniqueness on anticipated nostalgia (Study 2); and (c) the five simple effects of manipulated pleasantness, irretrievable loss, distance, reflection, and uniqueness on nostalgia (Study 3).

**Study 1**

**Nostalgia’s distinctiveness.** We tested the correlations between nostalgia and all 31 comparator emotions. We diplay results using sequential Holm-Šidàk post-hoc corrected *p*-values (for 31 tests; Abdi, 2007) in Figure S1. In comparison to non-corrected *p*-values (see main text, Figure 1), this post-hoc correction rendered the correlations between nostalgia on the one hand and grief, empathy, and contempt on the other non-significant.

**Correlations with appraisals.** Besides the (a priori predicted) correlations between nostalgia and the five appraisals, we tested the correlations between the 31 comparator emotions and the five appraisals. A sequential Holm-Šidàk post-hoc correction (Abdi, 2007) for these 155 tests indicated that correlations with a magnitude greater than |*r*| = .100 were significant at αHŠ ≤ .05. (Table 2 in the main text contains these correlations.)

Next, we compared, for each appraisal, the nostalgia correlation to the comparator emotion correlations. This resulted in 31 William’s T2 tests for each appraisal, to which we applied a sequential Holm-Šidàk post-hoc correction for 31 tests. For pleasantness and irretrievable loss, all of the correlations that were significant without post-hoc correction remained significant after post-hoc correction. Nostalgia’s correlation with appraised temporal distance seized to be significantly different from that with disgust, embarrassment, disappointment, grief, guilt, anger, contentment, and sympathy after post-hoc correction, *p*sHŠ ≥ .081. After post-hoc correction, the (null) correlation between nostalgia and reflection was no longer significantly different from disgust, *p*HŠ = .075. Finally, nostalgia’s correlation with uniqueness did not differ significantly from sadness and homesickness after post-hoc correction, *p*sHŠ ≥ .080.

**Study 2**

We adopted a sequential Holm-Šidàk correction to *p*-values for post-hoc inferential tests in conjunction with the 4 (appraisal dimension) × 2 (level) × 11 (emotion) within-subjects ANOVA. We counted the number of post-hoc tests as follows: After conducting the overall within-subjects ANOVA, we tested the Level × Emotion interaction for each appraisal dimension. To further partition these Level × Emotion interactions, we carried out 10 post-hoc tests of the level effect on each comparator emotion (4 × 10 = 40 post-hoc tests). Accordingly, we used a sequential Holm-Šidàk post-hoc correction for 40 tests. All significant simple effects reported in the main text remained significant following the Holm-Šidàk post-hoc correction.

**Study 3**

We adopted a sequential Holm-Šidàk correction to *p*-values for post-hoc inferential tests that followed the main analysis. As in Study 2, this added up to 40 post-hoc tests. All significant simple effects reported in the main text remained significant following the Holm-Šidàk post-hoc correction, except for the simple uniqueness effect on sorrow, *p*HŠ = .425.

*Figure S1:* Zero-Order Correlations between Nostalgia and Comparator Emotions

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*Note:* Correlations outside the boundaries of the two dotted lines are significant after sequential Holm-Šidàk post-hoc correction based on 31 tests (Abdi, 2007).