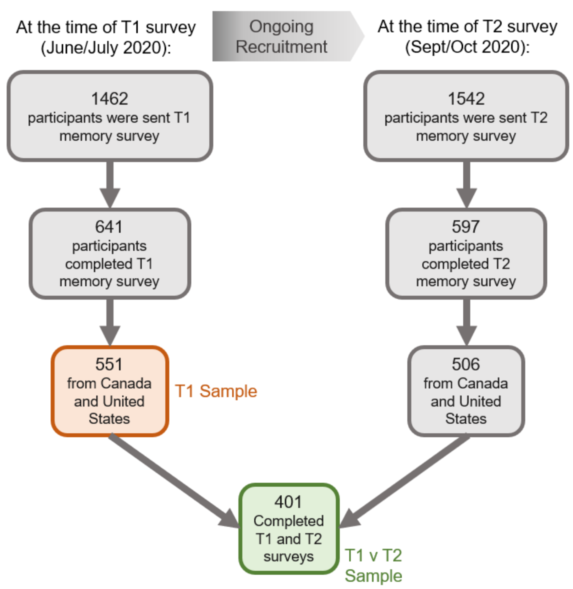
Supplementary Materials

1. Initial recruitment of participants
2. Age distribution of participants
3. Graph depicting age-related effects on vividness and re-experiencing ratings
4. Alternate analytical approaches
5. Between-subject comparison of Time 1 and Time 2
6. Time 2 analyses
7. Interactions of age with biological sex
8. Distribution of outcome variables as a function of agec
9. Nonlinear principal components analysis of individual ratings
10. Spearman's rho correlations between observed variables
11. Controlling for initial affective experience
12. Additional emotional memory analyses

1. Initial recruitment of participants

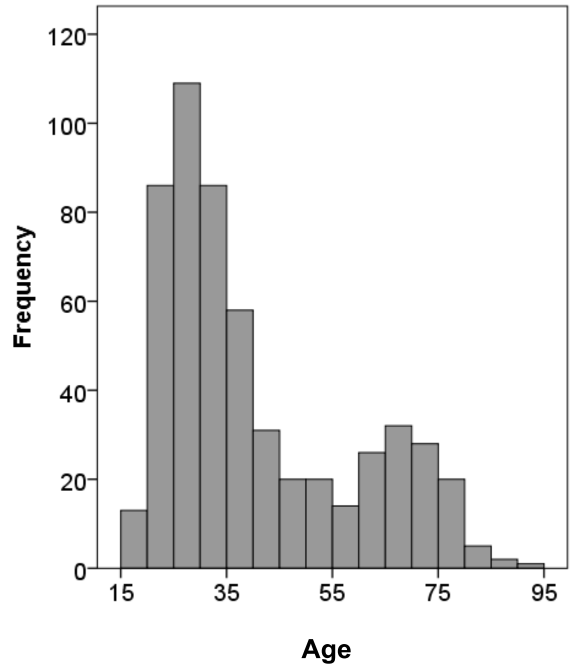
Participants in the current memory study were recruited from an ongoing study examining individuals' affective responses to the pandemic (Cunningham et al., *in press*) that began on March 20, 2020. For this original study, participants were recruited from ads posted to social media sites, posts to listservs targeting those interested in cognitive psychology or related topics, and emails sent to all participants with the Boston College Cognitive and Affective Neuroscience Laboratory who had previously expressed interest in being contacted about future research studies. We did not use methods to recruit "professional participants" (MTurk, Prolific, etc). In response to this recruitment, N=1920 participants completed informed consent, of whom N=1462 participated in at least one daily survey reporting their positive and negative affect. These 1462 participants were sent the survey which included the memory-related questions analyzed in this report between June 15 and July 15, 2020. As detailed in the main document, the current study includes data from 551 T1 participants located in the United States and Canada (see chart above).

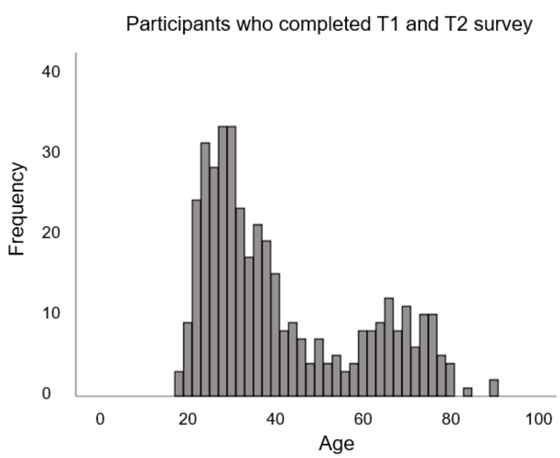


Study enrollment for the ongoing study is continuously active, with new participants joining and some original participants dropping out over time. At the time of T2 data collection (September 28 through November 17, 2020), 1542 participants were actively enrolled in the study and were sent the T2 memory survey. We received usable data from 597 participants, 506 of whom were from Canada or the US. Of those 506 participants from the T2 survey, 401 had previously completed the T1 survey and could be used in analyses looking at change over time (see chart above).

2. Age distribution of participants

In T1, participants ranged in age from 18 to 90 (mean age of 39.99, SD = 17.79 years; 458 female). The sample was skewed to young adults (309 age 35 and under), but also contained a large number of “older adults” (114 age 60+) distributed evenly across ages 60-80 (24 age 60-64, 34 age 65-69, 28 age 70-74, 20 age 75-80, 8 age 80+; see histogram to the right).





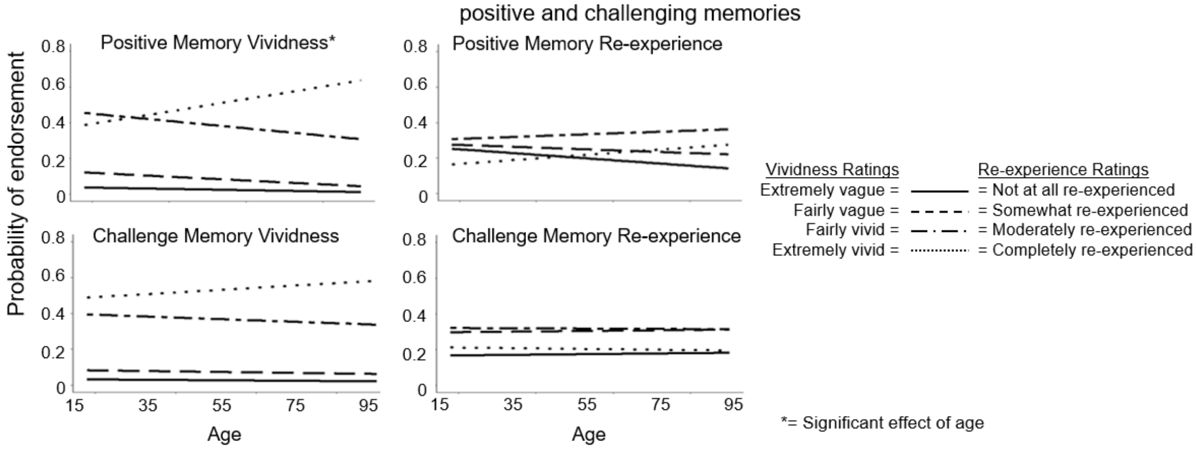
Out of the usable sample, 401 participants (*M*=40.87, *SD* =17.93 years, 332 female) completed both the T1 and T2 surveys. Although a majority of participants (53%) were age 35 and under, there was also a large proportion of “older adults” (age 60+, 22% or 90 participants). The age distribution is presented to the left.

3. **Graph depicting age-related effects on vividness and re-experiencing ratings**

Age-related effects on vividness and re-experiencing ratings were conducted using ordinal logistic regression analyses. These analyses are used when the dependent variable is ordinal rather than interval or ratio scale, meaning that the possible values have an order, but that the distance between any two values is not necessarily consistent across the scale. Ordinal logistic regression estimates the effect of a given independent variable (here, age) on the probability of providing a higher rating relative to a lower rating.

The figure below depicts the relation between age and these probabilities at Time 1. Age, as a continuous variable, is depicted on the x-axis, and the estimated probability of selecting a given value is presented on the y-axis. The four possible values for these questions are represented by the four lines, with the dotted line being the highest value and the solid line being the lowest. Older age was associated with a significant increase in ratings of positive memory vividness. This graph suggests that this may be driven by an increase in the probability of endorsing "Extremely vivid".

Relation between age and estimates of probability for levels of vividness and re-experiencing for positive and challenging memories



4. Alternate analytical approaches

The current manuscript analyzes ordinal data using ordinal logistic regression. Although many researchers consider ordinal Likert scales as "approximating" an interval measure, the ordinal measures in the current dataset are not good approximations of interval data. The vividness and re-experiencing measures were collected on a 4-point scale, and the vividness scales are heavily skewed, violating another assumption of the ANOVA model. Although, for these reasons, the primary analyses were conducted using ordinal logistic regression, reviewers have requested that more traditional analyses be included for full transparency and to facilitate comparisons to other research using the ANOVA approach. These analyses were conducted using ANOVA and linear regression in SPSS.

In addition, reviewers requested that the ordinal change analyses be conducted using the raw change data in addition to the categories reported in the manuscript. These analyses were conducted using ordinal regression with a logit link function in SPSS.

In brief, all patterns reported in the manuscript are replicated with these additional analyses.

Age-related effects on emotional memories for the spring phase of the COVID-19 pandemic

Overall reflections. The current manuscript reported age-related increases in overall reflections in the T1 survey using ordinal logistic regression. When this same pattern was examined using linear regression, **increased age was again associated with more positive overall reflections** (standardized β=.11, t=2.68, p=.008, R2=.01).

Richness of specific memories remembered from the pandemic. Four ordinal logistic regression models were generated to examine the effects of age on positive event vividness, positive event re-experiencing, challenging event vividness, and challenging event re-experiencing. We reported a significant effect of age on positive event vividness and a marginal effect for positive event re-experiencing, with no effect of age for challenging event vividness or re-experiencing.

Using linear regressions, **we found exactly the same patterns**: For participant's memory of their "most positive moment", **increased age was associated with increased vividness** (standardized β=.11, t=2.41, p=.02; R^2=.01) and, **marginally, increased feelings of re-experiencing at the time of retrieval** (standardized β=.09, t=1.93, p=.054; R^2=.01). There were no such effects of age on memories for participant's "most challenging moment" (vividness: standardized β=.04, t=0.78, p=.44, R^2=.001; re-experience: standardized β= -.02, t=.35, p=.73, R^2<.001).

Effects of time on age-related differences in emotional memory- repeated measures ANOVA

Affective reflections on the pandemic. The manuscript reports no effect of age on the change in overall reflections over time. In the current analysis, we examine this same age-by-time interaction using a repeated-measures ANOVA, with time (T1 v. T2) as a within-subject factor and age (mean-centered) as a continuous covariate. **As reported in the manuscript, there was no significant age-by-time interaction** ($F(1,383)$=.10, p=.75, ηp^2<.001), with a significant main effect of age ($F(1,383)$=7.76, p.006, ηp^2=.02).There was also a significant effect of time ($F(1,383)$=12.77, p<.001, ηp^2=.03), with participants reporting more positive overall ratings in the T1 survey (M=3.05, 95% CI:2.97 to 3.12) compared to the T2 survey (M=2.90, 95% CI:2.82 to 2.99).

Richness of specific memories remembered from the pandemic. The manuscript reports no effect of age on the change in vividness and re-experiencing ratings over time for both positive and challenging events. Using repeated-measures analyses (similar to those described above) we found that **all age-by-time interactions were not significant** [$F(1,262)$=2.00, p=.16, ηp^2=.008; $F(1,261)$=2.00, p=.16, ηp^2=.008; $F(1,287)$=.001, p=.97, ηp^2<.001; and $F(1,284)$=.32, p=.57, ηp^2=.001 for positive event vividness, positive event re-experiencing, challenging event vividness, and challenging event re-experiencing, respectively]. This replicates the ordinal regression findings reported in the current manuscript. When collapsing across time, there were no significant effects of age on ratings [$F(1,262)$=1.46, p=.23, ηp^2=.006; $F(1,261)$=1.46, p=.23,

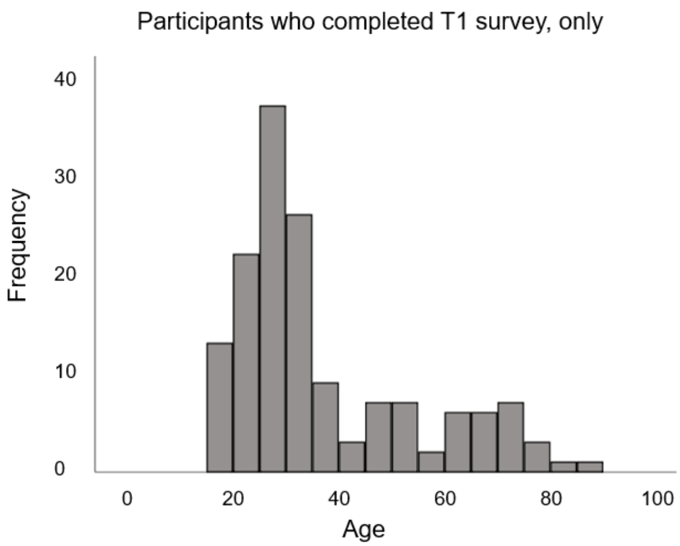
$\eta p^2=.006$; $F(1,287)=.70$, $p=.41$, $\eta p^2=.001$; and $F(1,284)=.08$, $p=.78$, $\eta p^2<.001$ for positive event vividness, positive event re-experiencing, challenging event vividness, and challenging event re-experiencing, respectively]. Ratings of memory vividness did not differ across surveys ($F(1,262)=.67$, $p=.41$, $\eta p^2=.003$ and $F(1,287)=.06$, $p=.80$, $\eta p^2<.001$ for positive and challenging events, respectively). However, ratings of re-experiencing were higher in the T1 survey (positive events: M=2.53, 95% CI:2.40 to 2.66; challenging events: M=2.57, 95% CI:2.45 to 2.68) compared to the T2 survey (positive events: M=2.34, 95% CI:2.21 to 2.46; $F(1,261)=6.35$, $p=.01$, $\eta p^2=.02$; challenging events: M=2.33, 95% CI:2.21 to 2.44; $F(1,284)=13.66$, $p<.001$, $\eta p^2=.05$).

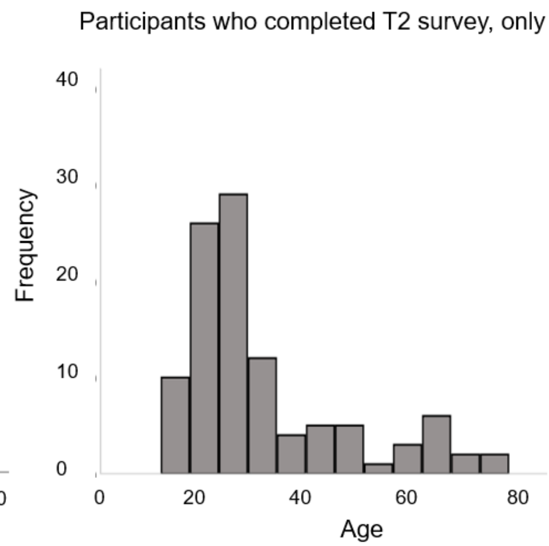
Effects of time on age-related differences in emotional memory- Ordinal regression

Age was not associated with changes in overall reflections ratings over time (Est=.002, 95% CI:-.009 to .01; odds ratio=1.00; Wald $\chi^2(1)=.11$, $p=.74$; $R^2<.001$). Age was also not associated with changes in any phenomenological ratings over time (positive event vividness: Est= -.008, 95% CI:-.02 to .004; Wald $\chi^2(1)=1.59$, $p=.21$; $R^2=.006$; challenging event vividness: Est=.001, 95% CI:-.01 to .01; Wald $\chi^2(1)=.01$, $p=.92$; $R^2<.001$; positive event re-experiencing: Est= -.006, 95% CI:-.02 to .006; Wald $\chi^2(1)=1.07$, $p=.30$; $R^2=.004$; challenging event re-experiencing: Est= -.001, 95% CI:-.01 to .01; Wald $\chi^2(1)=.09$, $p=.76$; $R^2<.001$).

***5.* Between-subject comparison of Time 1 and Time 2**

In addition to the 401 participants who completed both the Time 1 and the Time 2 survey, there were 150 participants (M_{T1}=37.63, SD_{T1}=17.24 years, 126 female) who completed Time 1 only and 105 participants (M_{T2}=34.27, SD_{T2}=14.15 years, 89 female) who completed Time 2 only. The age distributions of both subgroups are presented below.





Although the sample of older adults in these T1-only and T2-only groups is small to examine effects related to age, exploratory analyses were conducted comparing memory at Time 1 and 2 in these independent samples.

Overall reflections. In the between-subject analysis, the effects of age (Est=.006, 95% CI:-.01 to .02; odds ratio=1.01; Wald $\chi^2(1)$=.40, p=.53; R^2=.03), survey (i.e., T1 v. T2; Est=.38, 95% CI:-.01 to .05; odds ratio=1.46; Wald $\chi^2(1)$=2.51, p=.11; R^2=.03) and the age-by-survey interaction (Est=.02, 95% CI:-.01 to .05; odds ratio=1.02; Wald $\chi^2(1)$=1.32, p=.25; R^2=.03) were insignificant.

Positive and negative aspects. In the between-subject analysis, participants were more likely to report *negative* (M=2.80, 95% CI:2.70 to 2.89) relative to *positive aspects* (M=2.42, 95% CI:2.33 to 2.52; $F(1,235)$=18.09, p<.001, η_p^2=.07). Age did not predict ratings, overall

(F(1,235)=1.90, p=.17, η_p^2=.008), but there was a significant age-by-valence interaction (F(1,235)=5.07, p=.03, η_p^2=.02). As in the within-subject analysis, older age was associated with a significant increase in reporting *positive aspects* (F(1,235)=6.55, p=.01, η_p^2=.03), but not *negative aspects* (F(1,236)=.52, p=.47, η_p^2=.002). Ratings did not differ across the two surveys (F(1,235)=.26, p=.61, η_p^2=.001), and this did not interact with age (F(1,235)=2.36, p=.13, η_p^2=.01), valence (F(1,235)=.01, p=.91, η_p^2<.001), or age and valence (F(1,235)=.008, p=.93, η_p^2<.001).

Memory richness. Age was not associated with increased memory vividness or re-experiencing at either time point (challenge vividness: Est=.000, 95% CI:-.02 to .02; odds ratio=1.00; Wald χ^2(1)=.001, p=.97; R^2=.006; challenge re-experiencing: Est=-.01, 95% CI:-.03 to .006; odds ratio=.99; Wald χ^2(1)=1.76, p=.19; R^2=.05; positive vividness: Est=.007, 95% CI:-.01 to .03; odds ratio=1.01; Wald χ^2(1)=.53, p=.47; R^2=.009; positive re-experiencing: Est=.007, 95% CI:-.01 to .03; odds ratio=1.01; Wald χ^2(1)=.51, p=.47; R^2=.08). Survey did not predict vividness (challenge: Est=.28, 95% CI:-.27 to .83; odds ratio=1.32; Wald χ^2(1)=.97, p=.33; R^2=.006; positive: Est=-.07, 95% CI:-.63 to .49; odds ratio=.93; Wald χ^2(1)=.06, p=.81; R^2=.009), but was associated with differences in re-experiencing (challenge: Est=.72, 95% CI:.19 to 1.24; odds ratio=2.05; Wald χ^2(1)=7.16, p=.007; R^2=.05; positive: Est=.60, 95% CI:.06 to .1.15; odds ratio=1.82; Wald χ^2(1)=4.66, p=.03; R^2=.08). For both positive and challenging events, re-experiencing ratings were greater for Time 1 participants (challenge: M=2.58, SD=1.03; positive: M=2.44, SD=1.05) compared to Time 2 (challenge: M=2.18, SD=1.04; M=2.08, SD=1.12).

There was a significant age-by-time interaction for ratings of re-experiencing positive events (Est=.04, 95% CI:.004 to .07; odds ratio=1.04; Wald χ^2(1)=4.85, p=.03; R^2=.08), with older age associated with increased re-experiencing of positive events at Time 2 (r= .31, p=.007) but not Time 1 (r=.07, p=.45). All other age-by-survey interactions were not significant (challenge vividness: Est=.000, 95% CI:-.04 to .04; odds ratio=1.00; Wald χ^2(1)=.001, p=.98;

R^2=.006; challenge re-experiencing: Est=.01, 95% CI:-.02 to .05; odds ratio=1.01; Wald $\chi^2(1)$=.69, p=.41; R^2=.05; positive vividness: Est=.008, 95% CI:-.03 to .05; odds ratio=1.01; Wald $\chi^2(1)$=.21, p=.65; R^2=.009).

6. Time 2 analyses

The body of the manuscript only includes T2 data for participants who completed both the Time 1 and the Time 2 survey. Doing so excludes 105 participants (M_{T2}=34.27, SD_{T2}=14.15 years, 89 female) who completed Time 2 only. These participants are included in the exploratory between-subjects analysis above but, for completeness, we also include analyses of all Time 2 data here.

At Time 2, participants were more likely to report *negative* (M=2.74, 95% CI:2.67 to 2.81) relative to *positive aspects* (M=2.37, 95% CI:2.30 to 2.44; $F(1,482)=36.36$, $p<.001$, $\eta_p^2=.07$) and older age was associated with increased ratings of both aspects ($F(1,482)=13.19$, $p<.001$, $\eta_p^2=.03$). These effects were qualified by a significant age-by-valence interaction ($F(1,482)=10.07$, $p=.002$, $\eta_p^2=.02$), driven by an age-related increase in reporting *positive* ($\beta=.21$, $t=4.80$, $p<.001$; $R^2=.05$) but not *negative aspects* ($\beta=.03$, t=.62, p=.53; $R^2=.001$). Age was also associated with more positive *overall reflections* (Est=.01, 95% CI:.004 to .02; odds ratio=1.01; Wald $\chi^2(1)=8.02$, $p=.005$; $R^2=.02$).

When rating positive events at T2, older age was associated with greater re-experiencing (Est=.01, 95% CI:.001 to .02; odds ratio=1.01; Wald $\chi^2(1)=4.32$, $p=.04$; $R^2=.01$), but not vividness ratings (Est=.004, 95% CI:-.007 to .01; odds ratio=1.00; Wald $\chi^2(1)=.46$, $p=.50$; $R^2=.001$). When rating challenging events, older age was not associated with either re-experiencing Est=-.007, 95% CI:-.009 to .01; odds ratio=1.00; Wald $\chi^2(1)=.03$, $p=.86$; $R^2<.001$) or vividness (Est=.003, 95% CI:-.008 to .01; odds ratio=1.00; Wald $\chi^2(1)=.26$, $p=.61$; $R^2=.001$).

7. Interactions of age with sex

Biological sex was skewed in the current study, with 83% of participants in both samples reporting being biologically female. This imbalance makes it impossible to reliably interrogate effects of sex given the relatively small sample of males (T1 N= 93, 21 older adults; T2 N= 85, 17 older adults). Nevertheless, for completeness we report effects of sex here. Importantly, the age of sampled participants did not significantly differ as a function of sex ($t(549)= -1.44$, $p=.15$); thus, age effects reported in the body of the manuscript should not be confounded by differences in the sampling of males and females across the lifespan.

All analyses reported in the current manuscript were also conducted with biological sex included in the model. First, we report a model with just age and sex as predictors, then we report a model in which the interaction of age and sex is also examined. None of these analyses were preregistered, and all are exploratory. All results are reported in the table below. We bold the results that are significant at p<.05 threshold. However, given the exploratory nature of these results, it is important to note that for age-by-sex interactions, only a single metric (T2 positive memory re-experiencing) would survive correction for multiple comparisons.

All memory measures predicted by age and sex

Memory Metric	*Models predicting memory with age and sex*	*Models predicting memory with age, sex, and age-by-sex interactions*
<u>T1 positive aspects</u>		
Effects of age	**$\beta=.24$, $t=5.76$, $p<.001$**	$\beta=.009$, $t=.09$, $p=.93$
Effects of sex	$\beta=.02$, $t=.38$, $p=.70$	$\beta=.007$, $t=.16$, $p=.88$
Age-by-sex interaction	----------	**$\beta=.26$, $t=2.56$, $p=.01$**
<u>T1 negative aspects</u>		
Effects of age	$\beta=-.02$, $t=-.45$, $p=.66$	$\beta=-.04$, $t=-.38$, $p=.70$
Effects of sex	$\beta=.006$, $t=.14$, $p=.89$	$\beta=.005$, $t=.12$, $p=.91$
Age-by-sex interaction	----------	$\beta=.02$, $t=.22$, $p=.83$

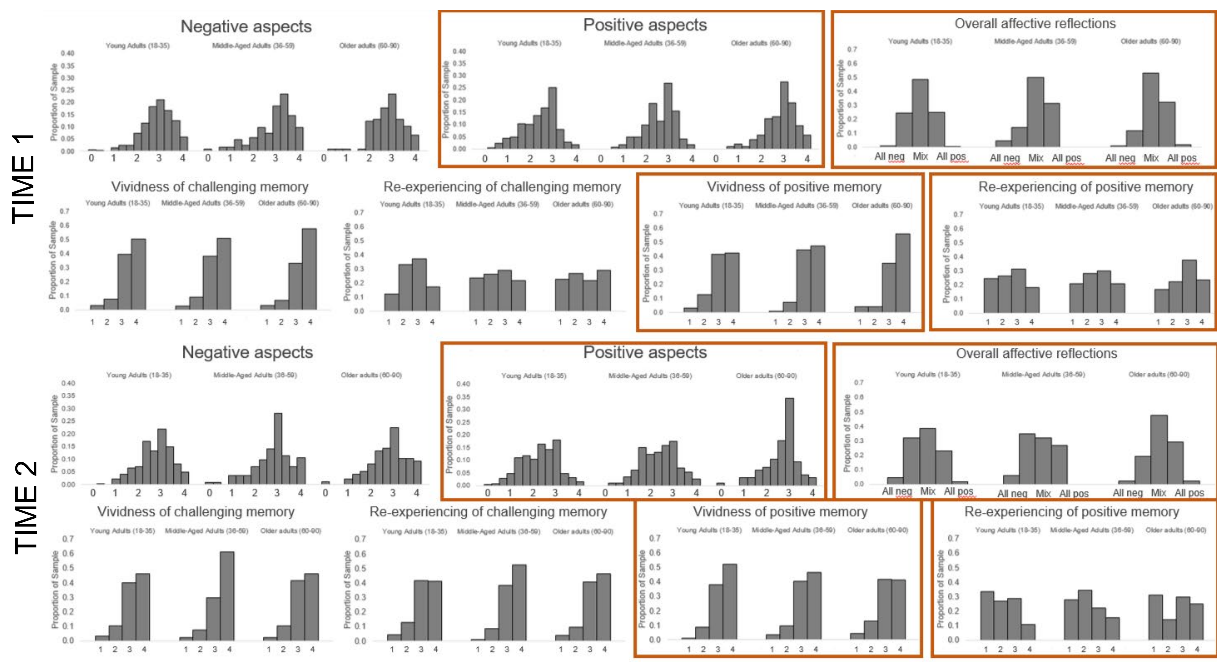
<u>T1 overall reflections</u>		
Effects of age	**odds ratio=1.01; Wald $\chi^2(1)=7.27$, $p=.007$**	odds ratio=1.01; Wald $\chi^2(1)=.22$, $p=.64$
Effects of sex	odds ratio=1.09; Wald $\chi^2(1)=.19$, $p=.66$	odds ratio=1.08; Wald $\chi^2(1)=.13$, $p=.72$
Age-by-sex interaction	----------	odds ratio=1.01; Wald $\chi^2(1)=.49$, $p=.49$
<u>T1 challenging event vividness</u>		
Effects of age	odds ratio=1.01; Wald $\chi^2(1)=1.09$, $p=.30$	odds ratio=.99; Wald $\chi^2(1)=.15$, $p=.70$
Effects of sex	odds ratio=1.12; Wald $\chi^2(1)=.21$, $p=.65$	odds ratio=1.08; Wald $\chi^2(1)=.10$, $p=.75$
Age-by-sex interaction	----------	odds ratio=1.01; Wald $\chi^2(1)=.81$, $p=.37$
<u>T1 challenging event re-experiencing</u>		
Effects of age	odds ratio=1.00; Wald $\chi^2(1)=.03$, $p=.86$	odds ratio=.99; Wald $\chi^2(1)=1.32$, $p=.25$
Effects of sex	odds ratio=1.42; Wald $\chi^2(1)=2.33$, $p=.13$	odds ratio=1.25; Wald $\chi^2(1)=1.96$, $p=.16$
Age-by-sex interaction	----------	odds ratio=1.02; Wald $\chi^2(1)=1.45$, $p=.23$
<u>T1 positive event vividness</u>		
Effects of age	**odds ratio=1.02; Wald $\chi^2(1)=7.61$, $p=.006$**	odds ratio=.99; Wald $\chi^2(1)=.21$, $p=.65$
Effects of sex	odds ratio=1.25; Wald $\chi^2(1)=1.06$, $p=.30$	odds ratio=1.22; Wald $\chi^2(1)=.65$, $p=.42$
Age-by-sex interaction	----------	odds ratio=1.02; Wald $\chi^2(1)=3.00$, $p=.08$
<u>T1 positive event re-experiencing</u>		
Effects of age	odds ratio=.99; Wald $\chi^2(1)=3.66$, $p=.06$	odds ratio=.99; Wald $\chi^2(1)=.32$, $p=.57$
Effects of sex	odds ratio=.95; Wald $\chi^2(1)=.06$, $p=.81$	odds ratio=.90; Wald $\chi^2(1)=.20$, $p=.65$
Age-by-sex interaction	----------	odds ratio=1.02; Wald $\chi^2(1)=2.07$, $p=.15$
<u>T2 positive aspects</u>		
Effects of age	**$\beta=.22$, $t=4.82$, $p<.001$**	$\beta=-.03$, $t=-.29$, $p=.77$
Effects of sex	$\beta=.02$, $t=.52$, $p=.61$	$\beta=.01$, $t=.24$, $p=.81$
Age-by-sex interaction	----------	**$\beta=.27$, $t=2.41$, $p=.02$**

<u>T2 negative aspects</u>		
Effects of age	*β*=.03, *t*=.70, *p*=.49	*β*=-.22, *t*=-1.92, *p*=.06
Effects of sex	*β*=.04, *t*=.87, *p*=.39	*β*=.03, *t*=.55, *p*=.59
Age-by-sex interaction	----------	***β*=.27, *t*=2.40, *p*=.02**
<u>T2 overall reflections</u>		
Effects of age	**odds ratio=1.01; Wald χ^2(1)=6.68, *p*=.01**	odds ratio=1.01; Wald χ^2(1)=.41, *p*=.52
Effects of sex	**odds ratio=.58; Wald χ^2(1)=5.84, *p*=.02**	**odds ratio=.57; Wald χ^2(1)=6.18, *p*=.01**
Age-by-sex interaction	----------	odds ratio=1.01; Wald χ^2(1)=.18, *p*=.67
<u>T2 challenging event vividness</u>		
Effects of age	odds ratio=1.00; Wald χ^2(1)=.49, *p*=.48	odds ratio=.99; Wald χ^2(1)=.93, *p*=.33
Effects of sex	odds ratio=1.50; Wald χ^2(1)=2.37, *p*=.12	odds ratio=1.35; Wald χ^2(1)=1.18, *p*=.28
Age-by-sex interaction	----------	odds ratio=1.02; Wald χ^2(1)=1.88, *p*=.17
<u>T2 challenging event re-experiencing</u>		
Effects of age	odds ratio=1.00; Wald χ^2(1)=.15, *p*=.70	odds ratio=.99; Wald χ^2(1)=.54, *p*=.46
Effects of sex	odds ratio=1.57; Wald χ^2(1)=3.05, *p*=.08	odds ratio=1.44; Wald χ^2(1)=1.92, *p*=.17
Age-by-sex interaction	----------	odds ratio=1.01; Wald χ^2(1)=.96, *p*=.33
<u>T2 positive event vividness</u>		
Effects of age	odds ratio=1.00; Wald χ^2(1)=.59, *p*=.44	odds ratio=.99; Wald χ^2(1)=.22, *p*=.64
Effects of sex	odds ratio=1.21; Wald χ^2(1)=.46, *p*=.50	odds ratio=1.12; Wald χ^2(1)=.14, *p*=.71
Age-by-sex interaction	----------	odds ratio=1.01; Wald χ^2(1)=.73, *p*=.39
<u>T2 positive event re-experiencing</u>		
Effects of age	**odds ratio=1.01; Wald χ^2(1)=4.52, *p*=.03**	**odds ratio=.97; Wald χ^2(1)=4.05, *p*=.04**
Effects of sex	odds ratio=1.16; Wald χ^2(1)=.32, *p*=.57	odds ratio=.94; Wald χ^2(1)=.04, *p*=.84
Age-by-sex interaction	----------	**odds ratio=1.05; Wald χ^2(1)=9.58, *p*=.002**

Notes. Bolded measures are significant at $p \leq .05$

8. *Distribution of outcome variables as a function of age*

The current manuscript examines age-related effects on a) overall affective reflections from the first months of the COVID-19 pandemic, b) positive and negative aspects of the pandemic, and c) self-reported richness of the participants' memories for their most positive and most challenging events from that time. The plots below depict the distribution of responses to these questions. Although all analyses were conducted using age as a continuous variable, the plots depict the distribution of responses in three separate age groups (young adults [18-35], middle-aged adults [35-59], and older adults [60+]) and the reported values are the proportion of the age group at each value. Variables in which effects of continuous age were significant are surrounded by an orange box.



9. *Nonlinear principal components analysis of individual affective ratings*

Nonlinear principal components analysis (NLPCA) was utilized at T1 to examine how individual memory ratings (fear of the illness spreading, financial uncertainty, feelings of social isolation, hope efforts will save lives, thoughts of people working together, and feelings of interconnectedness) cluster together. NLPCA can be used in place of linear PCA when one or more measures are ordinal or categorical. The current analysis utilized CatPCA (or Categorical PCA) with a Varimax rotation in IBM SPSS (v.26). All six measures were treated as ordinal. A two-dimension solution was utilized based on a priori expectations that the variables would cluster into "positive" and "negative" components. In this solution, both dimensions had eigenvalues of greater than one (dimension 1=1.75; dimension 2=1.61), surpassing the Kaiser's criterion of retaining components with an eigenvalue of greater than one. Running a follow-up NLPCA with a three-dimension solution revealed eigenvalues of greater than one for dimensions 1 and 2 (dimension 1=1.76; dimension 2=1.53) but not dimension 3 (.88) and a negative Cronbach's Alpha for dimension 3. This result confirmed our a priori choice to use a two-dimension solution in our dimension reduction analysis.

In this solution, component loadings for dimension 1 were strong for: Hope efforts will save lives, thoughts of people working together, and feelings of interconnectedness. In contrast, component loadings for dimension 2 were strong for: Fear of the illness spreading, financial uncertainty, and feelings of social isolation.

Rotated component loadings for a 2-dimension Nonlinear Principal Components Analysis with individual T1 affective ratings

	Dimension 1	*Dimension 2*
People working together	**.78**	.15
Hope of saving lives	**.76**	.07
Interconnectedness	**.71**	-.19
Fear of illness spread	.13	**.67**
Financial uncertainty	-.01	**.70**
Social isolation	-.09	**.79**

Note: Component loadings surpassing .4 are considered "substantive" loadings and are indicated with **bold** and underline.

In considering these dimensions, we examined the relation between each item and participants' overall ratings of positivity (i.e., the "overall reflections" measure; See Spearman's rho correlation matrix in part 6 of the supplementary materials, below). Because the three measures loading on dimension 1 were positively associated with positivity measures, we discuss this as a measure of the *positive aspects* of the spring phase of the pandemic. Similarly, because the three measures loading on dimension 2 were negatively associated with positivity measures, we discuss it as a measure of the *negative aspects* of the spring phase of the pandemic.

This same NLPCA was conducted at T2 to confirm that the pattern of loadings remained the same:

Rotated component loadings for a 2-dimension Nonlinear Principal Components Analysis with individual T1 affective ratings

	Dimension 1	*Dimension 2*
People working together	**.75**	.13
Hope of saving lives	**.78**	.03
Interconnectedness	**.77**	-.04
Fear of illness spread	.10	**.74**
Financial uncertainty	.11	**.65**
Social isolation	-.11	**.81**

Note: Component loadings surpassing .4 are considered "substantive" loadings and are indicated with **bold** and underline.

The main body of the manuscript focuses on the effects of age on these two dimensions (i.e., *positive aspects* and *negative aspects*). For completeness, here we report the effects of age on each variable separately. These results make clear that the effect of age seen on the *positive aspects* composite was not driven by any particular memory metric. Every metric within the *positive aspects* composite showed a significant and positive effect of age, with older age associated with greater reflection on these positive aspects. The only item mapping onto *negative aspects* that showed a significant age effect was social isolation at T1, which was negatively associated with increased age.

Descriptive statistics and age-related effects for individual memory ratings

T1 Memory Metric	*Mean (SD)*	*Effects of age*
People working together	**2.68 (0.93)**	**odds ratio=1.03; Wald $\chi^2(1)=26.01$, $p< .001$**
Hope of saving lives	**2.61 (0.96)**	**odds ratio=1.02; Wald $\chi^2(1)=23.38$, $p< .001$**
Interconnectedness	**2.43 (1.04)**	**odds ratio=1.01; Wald $\chi^2(1)=6.36$, $p=.01$**
Fear of illness spread	2.98 (0.91)	odds ratio=1.00; Wald $\chi^2(1)=0.05$, $p=.83$
Financial uncertainty	2.51 (1.21)	odds ratio=1.01; Wald $\chi^2(1)=1.90$, $p=.17$
Social isolation	**3.12 (0.96)**	**odds ratio=.98; Wald $\chi^2(1)=10.05$, $p=.002$**
T2 Memory Metric	*Mean (SD)*	*Effects of age*
People working together	**2.32 (1.03)**	**odds ratio=1.02; Wald $\chi^2(1)=21.38$, $p< .001$**
Hope of saving lives	**2.50 (0.97)**	**odds ratio=1.02; Wald $\chi^2(1)=16.93$, $p< .001$**
Interconnectedness	**2.31 (1.11)**	**odds ratio=1.01; Wald $\chi^2(1)=4.42$, $p=.04$**
Fear of illness spread	2.98 (0.96)	odds ratio=1.00; Wald $\chi^2(1)=0.57$, $p=.45$
Financial uncertainty	2.16 (1.27)	odds ratio=1.01; Wald $\chi^2(1)=2.37$, $p=.12$
Social isolation	3.08 (0.96)	odds ratio=1.00; Wald $\chi^2(1)=.003$, $p=.96$

Notes. SD=Standard deviation; **Bolded** measures are significant at $p\leq .05$

As a direct measure of internal consistency of these measures, Cronbach's alpha was calculated (positive aspects T1: .50, negative aspects T1: .62, positive aspects T2: .50, negative aspects T2: .62).

10. Spearman's rho correlations between observed variables

Spearman's rho correlation matrix of all observed T1 variables

	1	2	3	4	5	6	7	8	9	10	11
1. Overall reflections	1										
2. Challenging vividness	-0.09	1									
3. Challenging re-experiencing	**-0.16**	**0.52**	1								
4. Positive vividness	0.03	**0.33**	**0.27**	1							
5. Positive re-experiencing	-0.01	**0.25**	**0.41**	**0.58**	1						
6. Fear of illness spread	**-0.24**	**0.14**	**0.22**	**0.16**	**0.18**	1					
7. Social isolation	**-0.28**	0.07	**0.16**	**0.12**	**0.13**	**0.26**	1				
8. Financial uncertainty	**-0.13**	0.07	**0.19**	0.09	**0.14**	**0.16**	**0.30**	1			
9. People working together	**0.18**	0.06	0.03	0.09	**0.15**	**0.16**	0.05	-0.01	1		
10. Hope of saving lives	**0.20**	0.03	0.02	0.03	0.02	0.08	0.06	0.04	**0.43**	1	
11. Interconnectedness	**0.28**	-0.03	-0.06	0.04	0.09	0.03	**-0.19**	-0.05	**0.31**	**0.31**	1

Note. Significant correlations (*p*<.05) are **bolded** and underlined.
Boxed variables are individual measures that were entered into NLPCA (see above).

Spearman's rho correlation matrix of all observed T2 variables

	1	2	3	4	5	6	7	8	9	10	11
1. Overall reflections	1										
2. Challenging vividness	**-0.13**	1									
3. Challenging re-experiencing	**-0.16**	**0.36**	1								
4. Positive vividness	-0.03	**0.31**	**0.23**	1							
5. Positive re-experiencing	0.03	**0.17**	**0.40**	**0.45**	1						
6. Fear of illness spread	**-0.25**	**0.23**	**0.11**	**0.16**	**0.13**	1					
7. Social isolation	**-0.34**	**0.14**	**0.17**	**0.11**	0.09	**0.39**	1				
8. Financial uncertainty	**-0.19**	0.06	**0.16**	**0.20**	**0.13**	**0.20**	**0.23**	1			
9. People working together	**0.10**	0.00	0.05	**0.13**	**0.12**	0.08	0.05	0.09	1		
610. Hope of saving lives	**0.19**	0.05	0.00	-0.01	0.00	0.05	0.01	-0.02	**0.41**	1	
11. Interconnectedness	**0.31**	0.03	-0.01	0.07	**0.11**	**0.11**	**-0.14**	0.04	**0.31**	**0.34**	1

Note. Significant correlations (*p*<.05) are **bolded** and underlined.
Boxed variables are individual measures that were entered into NLPCA (see above).

11. Controlling for initial affective experience

The COVID-19 pandemic has been a shared experience across the globe, but day-to-day experiences and hardships have been different for everyone. All individuals have had unique challenges that influenced how they experienced the initial phase of this pandemic. Although it is impossible to control for all of these variables, the current study attempts to control for some of the variability in this initial experience by including aggregate real-time measures reflecting each participant's self-reported affect during the spring phase of the pandemic. Many participants who completed the memory surveys also completed daily surveys in the spring, reporting their affect in real-time. These data revealed that increased age was associated with increased experience of positive affect and decreased experience of negative affect, stress, and symptoms of depression (Cunningham, Fields, Garcia & Kensinger, *in press*; see also Klaiber et al., 2020 for an independent study showing similar findings).

To control for differences in individual experience, exploratory analyses included aggregate measures of ratings from a time window (April 16-June 22, 2020; *M*=27.8 daily surveys per participant) that overlapped with the time we have asked participants to reflect back on in the current study. 96% of the participants (*n*=531) who completed the memory survey at T1 also had responded to surveys sent regularly between April 16 through June 22, 2020 in which they reported, among other metrics of sleep quality and mental wellbeing, their daily positive and negative affect (using the PANAS; Watson & Clark, 1994). Participants' rating averages for positive and negative affect were used as covariates in follow-up analyses examining any significant age effect. We note that the affect captured in these ratings are unlikely to fully capture the affective experiences of participants; for instance, the positive affect composite on the PANAS focuses on higher-arousal positive emotions, whereas participants may also have experienced and reflected upon lower-arousal positive emotions. However, the

PANAS was the only measure administered that specifically assessed positive affect (vs. symptoms of depression or worry) and thus was the measure we used in analyses.

At T1, effects of age on *overall reflections* (Est=-.005, 95% CI: -.02 to .006; odds ratio=1.01; Wald $\chi^2(1)$=.71, *p*=.40; Nagelkerke pseudo R^2=.28), *positive re-experiencing* (Est=.007, 95% CI: -.004 to .02; odds ratio=1.01; Wald $\chi^2(1)$=1.57, *p*=.21; Nagelkerke pseudo R^2=.04), and *positive vividness* (Est=.01, 95% CI: -.001 to .02; odds ratio=1.01; Wald $\chi^2(1)$=2.97, *p*=.09; Nagelkerke pseudo R^2=.04) all became non-significant when controlling for average spring/summer positive and negative PANAS scores. Similarly, controlling for PANAS scores eliminated all T2 effects of age [(β=.006, *t*=.12, *p*=.91, R^2=.19), (Est=.001, 95% CI: -.01 to .01, odds ratio=1.00, Wald $\chi^2(1)$=.02, *p*=.89, Nagelkerke pseudo R^2=.21), and (Est=.003, 95% CI: -.009 to .016, odds ratio=1.00, Wald $\chi^2(1)$=.27, *p*=.60, Nagelkerke pseudo R^2=.07) for *positive aspects, overall reflections,* and *positive event re-experiencing,* respectively].

However, the effect of age on T1 *positive aspects* was still significant when average spring/summer positive and negative PANAS scores were included as covariates (β=.12, *t*=2.62, *p*=.009; R^2=.13), suggesting that a memory-specific process may disproportionately pull those experienced positive aspects into older adults' memories. Although there is a literature pointing to older adults' more positive memories (Mather & Carstensen, 2005; Reed, Chan, & Mikels, 2014), to our knowledge this is the first study to suggest that some age-related increases in positivity may be greater than what can be accounted for solely by their initial experience of an event. In other words, at least at T1, older adults don't merely retain an accurate reflection of their more-positive experience of the pandemic. Future research will be needed to more directly test this possibility and to examine how this memory-specific process may change over time.

12. Additional emotional memory analyses

The measures reported in the manuscript were selected because they best address the primary research question examining age-by-valence interactions and are the most similar to measures used in prior studies in our lab examining memory for highly negative public events. The memory survey also included other emotional memory questions that examined other facets of memory, including emotional intensity and memory accessibility. These additional measures were analyzed; the results and distributions are included below.

First, the memory survey asked participants to think back to the most intense positive emotion and most intense negative emotion that they experienced during the pandemic and to report the subjective intensity of each. We predicted that older adults would experience lower-intensity peak negative emotions as compared to younger adults. Increased age was associated with a reduction in the remembered intensity of the peak negative emotion experienced (T1: Est=-.02, 95% CI: -.03 to -.01, odds ratio=.98, Wald $\chi^2(1)$=18.36, *p*<.001; T2: Est=-.02, 95% CI: -.03 to -.01, odds ratio=.98, Wald $\chi^2(1)$=11.64, *p*<.001), but contrary to our predictions, age also was associated with a reduced intensity for positive emotions at T1 (Est=-.01, 95% CI: -.02 to -.001; odds ratio=.99; Wald $\chi^2(1)$=4.74, *p*=.03) and marginally at T2 (Est=-.009, 95% CI: -.02 to .001; odds ratio=.99; Wald $\chi^2(1)$=3.24, *p*=.07).

We also asked participants whether they could remember a time when they were "consumed by negative emotions related to the pandemic" and a time when they "felt that things were starting to get 'better'". Participants who reported being able to report a "consuming negative" memory were asked to report memory vividness and re-experiencing (on a 4-point Likert scale).

When asked whether they could remember a consuming negative event, participants could respond "yes" or "no". The effect of age on the likelihood of remembering a consuming negative event was analyzed using binary logistic regression. In line with our hypotheses, increased age was associated with a reduced tendency to have a specific memory of “a moment when you felt consumed by negative emotions related to the pandemic” (T1: B=-.03, odds ratio=.97, Wald $\chi^2(1)=36.26$, p<.001; T2: B=-.03, odds ratio=.97, Wald $\chi^2(1)=24.19$, p<.001). Among those who were able to come up with a specific memory, increased age was associated with increased vividness of that memory at T1 (Est=.01, 95% CI: .000 to .02; odds ratio=1.01; Wald $\chi^2(1)=3.79$, *p*=.05), and marginally at T2 (Est=.02, 95% CI: -.001 to .03; odds ratio=1.02; Wald $\chi^2(1)=3.20$, *p*=.07). Age was not associated with the tendency to feel that the moment was being re-experienced at either time point (T1: Est=.002, 95% CI: -.01 to .01; odds ratio=1.00, Wald $\chi^2(1)=.08$, *p*=.78; T2: Est=.006, 95% CI: -.01 to .02; odds ratio=1.01, Wald $\chi^2(1)=.52$, *p*=.47).

When asked whether they could remember a time when things were getting better in T1, participants could respond “yes”, “no”, or “not yet”, indicating that they didn’t feel like things had turned that corner. The effect of age on the likelihood of remembering a moment where things were “getting better” was analyzed using multinomial regression rather than binary. Most participants could not retrieve a memory regarding things “getting better”, either reporting that they had no memory (i.e., a “no” response; N=66) or that they did not yet believe things were getting better (i.e., a “not yet” response; N=297). Only a third of participants (N=178) reported having such a memory (i.e., a “yes” response). A multinomial logistic regression was conducted with “yes” as the reference condition. Age had no impact on the ability to generate a specific memory compared to reporting “no” (odds ratio=.99, 95% CI: .97 to 1.01; Wald $\chi^2(1)=1.04$, *p*=.31) or compared to reporting “not yet” (odds ratio=1.00, 95% CI: .99 to 1.01; Wald $\chi^2(1)=.09$, *p*=.77). At T2, participants were only given the options to say “yes” (N=187) or “no” (N=302) to the question of whether they could remember such an event. The effect of age on the likelihood of remembering a T2 getting better event was analyzed using binary logistic regression, showing no effect of age (B=-.007, odds ratio=.99, Wald $\chi^2(1)=1.58$, p=.21).

As with the “consumed by negativity” memories, participants who reported being able to report a “getting better” memory were asked to report memory vividness and re-experiencing (on a 4-point Likert scale). For both memories, effects of age on ratings of vividness and re-experience was examined using ordinal logistic regression with age as a continuous predictor. Among those who retrieved a memory associated with things getting better, age was not related to re-experiencing at either time point (T1: Est=-.005, 95% CI: -.02 to .01, odds ratio=.99, Wald $\chi^2(1)=.39$, $p=.53$; T2: Est=.006, 95% CI: -.01 to .02, odds ratio=1.01, Wald $\chi^2(1)=.52$, $p=.47$). Age was associated with more vivid memories at T1 (Est=.02, 95% CI: .002 to .03, odds ratio=1.02, Wald $\chi^2(1)=4.62$, $p=.03$) and with a trend at T2 (Est=.02, 95% CI: -.001 to .03, odds ratio=1.02, Wald $\chi^2(1)=3.20$, $p=.07$).