



The pushes and pulls of the past: The effects of attachment-related avoidance and nostalgia on approach-oriented social goals

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ABSTRACT

Nostalgia, a mostly positive emotional experience that involves revisiting cherished memories/experiences, instigates the pursuit of approach-oriented social goals of affiliation and growth. Attachment-related avoidance describes the extent to which people do not rely on relationships for psychological comfort and avoid interpersonal closeness. The purpose of the present research was to determine if individual differences in attachment-related avoidance moderate nostalgia's capacity to energize social pursuits. Across 2 studies nostalgia increased approach-oriented social intentions/goals at lower levels of attachment-related avoidance, but not at higher levels. Among those higher in attachment-related avoidance, nostalgia was found to decrease intentions to connect with others. These studies suggest that while nostalgia typically energizes adaptive interpersonal pursuits, it can drive people with a history of interpersonal avoidance further from interpersonal relationships.

1. Introduction

Nostalgia is an emotional experience that is typically ingrained with sociality and has a number of social-related benefits (e.g., Abeyta, Routledge, & Juhl, 2015; Abeyta, Routledge, & Kaslon, 2018; Wildschut, Sedikides, Arndt, & Routledge, 2006; Wildschut, Sedikides, Routledge, Arndt, & Cordado, 2010; Zhou, Sedikides, Wildschut, & Gao, 2008). Nostalgia typically involves reflecting on special memories, and although individuals are the protagonists of their nostalgic reminiscences, it is quite common for nostalgic memories to focus on meaningful relationships and feature themes of belonging (Abeyta, Routledge, & Juhl, 2015; Abeyta, Routledge, Roylance, Wildschut, & Sedikides, 2015; Wildschut et al., 2006). Moreover, lay people around the world identify social relationships as a central focus of nostalgia (Hepper et al., 2014; Hepper, Ritchie, Sedikides, & Wildschut, 2012).

A growing body of research indicates that nostalgia's prototypical focus on social relationships is functional. Of course, maintaining a sense of social belonging is an important component of psychological health (e.g., Baumeister & Leary, 1995; Cacioppo & Cacioppo, 2014). The need for social belonging can be maintained via a direct route that involves motivation and behavior directed at connecting with other people, and via an indirect route that involves exposure to things (e.g., memories or artifacts) that make salient meaningful social bonds and in turn bolsters feelings of social belonging (Gardner, Pickett, & Knowles,

2005). As an experience that typically involves reflecting on memories of meaningful social roles and relationships, nostalgia has been found to satisfy the need for social belonging passively by bolstering feelings of social connectedness (e.g., Wildschut et al., 2006; Wildschut et al., 2010), and more actively by energizing approach-oriented goals of connecting with others (Abeyta et al., 2018; Abeyta, Routledge, & Juhl, 2015).

However, not all people seek relationships as a source of psychological comfort. Attachment-related avoidance is defined by the extent to which people avoid as opposed to seek out intimate social relationships for psychological comfort (Bowlby, 1969; Collins & Allard, 2001). It is conceptualized and measured as an individual difference that is thought to originate from a history of unavailable caregivers or attachment figures (e.g., Bowlby, 1969; Hazan & Shaver, 1993). Past research indicates that individual differences in attachment-related avoidance moderates nostalgia's ability to satisfy the need to belong by affirming social belonging. Nostalgic reflection was found to increase perceptions of social connectedness, particularly among individual's low, but not high, in attachment-related avoidance (Juhl, Sand, & Routledge, 2012; Wildschut et al., 2010). In the current research, we explored whether attachment-related avoidance would also moderate nostalgia's ability to energize goals/intentions for more actively satisfying the need to belong.

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1.1. Definition of nostalgia

Historic perspectives on nostalgia painted it as a symptom of psychological maladjustment (for a review see, [Batcho, 2013](#); [Routledge, 2015](#); [Sedikides, Wildschut, Routledge, Arndt, Hepper, et al., 2015](#)). Today, however, research representing data from 18 countries spanning 5 continents has revealed that lay people define nostalgia as a mostly positive emotional experience with elements of loss and longing, that involves reflecting on cherished memories that tend to be from childhood and feature close friends and family ([Hepper et al., 2012](#); [Hepper et al., 2014](#)).

Consistent with lay definitions, research has revealed that nostalgic memories have a prototypic mixed-emotional signature, but that nostalgia's emotional impact is more positive than negative (e.g., [Abeyta, Routledge, Roylance, et al., 2015](#)). Also, consistent with lay definitions, this research on the content of nostalgic memories has evidenced a focus on cherished events (e.g., holidays, weddings, births; [Wildschut et al., 2006](#)). Moreover, these memories tend to be high in sociality, featuring meaningful roles/relationships and themes of love and belonging ([Abeyta, Routledge, & Juhl, 2015](#); [Abeyta, Routledge, Roylance, et al., 2015](#)).

1.2. Nostalgia passively satisfies the need for social belonging

The positive emotionality and social content of the nostalgic experience is functional for helping people to passively maintain the need for social belonging ([Wildschut et al., 2006](#); [Wildschut et al., 2010](#); [Zhou et al., 2008](#)). To begin, people engage in nostalgia when they are feeling lonely and in turn nostalgia is restorative ([Seehusen et al., 2013](#); [Wildschut et al., 2006](#); [Zhou et al., 2008](#)). More generally, nostalgic reverie promotes a sense of social connectedness. Specifically, engaging in nostalgic reverie has been found to make people feel loved, bolster feelings of relationship security, and promote a sense of relationship satisfaction ([Juhl et al., 2012](#); [Wildschut et al., 2006](#)).

In providing a foundation of social connectedness, nostalgia generally supports psychological well-being (e.g., [Routledge, Wildschut, Sedikides, & Juhl, 2013](#)). For example, research indicates that nostalgia has self-related benefits, bolstering self-esteem (e.g., [Wildschut et al., 2006](#)), increasing the accessibility of positive self-attributes ([Vess, Arndt, Routledge, Sedikides, & Wildschut, 2012](#)), and facilitating self-continuity ([Sedikides, Wildschut, Routledge, & Arndt, 2015](#); [Van Tilburg, Sedikides, Wildschut, & Vingerhoets, 2018](#)). Nostalgia's effect on self-esteem and self-continuity is mediated by social connectedness ([Cheung et al., 2013](#); [Van Tilburg et al., 2018](#)). As a revisiting of cherished social memories, nostalgia has also been found to bolster a sense of personal meaning ([Routledge et al., 2011](#); [Van Tilburg et al., 2018](#)) and buffer threats to meaning in life (e.g., death; [Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010](#); [Routledge, Arndt, Sedikides, & Wildschut, 2008](#); [Routledge, Juhl, Abeyta, & Roylance, 2014](#)). Nostalgia's impact on meaning in life is also mediated by social connectedness ([Routledge et al., 2011](#); [Van Tilburg et al., 2018](#)).

1.3. Nostalgia promotes active efforts to satisfy the need to belong

People can indirectly satisfy the need to belong by waxing nostalgia. Ultimately, though, indirect strategies are thought to be limited in their ability to satiate the need to belong long term (for a review see, [Gardner et al., 2005](#)). A number of recent studies suggest that nostalgia also promotes more active strategies to directly connect with others by energizing the motivation to connect ([Abeyta, Routledge, & Juhl, 2015](#); [Stephan et al., 2014](#); [Zhou, Wildschut, Sedikides, Shi, & Feng, 2012](#)). Theoretical perspectives make a distinction between two independent yet opposing types of motivation: approach-oriented and avoidance-oriented motivation. Approach-oriented motivation energizes appetitive behaviors toward realizing positive end states, whereas avoidance-oriented motivation energizes aversive behaviors toward preventing

negative end states (e.g., [Carver, 2006](#); [Elliot & Church, 1997](#); [Higgins, 1997](#); [Miller, 1944](#)). Research indicates that nostalgia generally regulates avoidance-oriented motivation and promotes approach-oriented motivation ([Stephan et al., 2014](#)).

The motivational process originates with motivations that translate to goals/intentions and culminate goal-related outcomes ([Elliot & Church, 1997](#)). Motivation is dispositional action tendencies that are chronically active or brought online situationally, whereas goals are cognitive representations of a future object or outcome to which an individual is committed. In addition to sparking approach-oriented motivation, nostalgia has been found to promote approach-oriented goals/intentions. For example, [Stephan et al. \(2015\)](#) found that reflecting on a nostalgic memory, relative to an ordinary memory, generally increased goal-related inspiration. Studies have more specifically demonstrated that nostalgia promotes commitment to approach-oriented social goals. For example, nostalgia has been found to promote prosocial intentions such as donating to charity ([Zhou et al., 2012](#)), and to increase approach-oriented social behaviors (i.e., sitting closer to a conversation partner, [Stephan et al., 2014](#)). More directly, [Abeyta, Routledge, and Juhl \(2015\)](#) evidenced that nostalgia increases commitment to explicit approach-oriented social goals such as getting closer to friends, repairing friendship conflicts, and meeting new people. Finally, nostalgia's ability to promote approach-oriented social goals is restorative. Specifically, a recent set of studies suggests that nostalgia regulates deficits in approach-oriented social motivation among lonely people ([Abeyta et al., 2018](#)).

1.4. The present research

The prototypical nostalgic experience supports social belonging. Ultimately though, nostalgia's capacity to bolster feelings of social connectedness has been found to vary as a function of individual differences in the extent to which people seek out social relationships for psychological security in the first place. Attachment-related avoidance is an individual difference that reflects the extent to which people avoid (vs. rely on) social relationships for security and generally desire distance in close relationships. [Wildschut et al. \(2010\)](#) found that individuals high in attachment-related avoidance were less likely to recruit nostalgia to regulate deficits in social belonging, and that engaging in nostalgic reverie did not significantly increase perceptions of social connectedness or promote social competence at high levels of attachment-related avoidance. However, nostalgia did increase social connectedness and affirm perceptions of social competence at low levels of attachment-related avoidance ([Wildschut et al., 2010](#)). Similarly, [Juhl et al. \(2012\)](#) found that following a nostalgia induction, low levels of attachment-related avoidance were associated with increased relationship satisfaction among people in a committed romantic relationship and increased desire to pursue a romantic relationship among single people. Thus, nostalgia's capacity to affirm/promote feelings of social connectedness is moderated by attachment-related avoidance. The goal of the present research was to extend these findings by testing whether attachment-related avoidance also moderates nostalgia's ability to energize goals/intentions to more directly satisfy the need for social belonging.

Based on past research (e.g., [Abeyta, Routledge, & Juhl, 2015](#)) we predicted that nostalgia would increase affiliative intentions and approach-oriented social goals at lower levels of attachment-related avoidance. However, there are two theory and research-based predictions for how nostalgia may affect affiliative intentions and approach-oriented social goals at higher levels of attachment-related avoidance. First, nostalgia may not affect approach-oriented social goals among those higher in attachment-related avoidance. This pattern would be consistent with [Wildschut et al. \(2010\)](#) finding that nostalgia bolstered feelings of social connectedness at low avoidance but did not have a significant effect at high levels of attachment-related avoidance. However, there is reason to believe that the null effect would not generalize

to approach-related goals/intentions. Nostalgia's capacity to energize direct social connection lies in its focus on cherished examples of interpersonal closeness that give people the confidence to pursue approach-oriented social goals (Abeyta, Routledge, & Juhl, 2015). Compared to individuals low in attachment-related avoidance, those high in attachment-related avoidance are less likely to nostalgize about loving relationships (Abeyta, Routledge, Roylance, et al., 2015). Moreover, individuals high in attachment-related avoidance are generally less concerned with the welfare of others (e.g., Mikulincer, Shaver, Gillath, & Nitzberg, 2005) and tend to pursue goals and behaviors aimed at distancing oneself from relationship partners (Mikulincer, 1998; Simpson, Rholes, Oriña, & Grich, 2002; Simpson, Rholes, & Phillips, 1996). Therefore, a second possibility is that nostalgia further shifts highly avoidant individuals from social pursuits. We did not have a strong preference for either prediction.

2. Experiment 1

In Experiment 1 we assessed individual differences in attachment-related avoidance, manipulated nostalgia, and then measured affiliative intentions. We specifically evoked nostalgia by having participants think about a cherished birthday gift from the past, relative to a future birthday gift or a possession, and then assessed affiliative intentions. We originally designed this study with a primary focus on the main effect of nostalgia on affiliative intentions. However, we were also interested in the potential moderating role of attachment-related avoidance. We expected that reflecting on a past birthday would generally increase affiliative intentions. However, based on relevant past research (Wildschut et al., 2010), we also expected that this increased affiliative intention would be observed specifically among those scoring low in attachment-related avoidance, but did not have a strong prediction as to whether nostalgia would not affect or decrease affiliative intentions at high attachment-related avoidance.

Past research has documented content differences in nostalgia as a function of individual differences in attachment-related avoidance. Specifically, Abeyta, Routledge, Roylance, et al. (2015) found that the nostalgic memories of individuals high in attachment-related avoidance tended to contain fewer references to feelings of love/belonging, but more references to feelings of agency/achievement, compared to the nostalgic memories of individuals low in attachment-related avoidance. Moreover, this research found that nostalgic memories generally tend to be more positive than non-nostalgic memories. Therefore, a secondary aim of the research was to test whether content differences in positivity, sociality, and agency explain the effects of nostalgia and attachment-related avoidance on social intentions.

3. Method

3.1. Participants

As previously mentioned, we originally designed the study to test the main effect of nostalgia on affiliative intentions, but included a measure of attachment-related avoidance as an exploratory moderator. This inclusion was motivated by Wildschut et al. (2010) finding that attachment-related avoidance moderated nostalgia's effect on social connectedness. These data were collected in the fall of 2012 before our lab adopted power analysis as a method for determining sample size. Instead we followed Simmons, Nelson, and Simonsohn's (2011) recommended practices for reducing false-positives of recruiting at least 20 participants per cell. The manipulation we used had three conditions and therefore we needed to recruit at least 60 participants to evaluate the main effect of nostalgia on affiliative intentions. However, because we wanted to explore the potential condition \times attachment-related avoidance interaction we aimed for a least 100 participants. Participants were 103 undergraduate students (59 females) from a state university in the Midwestern United States. Participants ranged in age from

18 to 31 years old ($M = 19.70$, $SD = 2.48$). Controlling for participant gender and age did not reduce the reported effects.

3.2. Procedure and materials

Participants completed a computer-based questionnaire in the lab in private testing cubicles. The questionnaire contained the materials below in the order presented below.

3.2.1. Attachment-related avoidance

Participants completed 6 attachment-related avoidance items from a brief version of the Experiences in Close Relationship scale (ECR-short, Wei, Russell, Mallinckrodt, & Vogel, 2007), meant to assess the extent to which people have a desire to avoid interpersonal closeness (e.g., "I try to avoid getting too close to my partner", 1 = *strongly disagree*, 7 = *strongly agree*). Responses to the 6-item measure formed a reliable index ($\alpha = 0.75$), were re-coded so that higher values indicate higher attachment-related avoidance, and were averaged to create attachment-related avoidance scores ($M = 2.83$, $SD = 0.77$).

3.2.2. Nostalgia manipulation task

We used a novel method to manipulate nostalgia. Before using the nostalgia manipulation in the current research, we did pilot test it and verified that it is a valid method for evoking nostalgia.¹ Participants in the nostalgia condition were instructed to conduct a Google image search for a gift they received in the past and then to spend a few minutes writing about how the gift made them feel. In a future oriented control condition, participants were instructed to conduct an image search for and write about an item they would like to receive as a future birthday gift. Finally, in a neutral control condition, participants were instructed to bring to mind and write about a possession they regularly use. Participants were randomly assigned to one of these conditions.

3.2.3. Affiliative intentions

To assess affiliative intentions, we modified a task used by Taubman-Ben-Ari, Findler, and Mikulincer (2002). The task consists of the following brief description of a hypothetical same-sex classmate.

I came to America from Sri Lanka for school. I am a psychology student and it is important for me to work hard on my studies. I like to cook, so sometimes on weekends I make a meal for my friends. I listen to music of many types, music from Sri Lanka and American music. I enjoy sports. My favorite is football, but here in America many people call it soccer. I like to take part in student clubs and my friends tell me that I am nice and funny.

Taubman-Ben-Ari and colleagues conducted their study in Israel and

¹ A sample of 107 undergraduate students (72 females; $M_{age} = 19.48$, $SD_{age} = 3.34$) completed a questionnaire that consisted of the manipulation and two state nostalgia measures. In the nostalgia condition, participants conducted a Google image search for a past birthday gift and then wrote about their memory of the gift. In the control condition, conducted an image search for and wrote about a gift they want to receive for a future birthday. Participants were then shown a nostalgia definition (i.e., According to the Oxford Dictionary, 'nostalgia' is defined as a 'sentimental longing for the past') and completed three state nostalgia items (i.e., "Right now, I am feeling quite nostalgic", "Right now, I am having nostalgic feelings", and "I feel nostalgic at the moment"; 1 = *strongly disagree*, 6 = *strongly agree*; $\alpha = 0.97$; $M = 3.76$, $SD = 1.41$), as well as a state version of the Nostalgia Inventory (Batcho, 1995) where participants indicated how nostalgic they felt about 20 aspects of their past (e.g., "the way things were"; 1 = *not at all nostalgic*, 7 = *very nostalgic*; $\alpha = 0.71$; $M = 2.78$, $SD = 0.71$). A multivariate analysis of variance (MANOVA) supported the effectiveness of the manipulation; participants in the past birthday condition reported feeling more nostalgic than participants in the future birthday condition, $F(2, 101) = 7.00$, $p = .001$, *partial* $\eta^2 = 0.12$. The past and future birthday conditions used in Experiment 1 were identical. However, we added a second control condition.

Table 1
Coding category interclass correlations and descriptive statistics.

	ICC	M	SD
Study 1			
Positivity	0.75	1.45	0.99
Interpersonal/communal focus	0.85	0.71	1.01
Self/individualistic focus	0.72	1.57	1.03
Study 2			
Positivity	0.79	1.09	0.87
Interpersonal/communal focus	0.86	1.13	1.05
Self/individualistic focus	0.77	1.07	1.12

some of the details of their student description were not relevant to American students, so we changed them. Participants were to imagine that the student is a classmate and respond to 13-items on their intentions to affiliate with them (e.g., “To what extent do you think you would enjoy having a conversation with this person?”, 1 = *not at all*, 10 = *very much*). Responses to the 13-items made a highly reliable index and therefore averaged to create affiliative intentions scores ($\alpha = 0.96$; $M = 6.09$, $SD = 1.73$).

3.2.4. Content coding

Two trained coders (unaware of the hypotheses or conditions) independently rated the writings on predetermined content dimensions. Specifically, coders rated the positivity of the writing, the interpersonal/communal focus of the writing, defined as the extent to which the writing focused on a gift/item that makes them feel loved by or connected with others, and the self/individualistic focus of the writing, defined as the degree to which the writing focused on a gift/item that benefits the self (0 = *none*, 1 = *low*, 2 = *moderate*, 3 = *high*). Interclass correlations were high and therefore coder ratings were averaged to create and overall score for each category. See Table 1 for interclass correlation coefficients and descriptive statistics.

4. Results

4.1. Primary analyses

We conducted a hierarchical linear regression analysis regressing affiliative intentions on the conditions (dummy coded), attachment-related avoidance (centered), and the condition \times attachment-related avoidance interaction terms. Specifically, we entered two dummy coded variables (i.e., D1 = nostalgia condition v neutral condition, D2 = future condition v neutral condition), and attachment-related avoidance in the first step of the regression, and the D1 \times attachment-related avoidance and the D2 \times attachment-related avoidance interactions terms in the second step. Assumptions for regression (e.g., normality, homoscedasticity, multicollinearity) were met. None of the effects in the first step reached statistical significance ($ps > 0.07$). In the second step, the D1 \times attachment-related avoidance interaction term was statistically significant, $B = -1.30$, $SE = 0.55$, $t(102) = 2.36$, $p = .02$, $sr^2 = 0.05$, 95% CI [0.21, -0.21], but the D2 \times attachment-related avoidance interactions term was not, $B = 0.27$, $SE = 0.51$, $t(102) = 0.54$, $p = .59$, $sr^2 = 0.003$, 95% CI [-0.73, -1.27]. Thus, the effect of the nostalgia condition v neutral condition was significantly moderated by attachment related avoidance, whereas the effect of the future condition v the neutral condition was not. See Fig. 1 for visual of interaction.

We probed the significant interaction two ways. First we conducted simple slopes analyses to examine the association between attachment-related avoidance and affiliative intentions in the nostalgia condition, the future oriented control condition, and the neutral control condition, respectively. This analysis revealed that attachment-related avoidance was not significantly associated with affiliative intentions in the future oriented control condition, $B = 0.33$, $SE = 0.37$, $t = 0.87$, $p = .37$, 95%

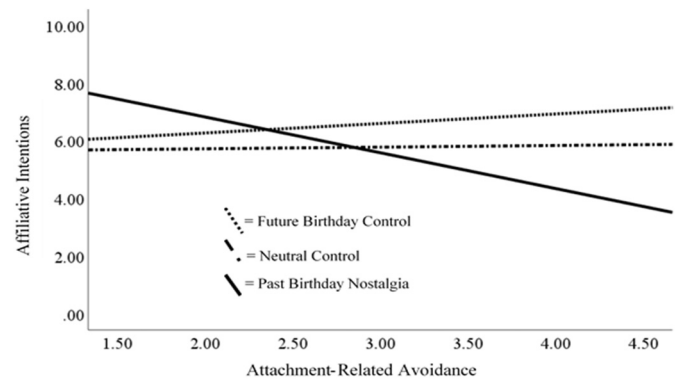


Fig. 1. The effect of nostalgia on affiliative intentions as a function attachment-related avoidance in Experiment 1.

CI [-0.40, 1.06], or the neutral control condition, $B = 0.06$, $SE = 0.35$, $t = 0.17$, $p = .87$, 95% CI [-0.63, 0.75]. However, attachment-related avoidance was significantly associated with reduced affiliative intentions in the nostalgia condition, $B = -1.24$, $SE = 0.43$, $t = -2.91$, $p = .005$, 95% CI [-2.09, -0.39].

Second, we used the Johnson and Neyman (1936) technique to examine the effect of nostalgia as a function of attachment-related avoidance. The advantage of this technique is that it estimates the effect of nostalgia condition relative to the neutral condition along the full range of attachment-related avoidance scores allowing us to see how the effect changes, as well as when the effect becomes statistically significant (Hayes & Matthes, 2009). We used Hayes' (2017) PROCESS macro for IBM SPSS Statistics for Windows (Version 25, 2017) to conduct this analysis. This test revealed that, at lower levels of attachment related avoidance the effect of the nostalgia condition, relative to the neutral condition, was positive. This positive effect decreased as a function of attachment related avoidance. Specifically, the effect was statistically significant at attachment-related avoidance values lower than 1.78 of, $B = 1.39$, $SE = 0.68$, $t = 2.02$, $p = .046$, 95% CI [0.02, 2.74]. In contrast, at higher levels of attachment related avoidance the effect of the nostalgia condition, relative to the neutral condition, was negative. Moreover, this effect appeared to become more strongly negative as a function of higher attachment-related avoidance. Specifically, the nostalgia condition, relative to the control condition, significantly decreased affiliative intentions at attachment-related avoidance values > 4.19 of, $B = -1.74$, $SE = 0.87$, $t = -2.00$, $p = .049$, 95% CI [-3.79, -0.05]. See Fig. 2 for a visual of how the effect of the nostalgia condition v the neutral condition changes as a function of attachment-related avoidance. Taken together, these analyses suggest that the nostalgia condition bought out attachment-related differences in affiliative intentions. Specifically, nostalgia increased affiliative intentions at lower levels of attachment-related avoidance, but decreased affiliative intentions at higher levels of attachment-related avoidance.

4.2. Content analyses

To test the potential that content differences in positivity, interpersonal/communal focus, and self/individualistic focus explain the effects, we first regressed each content dimension on the conditions (dummy coded as before), attachment-related avoidance (centered), and the condition \times attachment-related avoidance interaction terms.

These analyses revealed that compared to the neutral writings, the nostalgic writings were rated as more positive, $B = 1.49$, $SE = 0.18$, $t(102) = 8.18$, $p < .001$, $sr^2 = 0.37$, 95% CI [1.13, 1.85], were more focused on interpersonal/communal feelings, $B = 1.54$, $SE = 0.18$, $t(102) = 8.38$, $p < .001$, $sr^2 = 0.38$, 95% CI [1.17, 1.90], and had a stronger self/individualistic focus, $B = 1.37$, $SE = 0.20$, $t(102) = 6.89$,

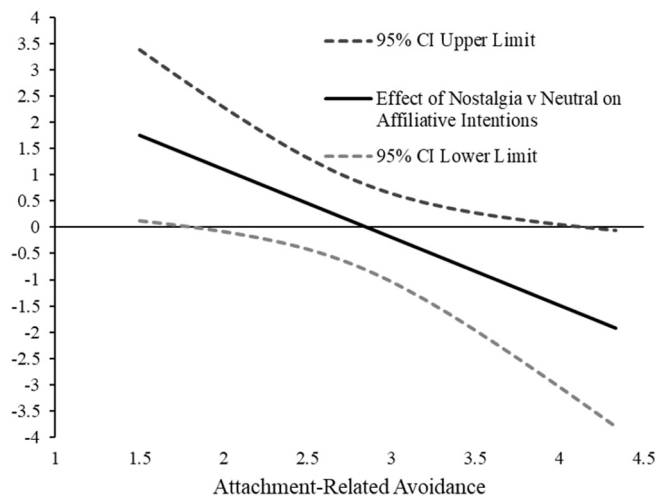


Fig. 2. The plot represents the estimated effect of nostalgia, relative to neutral, on affiliative intentions (y-axis) across the range of attachment-related avoidance (x-axis). The effect is considered statistically significant if the confidence intervals (CI) for the effect do not contain 0.

$p < .001$, $sr^2 = 0.30$, 95% CI [0.97, 1.76]. Compared to the neutral writings, the future oriented writings were rated as more positive, $B = 1.28$, $SE = 0.18$, $t(102) = 7.001$, $p < .001$, $sr^2 = 0.27$, 95% CI [0.92, 1.64], and had a stronger self/individualistic focus, $B = 1.29$, $SE = 0.20$, $t(102) = 6.53$, $p < .001$, $sr^2 = 0.27$, 95% CI [0.90, 1.68]. The neutral and future oriented writings did not significantly differ in terms of interpersonal/communal focus ($p = .49$). Attachment-related avoidance was not associated with positivity, interpersonal/communal focus, or self/individualistic focus ($ps > 0.20$). Critically, content differences were not moderated by attachment-related avoidance; no interaction terms reached statistical significance ($ps > 0.19$). Moreover, the significant nostalgia \times attachment-related avoidance effect observed in the primary model remained statistically significant when the positivity, interpersonal/communal focus, and self/individualistic focus were added.

Even though no interaction terms were significant, we conducted correlations to explore whether attachment related avoidance was associated with content differences in each condition. Attachment-related avoidance was not significantly correlated with positivity in the neutral control condition, $r(32) = 0.01$, $p = .95$, the future orientation condition, $r(31) = -0.22$, $p = .20$, or the nostalgia condition, $r(31) = 0.11$, $p = .55$. Attachment-related avoidance was significantly correlated with more interpersonal/communal focus in the neutral control condition, $r(32) = 0.44$, $p = .01$, but was not significantly correlated with interpersonal/communal focus in the future orientation condition, $r(31) = -0.04$, $p = .84$, or the nostalgia condition, $r(31) = -0.11$, $p = .53$. Attachment-related avoidance was not significantly correlated with self/individualistic focus in the neutral control condition, $r(32) = -0.08$, $p = .67$, the future orientation condition, $r(31) = -0.08$, $p = .67$, or the nostalgia condition, $r(31) = -0.25$, $p = .17$.

Taken together, the results of Experiment 1 support the hypothesis that attachment-related avoidance impacts nostalgia's ability to energize approach-related goals for more directly satisfying the need to belong. Specifically, nostalgia brought out the tendency for those low in attachment-related avoidance to pursue affiliation and those high to avoid it, since the association between attachment-related avoidance and affiliative intentions was strongest in the nostalgia conditions. Moreover, nostalgia was found to increase affiliative intentions at lower levels of attachment-related avoidance, but decrease affiliative intentions at higher levels. These results support the second possibility described in the introduction.

This effect does not appear to be explained by attachment-related differences in the content of nostalgic memories. Consistent with past research, nostalgic writings were higher in positivity and agency compared to neutral writings (e.g., Abeyta, Routledge, Roylance, et al., 2015). Future oriented writings were also higher in positivity and agency compared to neutral writings. However, consistent with past research that sociality is a defining feature of nostalgia (e.g., Abeyta, Routledge, & Juhl, 2015), nostalgic writings were rated higher in interpersonal/communal content compared to neutral writings, whereas future writings were not. Interestingly, whereas past research has evidenced interpersonal and agentic content differences as a function of attachment-related avoidance, we did not. It is possible that the specific nature of the writing task reduced the attachment-related content differences. Participants were specifically asked to consider a social situation (getting a gift from someone) and told to specifically focus on how that situation would benefit them individually.

5. Experiment 2

The purpose of Experiment 2 was to replicate Experiment 1. The design of the study was largely the same; we assessed attachment-related avoidance, manipulated nostalgia, and then measured approach-oriented goals/intentions. However, we made a few methodological changes to address limitations from Experiment 1. First, we conducted a formal power analysis to determine sample size. Second, we used a more well-established and face valid nostalgia manipulation, instead of the novel past birthday manipulation. Third, we simplified the design using only one control condition. Fourth, we used a more well-validated measure of approach-oriented social goals/intentions. We hypothesized that nostalgia would increase approach-oriented goals at lower levels of attachment-related avoidance, but decrease approach-oriented goals at higher levels.

Once again, a secondary aim of Study 2 was to test whether content differences in sociality, agency, and positivity explain the effects of nostalgia and attachment-related avoidance on social intentions.

6. Method

6.1. Participants

We determined the sample size using Soper's (2018) a-priori sample size calculator. Based on previous research (e.g., Wildschut et al., 2010), we anticipated a small to medium effect size ($f^2 = 0.08$). Based on our design, this effect size, power of 0.80, and alpha set at 0.05 the required minimum sample size is 139, but we endeavored to secure a much larger sample. We collected all the data we could from our Psychology Department's undergraduate participant pool in the Spring of 2017. Then we completed the data collection on Amazon Mechanical Turk (Mturk), stopping after 4 days of collection. Participants were 270 (147 females) undergraduate students from a state university in the Midwestern United States ($n = 84$) and Mturk users from the United States ($n = 186$). Participants ranged in age from 18 to 66 years old ($M = 31.02$, $SD = 12.03$). Sample type does not moderate any of the observed effects ($ps > 0.30$), so all results are collapsed across sample type. Controlling for participant gender and age did not reduce the reported effects.

6.2. Procedure and materials

Participants completed an online questionnaire containing the materials below in the order presented below.

6.2.1. Attachment-related avoidance

Participants completed the 6 attachment-related avoidance items from the ECR-short (Wei et al., 2007) we used in Experiment 1 ($\alpha = 0.85$; $M = 2.79$, $SD = 1.21$).

6.2.2. Nostalgia manipulation

The well-validated and frequently used nostalgia event-reflection task was used (Sedikides, Wildschut, Routledge, Arndt, Hepper, et al., 2015; Wildschut et al., 2006). Participants were instructed to bring to mind a past event, generate four keywords that describe the gist of the memory, and write about how the event made them feel. In the nostalgia condition, participants were presented with a nostalgia definition (i.e., According to the Oxford Dictionary, ‘nostalgia’ is defined as a ‘sentimental longing for the past’) and were instructed write about a nostalgic experience. In the control condition, participants were instructed to write about an ordinary event from the past.

6.2.3. Approach-oriented social goals/intentions

After the nostalgia or control manipulation, participants completed Elliot, Gable, and Mapes' (2006) 4-item friendship-approach goal scale, which assesses the extent to which people are committed to goals related to interpersonal gains and growth (e.g., “I feel that I want to move toward growth and development in my friendships”; 1 = *strongly disagree*, 6 = *strongly agree*). Responses to the scale formed a reliable index and were therefore averaged to create approach-oriented friendship goal scores ($\alpha = 0.93$; $M = 4.48$, $SD = 1.38$).

6.2.4. Content coding

Two trained coders (unaware of the hypotheses or conditions) independently rated the nostalgia and control writings on positivity of the writing, the interpersonal/communal focus of the writing, defined as the extent to which the writing focused on being loved by or connected with others, and the self/individualistic focus of the writing, defined as the degree to which the writing focused the self, independent of others (0 = *none*, 1 = *low*, 2 = *moderate*, 3 = *high*). Interclass correlations were high and therefore coder ratings were averaged to create an overall score for each category. See Table 1 for interclass correlation coefficients and descriptive statistics.

7. Results

7.1. Primary analyses

We conducted a hierarchical linear regression analysis regressing approach-oriented friendship goals on the conditions (dummy coded), attachment-related avoidance (centered), and condition \times attachment-related avoidance interaction. Assumptions for regression (e.g., normality, homoscedasticity, multicollinearity) were met. There was only a significant main effect of attachment-related avoidance, such that attachment-related avoidance was associated with being less inclined to pursue approach-oriented friendship goals, $B = -0.16$, $SE = 0.07$, $t(266) = -2.31$, $p = .02$, $sr^2 = 0.02$, 95% CI $[-0.30, 0.02]$. This main effect was qualified by a significant condition \times attachment-related avoidance interaction, $B = -0.36$, $SE = 0.14$, $t(166) = -2.57$, $p = .01$, $sr^2 = 0.02$, 95% CI $[-0.64, -0.08]$. See Fig. 3 for visual of interaction.

Once again, we probed the significant interaction two ways. First we conducted a simple slopes analysis to examine the association between attachment-related avoidance and affiliative intentions in the nostalgia condition and the control condition, respectively. This analysis revealed that attachment-related avoidance was not significantly associated with approach-oriented friendship goals in the control condition, $B = 0.001$, $SE = 0.10$, $t = 0.009$, $p = .99$, 95% CI $[-0.19, 0.19]$. However, attachment-related avoidance was significantly associated with reduced approach-oriented friendship goal commitment in the nostalgia condition, $B = -0.36$, $SE = 0.43$, $t = -2.91$, $p = .005$, 95% CI $[-2.09, -0.39]$.

Second, we used the Johnson and Neyman (1936) technique as in Experiment 1 to examine the effect of nostalgia as a function of attachment-related avoidance. This test revealed that, at lower levels of attachment-related avoidance the effect of the nostalgia condition,

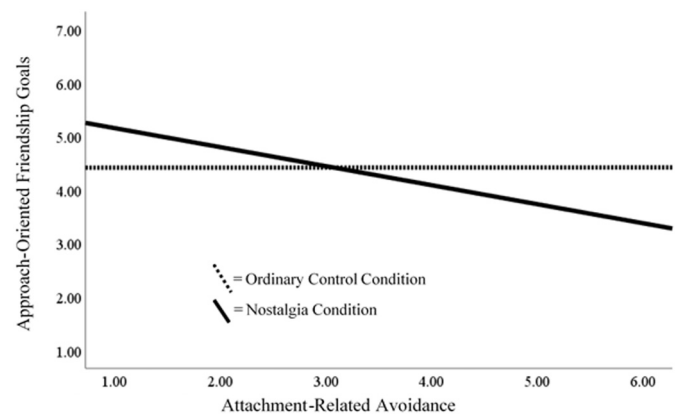


Fig. 3. The effect of nostalgia on approach-oriented friendship goals as a function attachment-related avoidance in Experiment 2.

relative to the neutral condition, was positive. This positive effect decreased as a function of attachment related avoidance. Specifically, the effect was statistically significant at attachment-related avoidance values 1.73 and lower, $B = 0.48$, $SE = 0.22$, $t = 2.17$, $p = .03$, 95% CI $[0.05, 0.92]$. In contrast, at higher levels of attachment related avoidance the effect of the nostalgia condition, relative to the control condition, was negative. Moreover, this effect appeared to become more strongly negative as a function of higher attachment-related avoidance. This effect became statistically significant at attachment-related avoidance values 5.35 and higher, $B = -0.81$, $SE = 0.40$, $t = -2.02$, $p = .04$, 95% CI $[-1.60, -0.02]$. See Fig. 4 for a visual of how the effect of the nostalgia changes as a function of attachment-related avoidance. Taken together, these analyses suggest that the nostalgia condition bought out attachment-related differences in approach-oriented social goals. Specifically, nostalgia increased approach-oriented social goals at lower levels of attachment-related avoidance, but tended to decrease approach-oriented social goals at higher levels of attachment-related avoidance.

7.2. Content analyses

To test the potential that content differences in positivity, interpersonal/communal focus, and self/individualistic focus explain the effects, we first regressed each content dimension on the conditions

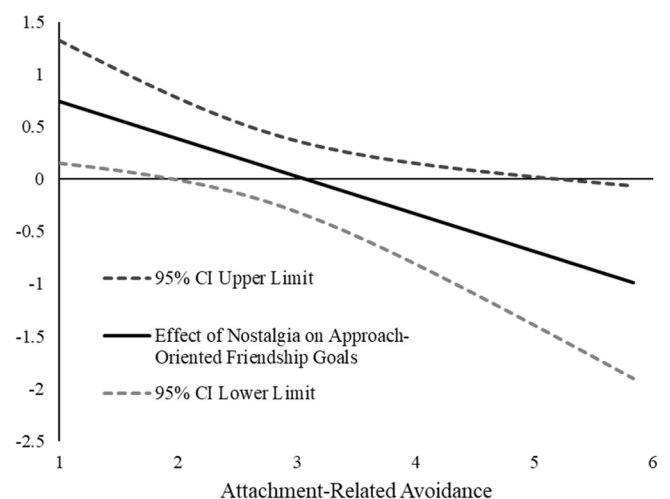


Fig. 4. The plot represents the estimated effect of nostalgia, relative to control, on approach-oriented friendship goals (y-axis) across the range of attachment-related avoidance (x-axis). The effect is considered statistically significant if the confidence intervals for the effect (CI) do not contain 0.

(dummy coded), attachment-related avoidance (centered), and the condition \times attachment-related avoidance interaction terms.

These analyses revealed that compared to the ordinary writings, the nostalgic writings were rated as more positive, $B = 0.69$, $SE = 0.10$, $t(266) = 5.87$, $p < .001$, $sr^2 = 0.11$, 95% CI [0.46, 0.92], were more focused on interpersonal/communal feelings, $B = 0.69$, $SE = 0.12$, $t(266) = 5.87$, $p < .001$, $sr^2 = 0.11$, 95% CI [0.46, 0.92], but were rated lower in self/individualistic focus, $B = -0.91$, $SE = 0.12$, $t(266) = -7.34$, $p < .001$, $sr^2 = 0.16$, 95% CI [-1.15, -0.66]. Attachment-related avoidance was significantly and negatively associated with positivity, $B = -0.10$, $SE = 0.04$, $t(266) = -2.37$, $p = .02$, $sr^2 = 0.02$, 95% CI [-0.18, -0.02], and interpersonal/communal focus, $B = -0.13$, $SE = 0.05$, $t(266) = -2.69$, $p = .007$, $sr^2 = 0.02$, 95% CI [-0.23, -0.04], but was significantly and positively associated with self/individualistic focus, $B = 0.17$, $SE = 0.05$, $t(266) = 3.31$, $p = .001$, $sr^2 = 0.03$, 95% CI [0.07, 0.27]. Critically, the condition \times attachment-related avoidance interaction did not reach statistical significance on any of the content dimensions ($ps > 0.27$). Moreover, the significant nostalgia \times attachment-related avoidance effect observed in the primary model remained statistically significant when the positivity, interpersonal/communal focus, and self/individualistic focus were added to the regression model.

Even though the nostalgia \times attachment-related avoidance interactions were not significant, we conducted correlations to explore whether attachment related avoidance was associated with content differences in each condition. Attachment-related avoidance was not significantly correlated with positivity in the control condition, $r(138) = -0.13$, $p = .13$, or in the nostalgia condition, $r(125) = -0.16$, $p = .07$. Attachment-related avoidance was not significantly correlated with interpersonal/communal focus in the control condition, $r(138) = 0.44$, $p = .01$, but was significantly correlated with less of an interpersonal/communal focus in the nostalgia condition, $r(125) = -0.20$, $p = .02$. Attachment-related avoidance was significantly correlated with greater self/individualistic focus in the control condition, $r(138) = 0.20$, $p = .02$, and in the nostalgia condition, $r(125) = 0.21$, $p = .02$.

Once again, the results demonstrate that nostalgia energizes approach-oriented goal commitment among individual's low in attachment-related avoidance, whereas nostalgia tended to deter approach-oriented goal commitment among individuals high in attachment-related avoidance. This effect was not explained by content difference in positivity, interpersonal/communal focus, or self/individualistic focus. Specifically, attachment-related avoidance did not significantly moderate content differences between the nostalgia and control condition. Nonetheless, we explored associations between attachment-related avoidance and content in the nostalgia and control conditions, respectively. Consistent with past research (Abeyta, Routledge, Roylance, et al., 2015), we found that attachment-related avoidance was associated with a reduced focus on interpersonal/communal feelings in nostalgic memories. When it came to ordinary memories, this inverse association was weaker and not statistically significant. Also consistent with past research, we found that attachment-related avoidance was associated with an increased focus on the self/individualistic feelings in nostalgic memories. However, this association was similar for ordinary memories.

8. General discussion

Across two studies, individual differences in attachment-related avoidance were found to moderate the extent to which nostalgic reflection energizes goals/intentions for actively satisfying the need to belong. It appeared that nostalgia brought out the tendency for individuals low in attachment-related avoidance to pursue social affiliation and approach-oriented goals and individuals high in attachment-related avoidance to avoid social affiliations and interpersonal goals, because the association between the inverse association between

attachment-related avoidance and social affiliation/goals was found to be strongest in the nostalgia condition. As predicted, engaging in nostalgic reverie was found to bolster intentions to affiliate with a hypothetical same-sex target (Experiment 1) and to increase commitment to approach-oriented friendship goals of growth and intimacy (Experiment 2) at low levels of attachment-related avoidance. These findings at low avoidance are consistent with evidence that nostalgia generally promotes goals/intentions for connecting with others (e.g., Abeyta et al., 2018; Abeyta, Routledge, & Juhl, 2015). In the introduction, we identified two possible predictions for nostalgia's effect at high levels of attachment-related avoidance; nostalgia would either not significantly affect social approach or decrease social approach. The findings supported the second possibility, nostalgia decreased affiliative intentions and interpersonal goals at higher levels of attachment-related avoidance. However, it is important to acknowledge that the effect at high attachment-related avoidance is small and therefore should be interpreted with caution. Future research should look to replicate the combined effect of nostalgia and attachment-related avoidance on social goals/affiliation. Nonetheless, we believe even a small effect makes an important theoretical point that the social-motivational effects of nostalgia change as a function of attachment-related avoidance.

These findings are consistent with the notion that working models of attachment shape interpersonal attitudes, goals, and behaviors. Individuals high in attachment-related avoidance do not rely on other people for comfort and security, are less trusting of other peoples' intentions, and aspire to not get too close to other people (Collins & Allard, 2001; Hazan & Shaver, 1993). The current research indicates that nostalgia strengthens these tendencies, since the inverse relation between attachment-related avoidance and affiliative goals/intentions was strongest after nostalgia was evoked. It is worth noting that the current research is limited in its ability to provide insight into how attachment broadly influences nostalgia's social-motivational effects, because we narrowly focused on the attachment-related avoidance dimension. Attachment-related anxiety is a second dimension of attachment insecurity that is defined by feeling unworthy of love and by the overwhelming desire for closeness and intimacy to affirm worth (Collins & Allard, 2001). This narrow focus was intentional and was based on past research demonstrating that attachment-related avoidance, but not attachment-related anxiety moderates the social content or social function of nostalgia (e.g., Abeyta, Routledge, Roylance, et al., 2015; Wildschut et al., 2010). Additionally, our focus was to investigate individual differences that might limit or influence nostalgia's capacity to energize approach-oriented goals/intentions. In our view, there is little theoretical reason to expect that attachment-related anxiety would. Attachment-related anxiety is defined by a hypervigilance in attentiveness to relationships (e.g., Shaver & Mikulincer, 2002) and if anything, nostalgia might exacerbate this. Future research should broadly consider the specific ways attachment-related anxiety does not moderate nostalgia's effect on approach-oriented goals/intentions, future research should look to replicate the observed effects while also measuring and controlling for individual differences in attachment-related anxiety as well as other individual differences related to attachment-related avoidance. Attachment-related avoidance is likely one of many individual differences that shapes nostalgia's effect on interpersonal goals, intentions, and behaviors.

This research joins a growing body of evidence (e.g., Abeyta & Routledge, 2016; Abeyta, Routledge, Roylance, et al., 2015; Hart et al., 2011; Wildschut et al., 2010) that supports the idea that individual differences can profoundly shape the form and function of nostalgia. As previously mentioned, the bulk of the research on nostalgia indicates that nostalgia promotes social connectedness and energizes the pursuit of social goals (e.g., Abeyta, Routledge, & Juhl, 2015), which is central to how nostalgia benefits psychological well-being (e.g., Routledge et al., 2013). This research represents the first evidence suggesting that

nostalgia may lead people away from social connection. Social belonging is important for psychological health (e.g., Baumeister & Leary, 1995) and even individuals high in attachment-related avoidance maintain social relationships (Collins & Allard, 2001). Might nostalgia be driving avoidant people further from others and in turn undermining psychological well-being? Attachment-related avoidance is thought to develop from a history of unavailable attachment figures (Bowlby, 1969; Hazan & Shaver, 1993) and thus nostalgia might evoke feelings of mistrust. We did not find that content differences in positivity explained the effects, but we did not measure negative affect generally or feelings of trust specifically. If evoked negative interpersonal feelings like mistrusts explain the reduced social intentions, it would suggest that nostalgia might be maladaptive. Future research should investigate whether this nostalgia induced shift negatively impacts well-being.

Alternatively, the current findings may not represent an instance where nostalgia undermines well-being. The nostalgic memories of individuals high in attachment-related avoidance tend to be more focused on personal success and agency (Abeyta, Routledge, Roylance, et al., 2015). Moreover, in Experiment 2, we found that the nostalgic memories of individuals high in attachment related avoidance was higher in self/individualistic focus compared to individual's low in attachment-related avoidance. Thus, it is possible the trend observed in the current research represents a nostalgia inspired reprioritization of reduced commitment to social pursuits in favor of individual pursuits. Interestingly, we did not find evidence that self/individualistic content explained the combined effect of nostalgia and attachment-related avoidance on approach-oriented social intentions/goals. Nonetheless, future research should assess commitment to goals related to personal growth/achievement in addition to social goals. Nostalgia might still be adaptive for individuals high in attachment-related avoidance if it promotes meaningful goals related to agency and personal achievement.

In conclusion, the current research suggests that nostalgia's ability to help maintain the need to belong by energizing efforts to connect with others is shaped by the extent to which people desire interpersonal closeness and rely on relationships for comfort. Thus, even though nostalgia has a prototypical form, it is a personal experience shaped by individual differences and personal histories. Nostalgia is widely considered a psychological tool for helping maintain a vital sense of social belonging and more broadly supports well-being. Based on these findings alone, it is inappropriate to infer that the tendency for nostalgia to shift individuals away from approach-oriented strivings represents an adaptive or maladaptive process. Nonetheless, discovering how nostalgia impacts different types of people is necessary for understanding its psychological utility.

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