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Benefits of nostalgia in vulnerable populations

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ABSTRACT

The COVID-19 pandemic has triggered and exacerbated psychological distress, and exposed psychological vulnerabilities, in large swathes of the population. Under challenging circumstances, nostalgia may convey tangible psychological and physical health benefits. We review recent evidence for nostalgia's utility in vulnerable populations, including sojourners and immigrants, civil war refugees, people suffering bereavement, people facing a limited time horizon, and people living with dementia. Having raised the prospect of a positive role for nostalgia in responding to adversity, we next present findings from a series of randomised nostalgia interventions and their impact over time in the workplace, during the COVID-19 pandemic, and at university, respectively. We conclude by offering evidence-based recommendations for future interventions, highlighting the importance of optimal person-activity fit, diversity of content, and accessibility of delivery mechanisms.

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KEYWORDS Nostalgia; vulnerable populations; COVID-19; psychological distress; psychological health benefits; person-activity fit

Yes, people often change

but memories of people can remain

– The Kinks, *Do You Remember Walter?* (released in the U.K. on 11/22/1968)

As a result of the COVID-19 pandemic, populations worldwide have been practicing social distancing or quarantining at home. Research on the psychological consequences of previous infectious-disease outbreaks showed that they can cause serious and long-lasting psychological damage, including loneliness and depression, as has been the case with the Ebola epidemic (Greenberg et al., 2015) and the severe acute respiratory syndrome (SARS) outbreak (Hawryluck et al., 2004; Liu et al., 2012; Maunder et al., 2006). Early signs are that, as feared, the COVID-19 pandemic has triggered and exacerbated psychological distress on a global scale (Hao et al., 2020; Montemurro, 2020; Qiu et al., 2020). Researchers have attempted to alleviate the

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detrimental psychological consequences of social isolation by fostering friendships or encouraging support from virtual social networks (Asher & Paquette, 2003). However, social distancing and quarantines have limited the range and value of such initiatives. Further, although virtual social networks can attenuate distress for some, they increase it for others (Phu & Gow, 2019; Primack et al., 2019). Thus, alternative strategies are needed that are easier to implement and reliable. In this article, we propose an alternative strategy for combatting psychological distress in vulnerable populations: drawing on nostalgic recollections.

Nostalgia refers to a sentimental longing for momentous events from one's past (e.g., birthdays, weddings, graduations; Wildschut et al., 2006). It is characterised by ambivalent, but predominantly positive feelings (Leunissen et al., 2021); one typically feels warm and contented, but also misses the past (Hepper et al., 2012). The emotion is experienced frequently (several times a week; Hepper et al., 2021; Wildschut et al., 2006) and across ages (Madoglou et al., 2017) and cultures (Hepper et al., 2014). Nostalgia is a self-relevant emotion, given that the remembered events are personally meaningful (Sedikides & Wildschut, 2018). Yet, it is also intensely social, as the self is usually surrounded by close others in nostalgic memories – they are, to quote The Kinks, “memories of people.” Our point of departure is the well-supported idea that nostalgia's capacity to combat distress derives to a large extent from this social nature, which provides a mechanism for achieving a sense of interpersonal closeness (Gardner et al., 2005; Sedikides & Wildschut, 2019).¹

Overview

Whereas much nostalgia research has been conducted in laboratories with undergraduate student samples, we begin our article by reviewing more recent evidence for the emotion's benefits in vulnerable populations, including sojourners (Zou et al., 2018) and immigrants (Petkanopoulou et al., 2021), civil war refugees (Wildschut et al., 2019), people suffering bereavement (Reid et al., 2021), people facing a limited time horizon (Hepper et al., 2021), and people living with dementia (Ismail et al., 2018). We then present findings from the first randomised intervention studies, which induced nostalgia with the Event Reflection Task (ERT; Sedikides et al., 2015) and examined its potential psychological benefits in the workplace (Van Dijke

¹For centuries, nostalgia denoted homesickness but, over time, they have acquired distinct meanings (Wildschut & Sedikides, 2022). Contemporary dictionary definitions reflect this semantic divergence. *Oxford Dictionary of English* (2010) defines homesickness as “a feeling of longing for one's home during a period of absence from it” and nostalgia as “a sentimental longing or wistful affection for a period in the past.” The scientific literature on homesickness concentrates mainly on the psychological problems associated with transition to boarding school or university.

et al., 2019), during the COVID-19 pandemic (Zhou et al., 2021), and at university (Layous et al., 2021). The ERT is a vivid autobiographical writing exercise in which participants assigned to the nostalgia condition read a definition of nostalgia (“a sentimental longing for the past”) and are instructed to bring to mind a past event that makes them feel most nostalgic. They are instructed to immerse themselves in this nostalgic experience and think about how it makes them feel. Next, they list keywords relevant to the nostalgic event, and write about the event and how it makes them feel. Participants assigned to the control condition go through the same steps, but instead think and write about an ordinary, everyday experience from their past. Informed by this recent evidence, we offer specific recommendations and consider future nostalgia interventions in our concluding section.

Nostalgia in vulnerable populations

Migration

Globalisation has enabled migration on an unprecedented scale, and more people than ever temporarily or permanently settle outside their native country. For example, by mid-2020 the number of immigrants worldwide had reached 281 million, 60 million more than in 2010 (International Organization for Migration, 2019). Bicultural individuals (i.e., those who have been exposed to and internalised two cultures) face the daunting challenge of bridging between the society of origin and the society of settlement. How they respond to this acculturation challenge has profound implications for their psychological and sociocultural adjustment (Nguyen & Benet-Martínez, 2013). Nostalgia is a common emotion among bicultural individuals (Ritivoi, 2002), but is it beneficial for them (Sedikides et al., 2009)?

Over time, bicultural individuals accumulate meaningful experiences in their host culture (Benet-Martínez, 2012). Such experiences, which may include interactions with new friends and colleagues, exploration of unfamiliar natural environments, and enjoyment of unique cultural rituals and traditions, are a wellspring of host-culture nostalgia (Abeyta et al., 2015; Wildschut et al., 2006, 2018). Zou et al. (2018) tested the hypothesis that host-culture nostalgia is a valuable psychological resource in a sample of international teachers ($N = 782$) originating from 41 countries, who had returned to their home countries after completing a full-time, salaried placement in U.S. (host culture) school districts. The researchers proposed that host-culture nostalgia would serve to connect these sojourners’ experiences across notably different cultures and, by so doing, maintain self-continuity (i.e., a sense of connection between one’s past and present self or feeling the same person over time; Sedikides et al., 2016; Vignoles, 2011).

They further anticipated that, in turn, self-continuity would mediate the positive association between host-culture nostalgia and psychological adjustment, which they operationalised in terms of three facets: self-esteem, approach motivation, and job satisfaction.

Participants' email addresses were obtained from a company that served as intermediary between international teachers and U.S. school districts, and this information was used to distribute a link to an online survey. Participation was voluntary and included a chance to win a £20 Amazon voucher. To assess host-culture nostalgia, participants were first shown a definition of nostalgia ("According to the Oxford Dictionary, 'nostalgia' is defined as a 'sentimental longing for the past'") and then instructed to indicate how nostalgic they felt for 10 objects they had encountered in their host culture (e.g., "the friends I made there," "the natural scenery where I lived," "the restaurants I visited"). Home-culture nostalgia was also assessed, because it is important to establish whether the role of host-culture nostalgia is unique or can be subsumed under a general inclination to experience nostalgia, including nostalgia for one's home culture. Participants were again shown a definition of nostalgia and then rated how nostalgic they felt for 10 objects they had encountered in their home culture before working in the U.S. (e.g., "someone I loved," "vacations I went on," "my pets"). Next, self-continuity was assessed by instructing participants to rate the extent to which thinking nostalgically about their years in the U.S. made them "feel connected with my past" and "feel there is continuity in my life" (Sedikides et al., 2016). Finally, three facets of psychological adjustment were assessed. The first facet, self-esteem, was measured with five items from the Core Self-Evaluations Scale (e.g., "I am confident I get the success I deserve in life," "I complete tasks successfully"; Judge et al., 2003). Approach motivation was the second facet and it was assessed with two items developed by Cunningham et al. (2005): "I focus on opportunities that will enhance my life," and "I am primarily motivated by seeking potential successes." The third facet was job satisfaction, which was measured with the short form of Brayfield and Rothes' (1951) job satisfaction scale (e.g., "Most days I am enthusiastic about my work," "I find real enjoyment in my work"). These three measures were standardised (z scores) to create a shared metric and then averaged to create a composite index of psychological adjustment.

Given that participants originated from different countries, multilevel models were fitted, with participants (level 1 units) nested within their respective countries of origin (level 2 units). We present the results of these analyses in [Figure 1](#). As hypothesised, host-culture nostalgia predicted higher self-continuity (controlling for home-culture nostalgia). Home-culture nostalgia was also prognostic of higher self-continuity (controlling for host-culture nostalgia). Next, the researchers examined the respective unique

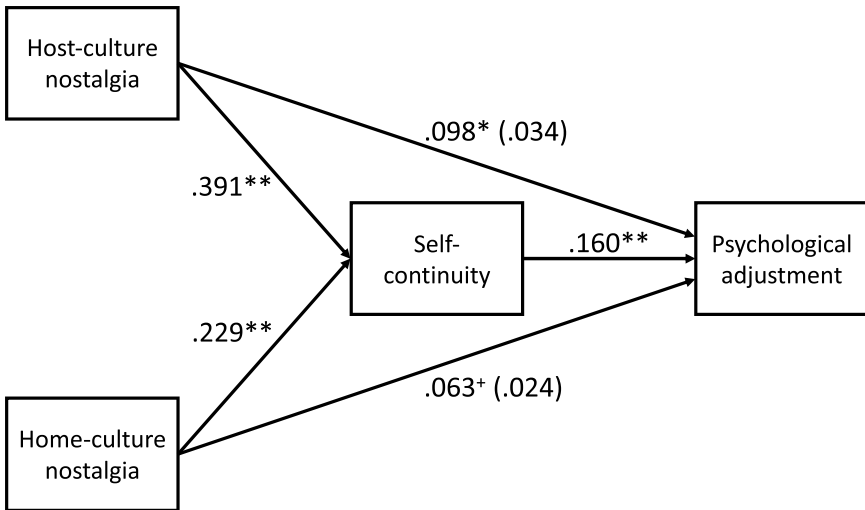


Figure 1. Mediation model of the relation of host- and home-culture nostalgia with psychological adjustment via self-continuity: Zou et al. (2018)

Note. Indirect effects of host-culture nostalgia and home-culture nostalgia on psychological adjustment through self-continuity. Path coefficients are unstandardised regression coefficients. Coefficients in parentheses are residual direct effects. Indirect effect for host-culture nostalgia: $ab = .063$, 95% CI = [.040, .087]. Indirect effect for home-culture nostalgia: $ab = .037$, 95% CI = [.018, .057]. $^+p < .10$, $*p < .05$, $**p < .01$.

associations of host- and home-culture nostalgia with psychological adjustment. Host-culture nostalgia was positively associated with psychological adjustment (controlling for home-culture nostalgia), although the link between home-culture nostalgia and psychological adjustment was trending (controlling for host-culture nostalgia). Did self-continuity mediate the positive association between host-culture nostalgia and psychological adjustment? To test this, psychological adjustment was again regressed on host- and home-culture nostalgia, but this time self-continuity was added as a third predictor. As hypothesised, self-continuity predicted better psychological adjustment, above and beyond host- and home-culture nostalgia. When controlling for self-continuity, neither host- nor home-culture nostalgia was significantly associated psychological adjustment. As a final step, Hayes' (2018) MCMED macro was used to test the indirect or mediated effects (ab) of host- and home-culture nostalgia on psychological adjustment via self-continuity. The indirect effect of host-culture nostalgia on psychological adjustment via self-continuity was significant, $ab = .063$, 95% CI = [.040, .087]. The indirect effect of home-culture nostalgia on psychological adjustment via self-continuity was also significant, $ab = .037$, 95%

CI = [.018, .057]. Thus, both host-culture nostalgia and home-culture nostalgia independently predicted higher levels of self-continuity and ensuing psychological adjustment.

Buoyed by Zou et al.'s (2018) positive findings, Petkanopoulou et al. (2021) examined how nostalgia shapes the way in which bicultural individuals relate to their host (and home) cultures. Bicultural individuals go through an acculturation process, which involves adapting to another culture. Acculturation orientation refers to the balance between, on the one hand, maintaining one's home culture and treasuring one's cultural heritage and, on the other hand, valuing and participating in one's host culture (Berry, 2005). Successful acculturation facilitates bicultural identity integration, that is, the degree to which individuals perceive their different cultural identities as overlapping and harmonious versus separate and conflictual (Benet-Martínez & Haritatos, 2005). The researchers tested the hypothesis that host-culture nostalgia strengthens bicultural identity integration, and does so by heightening acculturation orientation towards the host culture (i.e., the perceived value and importance of participating in the host culture).

Participants ($N = 154$) were originally from Greece and now resided in a number of European countries (Germany: 69.50%; United Kingdom: 14.30%; Belgium: 6.50%; France: 2.60%; Italy: 2.60%; Austria 1.90%; Spain: 1.90%; Switzerland: 0.60%). On average, these immigrants had resided in their host country for 11.32 years ($SD = 12.62$). They were randomly assigned to the conditions of a 2 (reflection: nostalgia vs. control) \times 2 (culture: home vs. host) between-subjects design. The experiment was conducted online and all materials were administered in Greek. Nostalgia was induced with a modified ERT (Sedikides et al., 2015). Participants in the nostalgia condition recalled and described in writing a nostalgic event they had experienced either in their home culture or their host culture. Participants in the control condition recalled and described in writing an ordinary event they had experienced either in their home culture or their host culture. Next, participants completed the manipulation check. Those in the home-culture condition responded to three items assessing felt home-culture nostalgia (e.g., "Right now, I am feeling quite nostalgic about my life in Greece"). Participants in the host-culture condition responded to the same items in reference to their host culture (e.g., "Right now, I am feeling quite nostalgic about my life in [host country]"). Following this, participants twice completed the Brief Acculturation Orientation Scale (Demes & Geeraert, 2013). They did so in relation to the host culture and, separately, in relation to the home culture (e.g., "It is important for me to take part in [host country/Greek] traditions"). Higher scores indicated a more positive acculturation orientation towards the host culture and home culture, respectively. Finally, participants responded to the Bicultural Identity Integration Scale-Version 2 (Huynh, 2009). Their

scores on the Cultural Harmony (i.e., perceptions of compatibility between two cultures; e.g., “I find it easy to balance both Greek and [host] cultures”) and Cultural Blendedness (i.e., the perceived overlap between two cultures; e.g., “I feel Greek and [host culture] at the same time”) subscales were combined to create a composite index of bicultural identity integration (Lilgendahl et al., 2018).

A 2 (reflection: nostalgia vs. control) \times 2 (culture: home vs. host) Analysis of Variance (ANOVA) indicated that participants in the nostalgia condition ($M = 3.83$, $SD = 1.47$) reported feeling significantly more nostalgic than controls ($M = 3.12$, $SD = 1.53$). As intended, the manipulation was effective. Next, an ANOVA of participants’ acculturation orientation towards the host culture revealed a significant Reflection \times Culture interaction effect. Within the host-culture condition, nostalgia ($M = 2.97$, $SD = 0.78$) increased positive acculturation orientation towards the host culture in comparison to the control condition ($M = 2.55$, $SD = 0.92$). In contrast, within the home-culture condition, nostalgia ($M = 2.32$, $SD = 0.85$) reduced positive acculturation orientation towards the host culture relative to the control condition ($M = 2.79$, $SD = 0.80$). An ANOVA on participants’ acculturation orientation towards their home culture revealed no significant effects. The ANOVA on bicultural identity integration revealed that the crucial Reflection \times Culture interaction effect was significant. When participants recalled an event from the host culture, nostalgic participants ($M = 3.52$, $SD = 0.56$) reported higher bicultural identity integration than controls ($M = 3.04$, $SD = 0.61$). When participants recalled an event from the home culture, however, nostalgic participants ($M = 2.90$, $SD = 0.69$) did not differ significantly from controls ($M = 3.14$, $SD = 0.81$).

Putting everything together, the researchers conducted a moderated mediation analysis with the PROCESS macro (Hayes, 2018) to test the indirect effect of nostalgia (vs. control) on bicultural identity integration through acculturation orientation towards the host culture, moderated by (i.e., contingent on) the culture (home culture vs. host culture) in which the recalled event was experienced (Figure 2). The index of moderated mediation was significant (index = -0.25 , $SE = 0.09$, 95% CI = $[-0.472, -0.081]$). When participants recalled an event from the host culture, there was a significant positive indirect effect of nostalgia (vs. control) on bicultural identity integration through a more positive acculturation orientation towards the host culture, $ab = 0.12$, $SE = 0.06$, 95% CI = $[0.004, 0.255]$. In contrast, when participants recalled an event from the home culture, there was a significant negative indirect effect of nostalgia (vs. control) on bicultural identity integration through a more negative orientation towards the host culture, $ab = -0.13$, $SE = 0.06$, 95% CI = $[-0.275, -0.024]$. The residual direct effect of nostalgia (vs. control) on bicultural identity integration was significant in

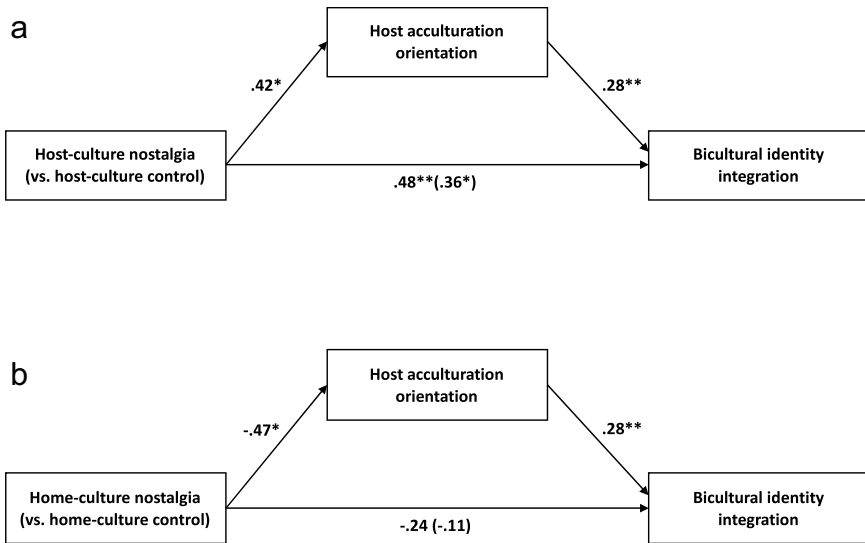


Figure 2. Moderated mediation of the relation of host- and home-culture nostalgia with bicultural identity integration via acculturation orientation towards the host culture: Petkanopoulou et al. (2021)

Note. Indirect effects of nostalgic (vs. control) reflection on bicultural identity integration through positive acculturation orientation towards the host culture as moderated by the culture (home vs. host) in which the recalled event was experienced. Panel a: Host-culture condition. Panel b: Home-culture condition. Path coefficients are unstandardised regression coefficients. Coefficients in parentheses are residual direct effects. Indirect effect in the host-culture condition: $ab = 0.12$, 95% CI = [0.004, 0.255]. Indirect effect in the home-culture condition: $ab = -0.13$, 95% CI = [-0.275, -0.024]. * $p < .05$, ** $p < .01$.

the host-culture condition, $b = 0.36$, $SE = 0.15$, 95% CI = [0.053, 0.664], but not in the home-culture condition, $b = -0.11$, $SE = 0.15$, 95% CI = [-0.395, 0.178].

The studies by Zou et al. (2018) and Petkanopoulou et al. (2021) produced compatible, positive findings with regard to nostalgia for the country in which participants were residing at the time of the study (i.e., home-culture nostalgia for Zou et al.'s sojourners and host-culture nostalgia for Petkanopoulou et al.'s immigrants), yet yielded seemingly incompatible findings with regard to nostalgia for the country participants had left behind. Among Zou et al.'s sojourners, who had returned to their country of origin, nostalgia for the country they had left behind (i.e., host-culture nostalgia) positively predicted psychological well-being via the mediating mechanism of self-continuity. Among Petkanopoulou et al.'s Greek immigrants, however, nostalgia for the country they had left behind (i.e., home-culture

nostalgia) predicted reduced bicultural identity integration via the mediating mechanism of (negative) acculturation orientation towards the host culture. One explanation is that the discrepancy arises from a unique affinity and painful longing for the home culture among Greek immigrants – a sentiment captured by the poet and Nobel laureate Giorgos Seferis (1995): “Wherever I travel, Greece wounds me.” Another, related, explanation is that the discrepancy arises because separation from one’s country of origin (compared to separation from a temporary host country) is more poignant; fond recollections of one’s native lands may be more heavily tinged with loss and sadness. This nostalgia-induced sense of loss may be particularly pronounced for victims of forced displacement.

Forced displacement

Based on research among Southeast Asian refugees who were resettled in Vancouver, Canada, Beiser and Wickrama (2004) proposed that nostalgia can be maladaptive when it highlights a contrast between favourable past circumstances and present hardship. Refugees who indicated that the past was more important than the future, and at least as important as the present, were at increased risk of developing depressive disorder. In light of their findings, Beiser and Wickrama concluded that fixation on a life that has been left behind can create a jarring contrast between one’s present condition and a “never-to-be-regained past” (p. 909). Wildschut et al. (2019) investigated this issue in more detail by experimentally inducing nostalgia and examining its effect on current affect and psychological functioning among Syrian refugees who resettled in Saudi Arabia. Studying refugee populations offers a strong test of the idea that nostalgia may be harmful when individuals experience upheaval, as few life events are as traumatic as forced displacement (Porter & Haslam, 2005). Building on findings that resilient individuals can harness fond memories to self-generate positive emotions in the context of sadness- and anxiety-inducing events (Philippe et al., 2009), the researchers also tested whether refugees who are high (compared to low) in dispositional (i.e., trait-level) resilience derive greater benefit from nostalgia.

One hundred and ninety adult Syrian refugees (116 men, 74 women) residing in urban areas of Riyadh, Saudi Arabia voluntarily took part in the experiment. They ranged in age from 18 to 64 years ($M = 36.30$, $SD = 10.80$) and were displaced during the Syrian civil war. Participants were recruited by a contact person with links to the Syrian community in Riyadh and through public canvassing. They completed all materials in Arabic. Nostalgia was induced successfully (as confirmed by a manipulation check) with the ERT (Sedikides et al., 2015). Participants recalled and described either a nostalgic or ordinary memory from their past and then completed two sets of dependent variables. The first set included measures of transient (i.e., state-level)

positive affect (PA) and negative affect (NA), derived from Barrett and Russell (1998). Items were “happy” and “sad,” intended to capture the opposite extremes of the valence or pleasantness dimension. In addition, the researchers included items to capture each quadrant of the Valence \times Arousal circumplex: “excited” and “enthusiastic” (activated PA), “calm” and “relaxed” (deactivated PA), “anxious” and “fearful” (activated NA), and “bored” and “tired” (deactivated NA). The second set of dependent variables pertained to the functions of nostalgia and included measures of self-continuity (e.g., “there is continuity in my life”; Sedikides et al., 2016); meaning in life (e.g., “life is meaningful”; Routledge et al., 2011); self-esteem (e.g., “I have many positive qualities”; Wildschut et al., 2006); social connectedness (e.g., “connected to loved ones”; Wildschut et al., 2010); optimism (e.g., “hopeful about my future”; Cheung et al., 2013); and inspiration (e.g., “filled with inspiration”; Stephan et al., 2015). Finally, the researchers assessed participants’ dispositional (i.e., trait-level) resilience with Wagnild and Young’s (1993) Resilience Scale. This measure was not intended as a dependent variable (and, indeed, it was not influenced by the nostalgia manipulation) but, rather, as a potential moderator of nostalgia’s beneficial effects.

A series of Nostalgia \times Resilience moderated Analyses of Covariance (ANCOVAs) on the affect measures (Figure 3, top panels) revealed that participants in the nostalgia (compared to control) condition reported higher levels of positive or pleasant affect (“happy”), irrespective of resilience. Nostalgic participants (compared to controls) also reported more activated PA, but this main effect was qualified by a significant Nostalgia \times Resilience interaction. Among high-resilience refugees (Figure 3, top right panel), nostalgia significantly increased activated PA. Among low-resilience refugees (Figure 3, top left panel), the effect of nostalgia on activated PA was not significant. For deactivated PA, a different results pattern was observed. Nostalgia (compared to control) *decreased* deactivated PA among high-resilience refugees, and did so even more strongly among low-resilience refugees. Negative or unpleasant affect (“sad”) was significantly higher in the nostalgia (than control) condition, irrespective of resilience. Participants in the nostalgia (compared to control) condition also reported significantly more activated NA, and this effect was significantly stronger among high-resilience than among low-resilience refugees. A similar results pattern emerged for deactivated NA. Nostalgia (compared to control) increased deactivated NA, and this effect was significantly stronger among high-resilience than low-resilience refugees. In all, these findings indicated that refugees in the nostalgia (compared to control) condition scored higher on all measures of current affect, except deactivated PA. The effect of nostalgia on overall affective intensity was particularly pronounced for refugees who were high (compared to low) in trait resilience. This suggest that participants

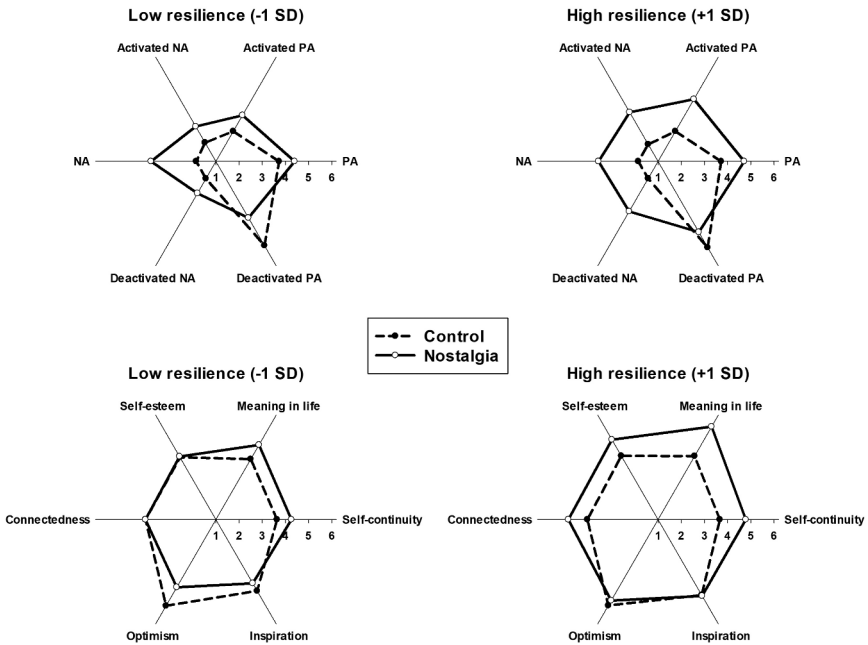


Figure 3. Effect of nostalgia on current affect (top panels) and psychological functions (bottom panels) by level of resilience: Wildschut et al. (2019)

Note. Plotted values are predicted means. Adapted from “Hanin: Nostalgia among Syrian refugees,” by T. Wildschut, C. Sedikides, and D. Alowidy, 2019, *European Journal of Social Psychology*, 49, p. 1375. Copyright 2019 by Wiley. Reprinted with permission.

in the nostalgia condition experienced more ambivalent or mixed affect. To examine this possibility, the researchers first calculated overall PA and NA scores (collapsing across activation level) and then indexed mixed affect as the minimum of each participant's PA and NA scores (Larsen & McGraw, 2011). Analysis of this index revealed that participants in the nostalgia condition experienced more mixed affect than those in the control condition, irrespective of resilience. For these refugees, nostalgia was a bittersweet emotion.

The second series of analyses examined the six functions of nostalgia (Figure 3, bottom panels). Participants in the nostalgia (compared to control) condition reported significantly higher levels of self-continuity, meaning in life, self-esteem, and social connectedness. Contrary to previous findings (Cheung et al., 2013, 2016; Reid et al., 2015), however, nostalgia decreased optimism. Results also showed that self-continuity, meaning in life, self-esteem, social connectedness, optimism, and inspiration all were higher among high-resilience (than low-resilience) individuals. Yet, all main effects were qualified by Nostalgia \times Resilience interactions. Among low-resilience

refugees (Figure 3, bottom left panel), nostalgia (compared to control) significantly increased self-continuity and meaning in life, had no significant effect on self-esteem or social connectedness, and significantly decreased optimism and inspiration. In each case, high-resilience refugees enjoyed more beneficial (or less detrimental) nostalgia effects (Figure 3, bottom right panel). For them, nostalgia (compared to control) significantly increased self-continuity, meaning in life, self-esteem, and social connectedness, and did not significantly decrease optimism or inspiration.

Taken together, Syrian refugees reaped many (but not all) psychological benefits of nostalgia. Those who recalled a nostalgic (compared to ordinary) event reported higher levels of social connectedness, self-esteem, meaning in life, and self-continuity. Future-oriented outcomes formed the exception; nostalgia decreased optimism and had no significant impact on inspiration. These nostalgia main effects were qualified, however, by dispositional resilience. Among low-resilience refugees, results were partially consistent with Beiser and Wickrama's (2004) pessimistic view of nostalgia. For them, nostalgia decreased optimism and inspiration. Yet, these negative effects were balanced by positive effects on meaning in life and self-continuity. High-resilience refugees, however, enjoyed most of nostalgia's benefits and were invulnerable to the costs incurred by low-resilience refugees.

Despite its bittersweet affective signature, nostalgia conveyed psychological benefits, in particular (but not exclusively) for high-resilience refugees. These findings are consistent with evidence concerning the relation between mixed emotions and psychological well-being. Larsen et al.'s (2003) coactivation model of healthy coping entails that "taking the good with the bad" (i.e., experiencing a mix of positive and negative emotion) during times of stress is beneficial, as it enables one to find meaning in adversity. Relatedly, the Dynamic Model of Affect proposes that one's ability to sustain affective complexity in stressful times is an important ingredient to long-term well-being (Davis et al., 2004). These theoretical models have received encouraging empirical support. Coifman et al. (2007), for example, showed that greater affective complexity predicted improved adjustment following the death of a loved one, raising the possibility that nostalgia may serve as a resource for bereaved individuals.

Bereavement

Bereavement, or the termination of a close relationship by the death of a loved one, is a universal human experience that often precipitates highly distressing psychological and physical symptoms (Fagundes & Wu, 2020; Stroebe et al., 2007). Bereaved individuals may experience sadness, detachment, guilt, anger, and panic or anxiety (Hogan et al., 2001). Physical symptoms include headaches, dizziness, upset stomach, back pain, and

sleep disturbances (Pennebaker, 1982). Bereavement also renders individuals susceptible to psychiatric conditions, such as major depression disorder, anxiety-related disorders, and posttraumatic stress disorder. These symptoms may contribute to impaired immune functioning and a relatively higher mortality rate among the bereaved (Stroebe et al., 2007).

Research has demonstrated the advantageous effects of expressive emotional disclosure on health and psychological outcomes across diverse populations (Pennebaker, 1997). Yet, expressive disclosure does not appear to assuage bereavement (Frattaroli, 2006). Stroebe et al. (2002), for instance, found that recording feelings and emotions (e.g., sadness, fear, anger, loneliness) regarding the death of a spouse in a reflective diary did not improve adjustment to bereavement (compared to no-diary control). A reason for this may be that emotion-focused strategies trigger rumination or “passive repetition of events without any active attempts at coming to terms with the loss and its personal implications” (Stroebe et al., 2002, p. 172). This may not bode well for a potential beneficial role of nostalgia in recovery from bereavement. Yet, whereas both rumination and nostalgia involve past-oriented thoughts and feelings, nostalgia has a markedly more positive profile.

Jiang et al. (2021; see also Cheung et al., 2018) compared the psychological profiles of nostalgia and rumination among both British ($n = 168$) and Chinese ($n = 135$) participants. Specifically, they distinguished between two facets of rumination: reflection (i.e., a genuine interest in, and contemplation of one's attitudes, feelings, or self to overcome problems or difficulties) and brooding (i.e., a repetitive and persistent dwelling on negative feelings or experiences; Miranda & Nolen-Hoeksema, 2007). Their key hypothesis was that nostalgia's profile would be more positive than that of reflection and, in particular, brooding. To test this, they randomly assigned participants to one of three conditions. Depending on condition, participants viewed either five features of nostalgia (e.g., “longing for a time and place from my past,” “bringing to mind rose-tinted memories”), reflection (e.g., “going away and reflect on why I feel in certain ways,” “analysing the event, trying to understand why it happened”), or brooding (e.g., “wishing things had gone better,” “asking ‘what am I doing to deserve this’”). All participants then brought to mind and wrote about an autobiographical event characterised by the features they were shown. The nostalgic features were based on prototype studies of nostalgia (Hepper et al., 2012, 2014), and the reflection and brooding features were derived from pertinent items of the Ruminative Responses Scale (Treyner et al., 2003). Next, participants completed validated measures of six psychological benefits and seven autobiographical memory functions. The psychological benefits were positive affect (e.g., “Thinking about this event makes me happy”), self-esteem (e.g., “. . . like myself better”), self-continuity (e.g., “. . . feel connected with my past”), optimism (e.g., “. . . feel optimistic about my future”), social

Table 1. Condition means (standard deviations) for psychological benefits and comparisons between conditions: Jiang et al. (2021).

Dependent variable	Condition <i>M</i> (<i>SD</i>)			Tukey HSD		
	Nostalgia	Reflection	Brooding	Nostalgia vs. Reflection	Nostalgia vs. Brooding	Reflection vs. Brooding
Positive affect	5.02 (1.12)	2.80 (1.76)	1.91 (1.33)	*	*	*
Self-esteem	4.06 (1.07)	3.03 (1.38)	2.45 (1.20)	*	*	*
Self-continuity	4.49 (0.94)	3.74 (1.22)	3.62 (1.14)	*	*	ns
Optimism	3.87 (1.15)	3.65 (1.38)	3.35 (1.30)	ns	*	ns
Social connectedness	4.50 (1.13)	3.05 (1.30)	2.95 (1.39)	*	*	ns
Meaning in life	4.55 (1.11)	3.72 (1.45)	3.60 (1.40)	*	*	ns

Note. * Mean difference between conditions is statistically significant ($p < .05$) according to Tukey's HSD. ns = Mean difference between conditions is non-significant. Adapted from "Nostalgia, reflection, brooding: Psychological benefits and autobiographical memory functions," by T. Jiang, W.-Y. Cheung, T. Wildschut, and C. Sedikides, 2021, *Consciousness and Cognition*, 90, p. 5. Copyright 2021 by Elsevier. Reprinted with permission.

Table 2. Condition means (standard deviations) for memory functions and comparisons between conditions: Jiang et al. (2021).

Dependent variable	Condition <i>M</i> (<i>SD</i>)			Tukey HSD		
	Nostalgia	Reflection	Brooding	Nostalgia vs. Reflection	Nostalgia vs. Brooding	Reflection vs. Brooding
Boredom reduction	3.33 (1.09)	2.89 (1.22)	2.38 (1.06)	*	*	*
Conversation	3.19 (1.00)	2.76 (1.22)	2.46 (1.21)	*	*	ns
Intimacy maintenance	3.64 (1.21)	2.97 (1.39)	2.39 (1.29)	*	*	*
Teach/inform	3.18 (1.12)	2.93 (1.15)	2.78 (1.15)	ns	*	ns
Death preparation	4.14 (1.20)	3.50 (1.36)	2.96 (1.48)	*	*	*
Self-regard	3.81 (0.95)	3.71 (1.12)	3.60 (1.16)	ns	ns	ns
Bitterness revival	2.25 (1.18)	3.43 (1.37)	3.73 (1.18)	*	*	ns

Note. * Mean difference between conditions is statistically significant ($p < .05$) according to Tukey's HSD. ns = Mean difference between conditions is non-significant. Adapted from "Nostalgia, reflection, brooding: Psychological benefits and autobiographical memory functions," by T. Jiang, W-Y. Cheung, T. Wildschut, and C. Sedikides, 2021, *Consciousness and Cognition*, 90, p. 5. Copyright 2021 by Elsevier. Reprinted with permission.

connectedness (e.g., "... feel loved"), and meaning in life (e.g., "... feel that life is worth living"). Based on the Modified Reminiscence Functions Scale (Washington, 2009), the seven memory functions were boredom reduction (e.g., "Thinking about this event helps me to pass time"), conversation ("... get people to talk"), intimacy maintenance (e.g., "... keep alive the memories of a loved one"), teach/inform (e.g., "... pass on family history"), death preparation (e.g., "... see that I have lived a full life"), self-regard (e.g., "... realise I am a person of worth"), and bitterness revival (e.g., "... keep painful memories alive"). Results were consistent with the hypothesis, for both British and Chinese participants. Regarding psychological benefits (Table 1), nostalgia (compared to reflection and brooding) increased positive affect, self-esteem, self-continuity, social connectedness, and meaning in life. Furthermore, nostalgia increased optimism relative to brooding (but not compared to reflection). In respect of autobiographical memory functions (Table 2), nostalgia (compared to reflection and brooding) led to higher boredom reduction, conversation, intimacy maintenance, and death preparation, as well as lower bitterness revival. Nostalgia also elevated teach/inform relative to brooding (but not compared to reflection).

In light of nostalgia's positive distinctiveness from brooding and reflection, Reid et al. (2021) proposed that the emotion could be beneficial to the bereaved. In a longitudinal study, these researchers examined the relation

between nostalgia and adjustment to bereavement among U.S. undergraduate students ($N = 133$) who had experienced the loss of a loved one in the prior two years. Bereavement among college-age individuals is a “silent epidemic,” with 30% and 39% of 18–23 year-olds having lost a loved one within the past 12 and 24 months, respectively (Balk et al., 2010). Participants’ losses were of grandparents (51.1%), extended family members (23.3%), parents (5.3%), or friends (9.8%), with the remaining (10.5%) deaths reported as significant others, acquaintances, other, or undeclared. The study involved an initial laboratory session (T1) and two online sessions completed one week (T2) and one month (T3) after the initial session. At T1, participants provided demographic information, reported characteristics of their loss (i.e., relationship to the deceased, closeness with the deceased, months since the loss, expectedness of the loss), and responded to a series of questionnaires (i.e., initial grief, nostalgia, distress elicited by the loss). At T2 and T3, participants again completed the questionnaires assessing nostalgia and distress elicited by the loss.

At T1, initial grief was assessed with the 61-item Hogan Grief Reaction Checklist (Hogan et al., 2001). Participants reported the extent to which they have experienced a variety of thoughts and feelings related to their loss within the past two weeks (e.g., “I agonize over his or her death”). Their responses were averaged across items to create an overall grief index. At each timepoint, the frequency (e.g., “How often do you experience nostalgia?”) and personal relevance (e.g., “How valuable is nostalgia for you?”) of nostalgic engagement was assessed with the 7-item Southampton Nostalgia Scale (SNS; Barrett et al., 2010). Responses at each time point were averaged to create nostalgia indices, with higher scores reflecting greater levels of nostalgia. Also, at each timepoint, subjective distress elicited by the loss was measured with the 22-item Impact of Event Scale-Revised (Weiss & Marmar, 1997). Participants reported the extent to which they had experienced loss-related difficulties in the past seven days on three subscales that assessed, respectively, intrusion (e.g., “I thought about it [referring to the loss] when I didn’t mean to”), hyperarousal (e.g., “I felt irritable and angry”), and avoidance (“I stayed away from reminders about it”). Responses for each subscale at each time point were averaged, with higher scores indicating greater levels of intrusion, hyperarousal, and avoidance.

Results revealed that individuals experiencing higher levels of nostalgia reported a reduction in intrusive thoughts over time, whereas those experiencing lower nostalgia did not report a significant decline in intrusion over time. A similar pattern of results was observed for hyperarousal (e.g., irritability, physical reactions to the loss), but only when initial grief levels were high (Figure 4). Among individuals with higher levels of initial grief at T1, hyperarousal declined across time among individuals who experienced higher nostalgia, but increased across time among individuals who

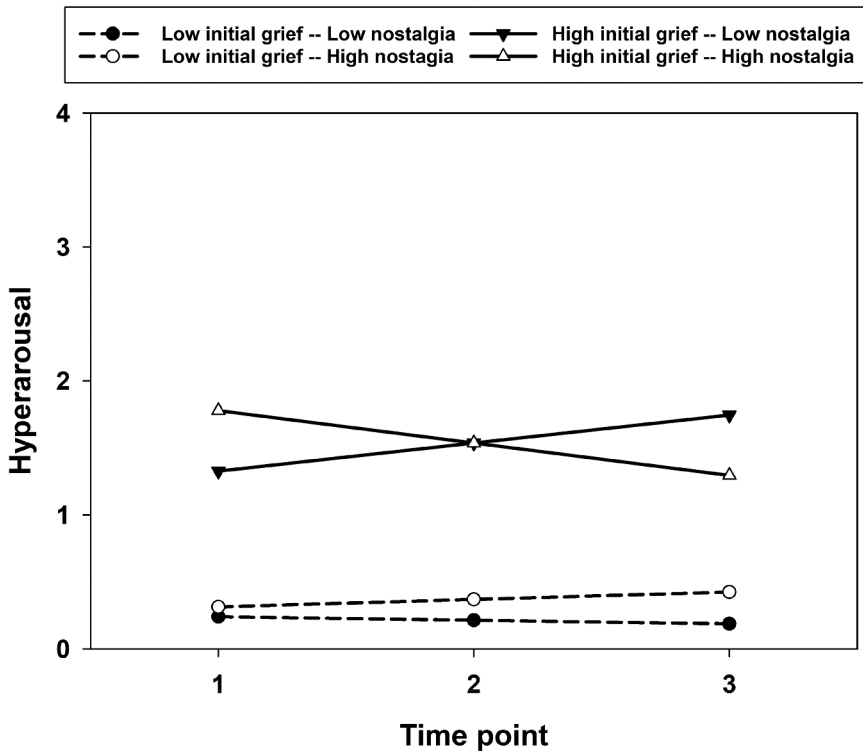


Figure 4. Simple slopes plot for the Time \times Nostalgia interaction effect on hyperarousal at low and high levels of initial grief: Reid et al. (2021)

Note. Plotted values are predicted means conditioned at low (-1 SD) and high ($+1$ SD) levels of initial grief and at low (-1 SD) and high ($+1$ SD) levels of nostalgia.

experienced lower nostalgia. Among participants at lower initial grief, there was no significant change in hyperarousal across time for those experiencing either lower or higher nostalgia. Avoidance did not change over time and was unassociated with nostalgia.

In summary, individuals experiencing higher nostalgia reported a decrease in intrusive thoughts relating to the loss across time, whereas those experiencing lower nostalgia reported no change in intrusive thoughts across time. Hyperarousal (physical symptoms, negative feelings) decreased across time among individuals with higher initial grief who experienced greater nostalgia, but increased across time among those with higher initial grief who experienced lesser nostalgia. The latter findings indicate that nostalgia is particularly important for individuals who are severely affected by their loss (i.e., those experiencing high levels of grief). Interventions could

be developed to help bereaved individuals foster nostalgia. This practice could help to guide bereaved individuals to fond and tender (and away from ruminative or bitter) memories about their lost loved ones.

Ageing and limited time

Maintaining psychological well-being in older age can be testing, as this life stage presents assorted transitions (e.g., retirement, bereavement) and health threats (e.g., physical impairments, cognitive decline). Prominent among these challenges is the awareness of limited time, which is linked to lower happiness and psychological well-being (Demiray & Bluck, 2014; Kotter-Grühn & Smith, 2011). Socioemotional selectivity theory (SST; Carstensen, 1992, 2006) proposes that older adults are aware of the limited time they have left and, to maximise social and emotional gains, prioritise emotion-regulating or meaning-oriented goals over expansive future-oriented goals. For example, they redirect their social interactions towards fewer but more important close relationships, and evince more positive recall of their past (as captured by the phrase, “the older I get, the better I was”). Hepper et al. (2021) proposed that drawing on nostalgic recollections is an effective tactic to gain meaning in life (Sedikides & Wildschut, 2018) and feel connected to close others (Wildschut et al., 2010), thereby helping older adults to achieve socioemotional priorities when faced with limited time. By so doing, nostalgia could buffer the negative impact of limited time perspective on well-being and enable individuals to achieve the often-observed stability or even rise in psychological well-being as they grow older (Charles & Carstensen, 2007; Diener et al., 1999; Ryff & Keyes, 1995).

Hepper et al. (2021, Study 1) examined how dispositional (i.e., trait-level) nostalgia shapes the association between age and psychological well-being. Specifically, they hypothesised that, across the adult life span, the relation between age and well-being would be more positive (or less negative) for individuals who are high (compared to low) in nostalgia. Their sample comprised 443 U.K. residents aged between 18–91 years ($M_{\text{age}} = 50.23$, $SD_{\text{age}} = 20.02$). Participants were predominantly White, with a median annual household income of £20,000–£40,000 (€23,200–€46,400). They were generally well-educated and most older adults lived in their own home. Participants completed two measures of trait nostalgia. The Nostalgia Inventory (NI; Batcho, 1995) asks participants to rate how nostalgic they feel about items from their past, including people (e.g., “someone I loved,” “my friends”) and objects (e.g., “my childhood toys,” “my family house”). The 7-item Southampton Nostalgia Scale (SNS; Barrett et al., 2010) assesses the frequency (“How often do you experience nostalgia?”) and value or importance (“How valuable is nostalgia for you?”) of nostalgia. The scales converged ($r = .63$, $p < .001$) and were combined to form a composite index of trait nostalgia. Next,

Table 3. Dimensions of psychological well-being as a function of trait nostalgia and age: Hepper et al. (2021, Study 1).

Well-being subscale	Step 1					Step 2					Model R ²
	Nostalgia	Age	Age ²	Gender	Education	Nostalgia × Age	Nostalgia × Age ²	Nostalgia × Gender	Nostalgia × Gender		
Autonomy	-.08	.12*	.05	-.10*	.04	.04	-.07	.03	.03	.04*	
Environmental Mastery	-.11*	.25***	.09*	.04	.06	.12**	-.12	-.03	-.03	.10***	
Personal Growth	-.05	-.17***	.01	.02	.19***	.03	-.02	-.01	-.01	.09***	
Positive Relationships	.04	.02	.06	.18***	.02	.10*	-.13	-.01	-.01	.05**	
Purpose in Life	-.02	.01	.11*	.01	.21***	.07	-.05	-.06	-.06	.07***	
Self-Acceptance	-.08	.10*	.10*	-.02	.12*	.07	-.12	-.02	-.02	.05**	

Note. Psychological well-being was assessed with Ryff's (1989) well-being scale. Tabled values are standardised beta coefficients. Coefficients for the main effects did not change in significance in Step 2. R² reflects the amount of variance explained by the final model (i.e., at Step 2 with all predictors). * $p < .05$, ** $p < .01$, *** $p < .001$. Adapted from "Time capsule: Nostalgia shields psychological well-being from limited time horizons," by E. G. Hepper, T. Wildschut, C. Sedikides, S. Robertson, and C. Routledge, 2021, *Emotion*, 21, p. 649. Copyright 2021 by the American Psychological Association. Reprinted with permission.

participants completed Ryff's (1989) 84-item well-being scale, comprising six subscales: Autonomy (e.g., "My decisions are not usually influenced by what everyone else is doing"), Environmental Mastery (e.g., "I am quite good at managing the many responsibilities of my daily life"), Personal Growth (e.g., "For me, life has been a continuous process of learning, changing, and growth"), Positive Relationships (e.g., "I enjoy personal and mutual conversations with family members or friends"), Purpose in Life (e.g., "I enjoy making plans for the future and working to make them a reality"), and Self-Acceptance (e.g., "I like most aspects of my personality"). The subscales were moderately and significantly intercorrelated, $r_s = .23-.77$, mean $r = .53$.

The researchers first conducted regression analyses separately for each well-being dimension (Table 3). In Step 1, age was positively associated with Autonomy and Environmental Mastery, and negatively with Personal Growth. Quadratic relations of age with Environmental Mastery, Purpose in Life, and Self-Acceptance indicated that well-being declined or remained stable from early to mid-adulthood, but recovered or increased in older adulthood. These results were generally consistent with prior findings, with the exception of Purpose in Life, which declines with age (Ryff, 1989; Ryff & Keyes, 1995). Crucially, in Step 2, trait nostalgia moderated the linear associations between age and, respectively, Environmental Mastery and Positive Relationships. Both Environmental Mastery and Positive Relationships scores increased more strongly with age among individuals who were high (than low) on trait nostalgia. Although not statistically significant, the Nostalgia \times Age interaction for the remaining subscales followed a similar pattern. That is, across well-being dimensions, age was more positively (or, for Personal Growth, less negatively) related to well-being when trait nostalgia was high (than low). In light of these parallel interaction effects across dimensions, and because "the difference between 'significant' and 'not significant' is not itself statistically significant" (Gelman & Stern, 2006, p. 328), the researchers tested if effects varied across well-being dimensions. The overall Nostalgia \times Age interaction was significant, but the Nostalgia \times Age \times Dimension interaction was not. Psychological well-being increased more strongly with age for individuals who were high (than low) in nostalgia and this pattern did not vary significantly across the six well-being dimensions, consistent with evidence that these dimensions reflect a single underlying factor (Keyes et al., 2002).

Nostalgia facilitated the maintenance or increase of psychological well-being with age. For high-nostalgia individuals, well-being increased over the lifespan, echoing typical trajectories (Charles & Carstensen, 2007; Ryff & Keyes, 1995). Low-nostalgia individuals, however, did not evince this positive relation between age and well-being. Regular

recollection of nostalgic memories may foster positive psychological functioning by helping older adults to achieve their socioemotional goals as they approach the end of life.

Dementia

Few experiences make a limited time horizon more salient than being diagnosed and living with dementia – an incurable terminal illness marked by progressive cognitive and physical decline (Cheston & Christopher, 2019). The well-established autobiographical memory deficits in most types of dementia (Greene et al., 1995) compromise one's ability to mentally travel back in subjective time to relive past events. Nevertheless, people living with dementia generally value their remaining capacity to relive autobiographical experiences and, in the earlier stages, can reliably experience essential features (i.e., emotion and importance) of autobiographical recall (El Haj & Antoine, 2017). Ismail et al. (2018) proposed that nostalgic memories, by virtue of their capacity to strengthen self-continuity, generate emotional meaning, and boost social connectedness (Ismail et al., 2021), can help people living with dementia to cope with their frequent feelings of insecurity, loss, and separation (Miesen, 1992). Ismail et al. (2018) conducted three experiments to examine the potential psychological benefits of nostalgia for people living with dementia. The experiments received both National Health Service (NHS) ethical approval and site approval from the appropriate NHS organisations. Participants in Experiment 1 were 27 U.K. residents (13 women, 14 men), who were recruited from the Research Institute for the Care of Older People (RICE), memory services under the Avon and Wiltshire Mental Health Partnership NHS Trust, and the Join Dementia Research Register. Participants had a diagnosis made within the previous 18 months by a consultant psychiatrist or geriatrician of: probable Alzheimer's disease, probable vascular dementia, or dementia with Lewy bodies, or a mixed form of these; mild or moderate levels of cognitive impairment; the capacity to provide informed consent; and sufficient communication skills to take part in the research. Participants were excluded if they had a significant history of pre-morbid psychiatric problems, had a diagnosis of frontotemporal dementia, or deficits in short-term memory were not the primary cause of disability. The sample in Experiment 2 comprised 29 U.K. residents (12 women, 17 men), and the same recruitment method and inclusion/exclusion criteria were used as in Experiment 1. In Experiment 3, the sample comprised 50 U.K. residents (25 women, 25 men), who were recruited from RICE following the same inclusion/exclusion criteria as in the previous experiments.

In Experiments 1 and 3, nostalgia was induced with the ERT (Sedikides et al., 2015). Participants either recalled and described a nostalgic event from their past (nostalgia condition) or an ordinary event from their past (control condition). In Experiment 2, nostalgia was induced by randomising participants to listen either to nostalgic or non-nostalgic music. Specifically, participants were yoked in pairs, with one person in each pair being randomly assigned to the nostalgia condition and the other to the control condition. At the time of recruitment, participants were asked to provide three of their favourite nostalgic songs. In the subsequent experimental session, the participant who had been assigned to the nostalgia condition listened (via headphones) to one of their nostalgic songs. The participant who had been assigned to the control condition listened to this same song. Both participants in each pair thus listened to the same song, but only one of them had identified this song as being nostalgic. Participants were instructed to immerse themselves in the song and think about how it made them feel, and then to describe a past event or experience associated with the music. In each experiment, the nostalgia induction was followed by a (successful) manipulation check (e.g., “Right now, I am feeling quite nostalgic”) and a questionnaire assessing the following psychological functions: self-esteem (e.g., “I feel good about myself”; Wildschut et al., 2006); self-continuity (e.g., “I feel connected with my past”; Sedikides et al., 2016); social connectedness (e.g., “I feel connected to loved ones”; Wildschut et al., 2010); meaning in life (e.g., “I feel life is meaningful”; Routledge et al., 2011); optimism (e.g., “I feel optimistic about my future”; Cheung et al., 2013), and positive (e.g., “I feel happy”) and negative (e.g., “I feel sad”) affect (Barrett & Russell, 1998). Items were prefixed with the phrase “Now that I have this event in mind . . .”.

Table 4. Fixed-effects integrative data analysis results (ANOVA) for an aggregated sample of people living with dementia: Ismail et al. (2018, Experiments 1–3).

	Nostalgia		Control		Condition effect		
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>F</i> (1, 100)	<i>p</i>	η_p^2
Social connectedness	4.96	0.15	2.94	0.16	81.11	< 0.001	0.448
Meaning in life	5.36	0.16	3.50	0.17	63.96	< 0.001	0.390
Self-continuity	5.14	0.15	3.27	0.16	69.93	< 0.001	0.411
Self-esteem	4.83	0.16	3.32	0.17	41.45	< 0.001	0.293
Optimism	4.38	0.17	2.73	0.18	42.26	< 0.001	0.297
Positive affect	5.51	0.16	4.26	0.17	29.27	< 0.001	0.226
Negative affect	1.53	0.12	1.62	0.12	0.25	0.615	0.003

Note. Tabled values are least squares means and standard errors from a Condition \times Experiment ANOVA. η_p^2 denotes partial eta-squared effect size. Bonferroni-corrected $\alpha = .05/7 = .007$. Adapted from “Psychological and mnemonic benefits of nostalgia for people with dementia,” by S. Ismail, G. Christopher, E. Dodd, T. Wildschut, C. Sedikides, T. Ingram, R. W. Jones, K. A. Noonan, and R. Cheston, 2018, *Journal of Alzheimer's Disease*, 65, p. 1340. Copyright 2018 by IOS Press. Reprinted with permission.

To remedy the small sample sizes in the individual studies, Ismail et al. (2018) combined results across experiments ($N = 106$; 50 women, 56 men), using integrative data analysis (Curran & Hussong, 2009). Fixed-effects integrative data analysis was used, in which study membership is as a fixed characteristic of each participant in the aggregated sample, and entered as a 3-level independent variable in a 2 (condition: nostalgia versus control) \times 3 (experiment) ANOVA. Table 4 presents the results of these analyses. Nostalgia (compared to control) significantly increased social connectedness, meaning in life, self-continuity, self-esteem, optimism, and positive affect. Consistent with prior research in non-clinical samples, nostalgia inductions did not significantly influence negative affect (Leunissen et al., 2021; Sedikides & Wildschut, 2016). Of importance, none of the Condition \times Experiment interactions were significant and associated effect sizes were small, indicating that there was little variation across the three experiments in the magnitude of nostalgia's beneficial effects. Nostalgia fortifies the psychological resources of people living with dementia.

These findings have implications for clinical practice. Dementia care services routinely use reminiscence therapy to support psychological well-being in people living with dementia, but evidence for its efficacy is inconsistent (Woods et al., 2016), perhaps because this intervention does not explicitly focus on nostalgic memories. Ismail et al.'s (2018) results revealed that nostalgia boosted the psychological resources of people living with dementia in a way that ordinary autobiographical memories did not. In this regard, it is noteworthy that nostalgia was successfully induced with music (Experiment 2). Music enhances the retrieval of self-defining memories among people living with Alzheimer's disease (El Haj et al., 2015). Furthermore, imaging studies have revealed that brain regions involved in musical memory are relatively well preserved in people living with Alzheimer's disease, which may explain their often remarkable retention of musical memories (Jacobsen et al., 2015).

Nostalgia interventions: Initial findings

Having raised the prospect of a role for nostalgia in clinical practice, the next section of our article reviews findings from an initial series of randomised intervention studies.

A week-long nostalgia intervention in the workplace

Van Dijke et al. (2019) proposed that nostalgia galvanises intrinsic motivation in situations of low interactional justice, with ensuing positive implications for work effort. Intrinsic motivation stands for the curious and exploratory pursuit of activities that one finds inherently interesting and enjoyable (Deci et al.,

1989). Low (vs. high) interactional justice refers to being the victim of disrespectful, impolite, or deceptive treatment by organisational authorities (Mayer et al., 2012). Intrinsic motivation is undermined in threatening contexts, such as low interactional justice, because such contexts constrain self-expression (Chirkov et al., 2003). Building on evidence that nostalgia strengthens various forms of self-expression (Sedikides & Wildschut, 2020), the researchers proposed that the emotion would buffer the negative impact of low interactional justice. Specifically, they hypothesised that the beneficial effect of nostalgia on intrinsic motivation should be most pronounced when interaction justice is low (than high). Furthermore, individuals who find a task intrinsically motivating will invest more effort in it (Lawler & Hall, 1970). Accordingly, the researchers also hypothesised that nostalgia would increase work effort when interactional justice is low (vs. high), via the mediating mechanism of intrinsic motivation.

To test these hypotheses, Van Dijke et al. (2019, Study 2) conducted a 5-day randomised field experiment among employees. They recruited 385 employees (134 women, 231 men) in full-time employment with various organisations and obtained a total of 1,427 completed daily surveys from 338 of them. Participants' age ranged from 22 to 64 years ($M = 38.10$, $SD = 10.32$). Forty-nine percent did not have a managerial position, 10% had a line management position, 18% had a middle management position, and 5% had a senior management position. The researchers assessed chronic interactional justice in a pre-test, using a 9-item scale (Colquitt, 2001). Items were preceded by the stem: "The following items are about your supervisor" (e.g., "Has he/she treated you in a polite manner?", "Has he/she been candid in his/her communications with you?"). Higher scores indicated greater levels of chronic interactional justice. The intervention started a week later and used the ERT to induce nostalgia (Sedikides et al., 2015). For five consecutive study days, participants received an email at 7:00 AM with a link to an online ERT, which they were asked to complete at work, before they commenced with normal duties. In the nostalgia condition, participants reflected on and wrote about a nostalgic event from their past. In the control condition, participants reflected on and wrote about an ordinary (e.g., regular, everyday) event from their past. In both conditions, participants then completed a (successful) manipulation check. Later on the same day, participants received a text message at a random time before 12:00 noon, instructing them to complete the daily measures on their smartphone. These measures were preceded by the stem: "At the moment of receiving the text message, how did you feel about your work?" Intrinsic motivation was measured with Gagné et al. (2010) 3-item scale, which asks participants to rate the importance of three intrinsic reasons for doing their work (e.g., "Because I have fun doing this job"). Work effort was measured with two items from Brown and Leighs (1996) scale (e.g., "I really exerted myself to the fullest at work").

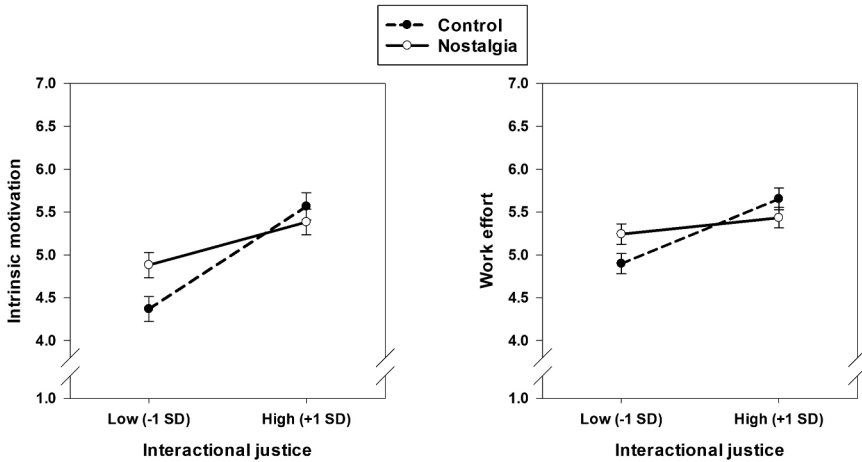


Figure 5. Effect of a nostalgia intervention on intrinsic motivation (left panel) and work effort (right panel) during the workday by level of chronic interactional justice: Van Dijke et al. (2019, Study 2).

Note. Plotted values are predicted means. Error bars represent standard errors. Adapted from “Nostalgia promotes intrinsic motivation and effort in the presence of low interactional justice,” by M. Van Dijke, J. Leunissen, T. Wildschut, and C. Sedikides, 2019, *Organizational Behaviour and Human Decision Processes*, 150, pp. 53–54. Copyright 2019 by Elsevier. Reprinted with permission.

Given that up to five daily surveys were nested within each employee, the researchers used multilevel analyses. As hypothesised, the Nostalgia \times Interactional Justice interaction effect on intrinsic motivation was significant. The early-morning nostalgia intervention increased intrinsic motivation later in the day among employees who reported low interactional justice (-1 SD), but not among those who reported high interactional justice ($+1$ SD; Figure 5, left panel). Furthermore, the Nostalgia \times Interactional Justice interaction effect on work effort was also significant. The nostalgia intervention significantly increased work effort later in the day when chronic interactional justice was low (-1 SD), but not when it was high ($+1$ SD; Figure 5, right panel). Crucially, results supported the hypothesised moderated mediation model. Among employees reporting low levels of interactional justice within their organisation, the indirect effect of nostalgia (vs. control) on work effort, via intrinsic motivation, was significant ($ab = 0.13$, 95% CI = [0.03, 0.22]). Among employees reporting high levels of interactional justice, however, this indirect effect was not significant ($ab = -0.05$, 95% CI = [-0.15, 0.06]). These findings underscore that transient emotions, such as

nostalgia, can set in motion processes that contribute to (or detract from) psychological functioning in the longer term (Folkman, 2008; see also Kersten et al., 2016, for an application to physical health).

A nostalgia intervention during the COVID-19 pandemic

Social isolation and loneliness during the COVID-19 pandemic appear to have triggered a wave of nostalgia, from a surge in popularity of old-fashioned board games, to social media trends like #MeAt20, and rebroadcasting of classic sporting events (Cooke, 2020). Zhou et al. (2021) proposed that nostalgia is an antidote to loneliness (see also Abeyta et al., 2020). Specifically, they advanced an intervening-variable model for understanding the relations among loneliness, nostalgia, and well-being. Their model postulates that the direct effect of loneliness on well-being is negative: loneliness conduces to deficits in happiness (Cacioppo et al., 2006). However, the indirect effect of loneliness on well-being via nostalgia is positive: loneliness engenders higher nostalgia, which will be associated with greater well-being. Zhou et al. (Studies 1–3) obtained correlational support for this model in three cultures (China, U.S., U.K.) during the COVID-19 pandemic. Loneliness during the pandemic was negatively associated with well-being, but positively with nostalgia. Nostalgia was positively associated with well-being, counteracting the adversity of loneliness. For our present purposes, however, we focus on the studies that came next. In three randomised intervention studies conducted during the COVID-19 pandemic (Studies 4–6), the researchers asked whether a brief nostalgia induction could have longer term causal effects – up to two days – on well-being. Participants in all three studies were Western MTurkers (combined $N = 595$; 274 women, 321 men; $M_{\text{age}} = 37.86$, $SD = 12.59$). Each study involved two time points (T1 and T2). At T1, nostalgia was induced with the ERT (Sedikides et al., 2015) with a minor variation; rather than recalling their most nostalgic experience, participants in the nostalgia condition were instructed to recall a typical nostalgic experience. This was followed by a manipulation check (e.g., “Right now, I am feeling quite nostalgic”) and collection of the well-being measures (i.e., happiness, positive affect [PA], and negative affect [NA]). In Study 4, happiness was assessed with two items (e.g., “Right now, I consider myself . . . ” 1 = *not a very happy person*; 7 = *a very happy person*). In Studies 5–6, happiness was measured with three items (e.g., “Right now, how much do you experience happiness?”; Kahneman & Deaton, 2010). In all three studies, PA and NA were assessed with the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), which included 10 PA adjectives (e.g., enthusiastic, proud) and 10 NA adjectives (e.g., distressed, upset). At T2, one or two days after the original assessment, participants completed the same manipulation check and measures of well-being as at T1. In Studies 4–5,

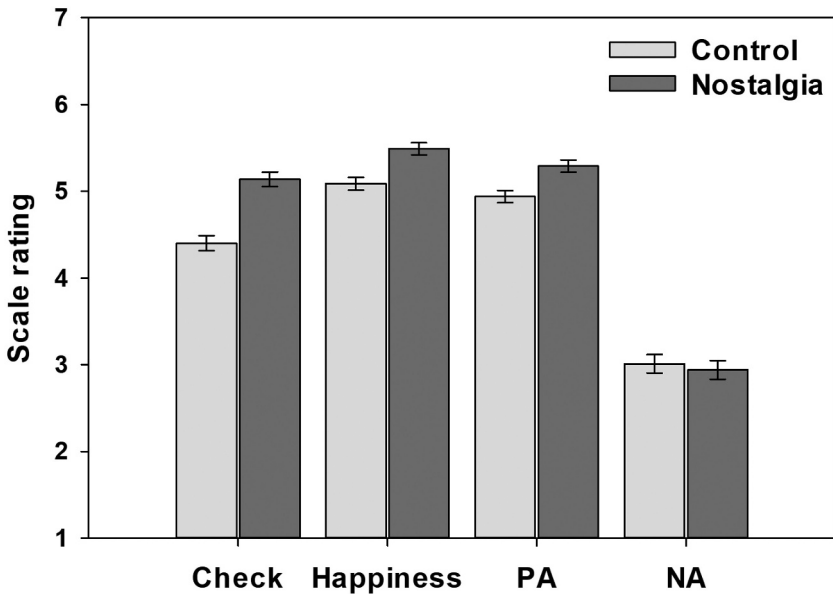


Figure 6. Aggregated main effect of a nostalgia intervention on well-being measures during the COVID-19 pandemic: Zhou et al. (2021, Studies 4–6).

Note. Plotted values are least squares means from a Nostalgia \times Time \times Study integrative data analysis in Zhou et al. (2021, Studies 4–6). Errors bars represent standard errors. All outcome variables were rated on a 7-point scale (1 = *not at all*, 7 = *very much*). Check = manipulation check. PA = positive affect. NA = negative affect.

this was preceded by a brief induction booster. Participants in the nostalgia (control) condition read: “In our previous questionnaire, you were asked to recall a nostalgic (ordinary) event and write down a few keywords. Do you still remember the event? Please write it down in the blank space below.” In Study 6, the researchers omitted this induction booster to examine whether its absence would attenuate the intervention's impact at T2.

In addition to testing the effects of the nostalgia intervention on measures of well-being at each time point within each study, Zhou et al. (2021) also aggregated the data across time points and studies in an integrative data analysis (Curran & Hussong, 2009) that was implemented by fitting a multilevel model, with time points nested within participants, and a random participant-level intercept. The reason for using this technique (rather than mixed ANOVA with time as within-subjects variable) was to avoid losing T1 data for participants who did not complete T2. Study membership was included as a fixed characteristic of each participant in the aggregated sample. A 2 (nostalgia, control) \times 2 (T1, T2) \times 3 (Study 4, Study 5, Study 6) multilevel analysis revealed significant aggregated nostalgia (vs. control) main effects on the manipulation check (i.e., felt nostalgia),

happiness, and PA. Consistent with prior evidence (Leunissen et al., 2021; Sedikides & Wildschut, 2016), the main effect of nostalgia (vs. control) on NA was not significant. Felt nostalgia, happiness, and PA were higher in the nostalgia than control condition (Figure 6). With one exception, nostalgia main effects were not qualified by any interaction effects involving time or study. The exception was a significant Nostalgia \times Time interaction effect on the manipulation check, which indicated that the nostalgia effect was smaller, but remained significant, at T2.

Across three experiments, a brief nostalgia intervention increased happiness and PA. The absence of higher-order interactions indicated that the magnitude of these beneficial effects did not decline significantly from T1 to T2 and did not vary between studies. Furthermore, the absence of significant Nostalgia \times Time \times Study three-way interactions suggests that the omission of an induction booster in Study 6 did not result in a larger diminution of the nostalgia effects over time (compared to Studies 4–5). In light of these results, it is tempting to conclude that the booster is not required to produce beneficial nostalgia effects at T2. Yet, separate analyses of Study 6 revealed that the nostalgia effects on T2 happiness and PA were in the predicted direction but non-significant, potentially due to reduced power stemming from attrition. A prudent conclusion, then, is that a brief induction booster was sufficient to reinstate nostalgia's beneficial effects up to two days later, but more research is needed to determine whether it is necessary. Zhou et al.'s (2021) findings show that nostalgia is easy to implement and can be self-initiated, pointing the way to cost- and time-effective interventions. Nostalgia's potential can be harnessed during extended periods of social isolation, and contribute to averting a downward spiral of declining mental health.

A multi-week nostalgia intervention at university

To date, the most comprehensive randomised nostalgia intervention has been conducted by Layous et al. (2021). They studied the effect of a 6-week, weekly nostalgia intervention on psychological well-being over time. Building on Lyubomirsky and Layous' (2013) positive activity model, these researchers proposed that any intervention will be more successful if it is well-suited to the person practicing it; that is, if there is optimal person-activity fit. When an activity feels more natural and enjoyable, people persist in the activity beyond the intervention period (Sheldon & Lyubomirsky, 2006), and maintain their well-being benefits over time (Proyer et al., 2015). In the case of a nostalgia intervention, the researchers argued, person-activity fit should be more optimal for individuals who already readily engage in and value nostalgic reflection in their daily lives. Indeed, Cheung et al. (2016) demonstrated that individuals who were high (compared to low) in dispositional nostalgia derived more

psychological benefits from an experimental nostalgia induction. On this basis, Layous et al. hypothesised that individuals high on dispositional nostalgia would report greater well-being over time after a weekly nostalgia intervention.

Participants were 176 James Madison University introductory psychology students (127 women, 49 men; $M_{\text{age}} = 19.10$, $SD = 1.97$), who signed up voluntarily. Participants were recruited over a 2-week period and completed the baseline (T1) assessment at any time during that period. The consent form explained that the purpose of the study was to explore the efficacy of a potentially happiness-increasing activity. Following recruitment, all participants were placed on the same schedule for the intervention period (T2-T7). For six consecutive weeks (T2-T7), they received an email on Monday morning with a customised link and then had until the following Monday to complete that wave of the study (a writing activity and measures). Participants were re-contacted one month after the intervention to complete a follow-up assessment (T8). At baseline (T1), they completed the following measures: life satisfaction, subjective vitality, eudaimonic well-being, PA/NA, dispositional nostalgia, and demographics. Life satisfaction was assessed with the Satisfaction with Life Scale (e.g., “In most ways my life is close to my ideal”; Diener et al., 1985). Subjective vitality was assessed with the Subjective Vitality Scale (e.g., I feel alive and vital”; Ryan & Frederick, 1997). Eudaimonic well-being was assessed with the Questionnaire for Eudaimonic Well-Being (e.g., “My life is centered around a set of core beliefs that give meaning to my life”; Waterman et al., 2010) PA and NA were assessed with positive (e.g., “happy,” “joyful”) and negative (e.g., “worried/anxious,” “frustrated”) adjectives, respectively (Diener & Emmons, 1985). Participants rated the degree to which they had experienced each feeling over the past week. Finally, dispositional nostalgia was measured with the SNS (Barrett et al., 2010), which taps the degree to which people value and experience nostalgia in their daily lives.

At the second assessment (T2), participants were randomly assigned to the nostalgia or control condition. Nostalgia was induced with the ERT (Sedikides et al., 2015). Participants completed their respective ERT writing activities weekly during the 6-week intervention period (T2-T7). Following the writing activity each week (T2-T7), participants completed measures of social connectedness (e.g., “Thinking about this event makes me feel connected to loved ones”; Wildschut et al., 2010), meaning in life (e.g., “. . . life is meaningful”; Routledge et al., 2011), and self-continuity (e.g., “. . . connected with my past”; Sedikides et al., 2016). The researchers proposed that these key mechanisms (Sedikides et al., 2015) would transmit (i.e., mediate) the intervention effect on well-being over time. Following each writing activity, participants also completed the PA/NA measures (as at T1). At mid-intervention (T4) and post-intervention (T7), participants reported their

Table 5. Indirect effects of nostalgia intervention on outcomes via the average of social connectedness, meaning, and self-continuity: Layous et al. (2021).

Outcomes	Mid-intervention (T4)		Post-intervention (T7)		Follow-up (T8)	
	<i>ab</i> (<i>SE</i>)	95% CI	<i>ab</i> (<i>SE</i>)	95% CI	<i>ab</i> (<i>SE</i>)	95% CI
Positive affect	0.24 (0.08)	[0.09, 0.40]	0.38 (0.10)	[0.20, 0.60]	0.27 (0.10)	[0.09, 0.46]
Negative affect	-0.09 (0.07)	[-0.22, 0.06]	-0.16 (0.07)	[-0.32, -0.03]	-0.20 (0.07)	[-0.35, -0.07]
Life satisfaction	0.18 (0.08)	[0.03, 0.33]	0.19 (0.08)	[0.05, 0.36]	0.30 (0.09)	[0.14, 0.48]
Subjective vitality	0.22 (0.07)	[0.08, 0.35]	0.21 (0.07)	[0.09, 0.36]	0.27 (0.08)	[0.11, 0.42]
Eudaimonic well-being	0.08 (0.05)	[0.00, 0.18]	0.05 (0.04)	[-0.03, 0.15]	0.10 (0.04)	[0.02, 0.18]

Note. For indirect effects (*ab*) out to mid-intervention, the mediating mechanism was the average of social connectedness, meaning, and self-continuity from T2-T4. For indirect effects out to post-intervention and follow-up, the mediating mechanism was the average of social connectedness, meaning, and self-continuity from T2-T7. Indirect effects are considered statistically significant if the 95% CI does not include zero. Adapted from "The effect of a multi-week nostalgia intervention on well-being: Mechanisms and moderation," by K. Layous, J. Kurtz, T. Wildschut, and C. Sedikides, 2021, *Emotion*, Advance online publication. p. 8. Copyright 2021 by the American Psychological Association. Reprinted with permission.

life satisfaction, subjective vitality, and eudaimonic well-being (as at T1). At follow-up (T8), one month after the intervention ended, participants again completed measures of life satisfaction, subjective vitality, eudaimonic well-being, and PA/NA (as at T1).

We review Layous et al.'s (2021) findings in two steps. First, we consider the intervention's total effect and its indirect effects via the mediating mechanisms of social connectedness, meaning, and self-continuity. Next, we evaluate the person-activity fit hypothesis by examining interactions between the intervention and dispositional nostalgia. Overall, at mid-intervention (T4), participants in the nostalgia (vs. control) condition reported significantly higher life satisfaction, eudaimonic well-being, and PA, as well as lower NA. The intervention did not significantly increase subjective vitality. None of the beneficial total effects were sustained out to post-intervention (T7) or follow-up (T8). However, results revealed significant indirect effects via the average of social connectedness, meaning, and self-continuity (Table 5; for separate analyses of each mediating mechanism, see Layous et al., 2021, Supplemental Materials). At mid-intervention, there were significant indirect intervention effects on life satisfaction, subjective vitality, eudaimonic well-being, and PA. These indirect effects remained significant at post-intervention and follow-up, with the exception of eudaimonic well-being at post-intervention. The indirect effect on NA was significant at follow-up only. Kenny and Judd (2014) showed that in mediation analysis the test of the total effect can have considerably less power than the test of the indirect effect. They argued that this carries the important implication that in certain research situations, including randomised

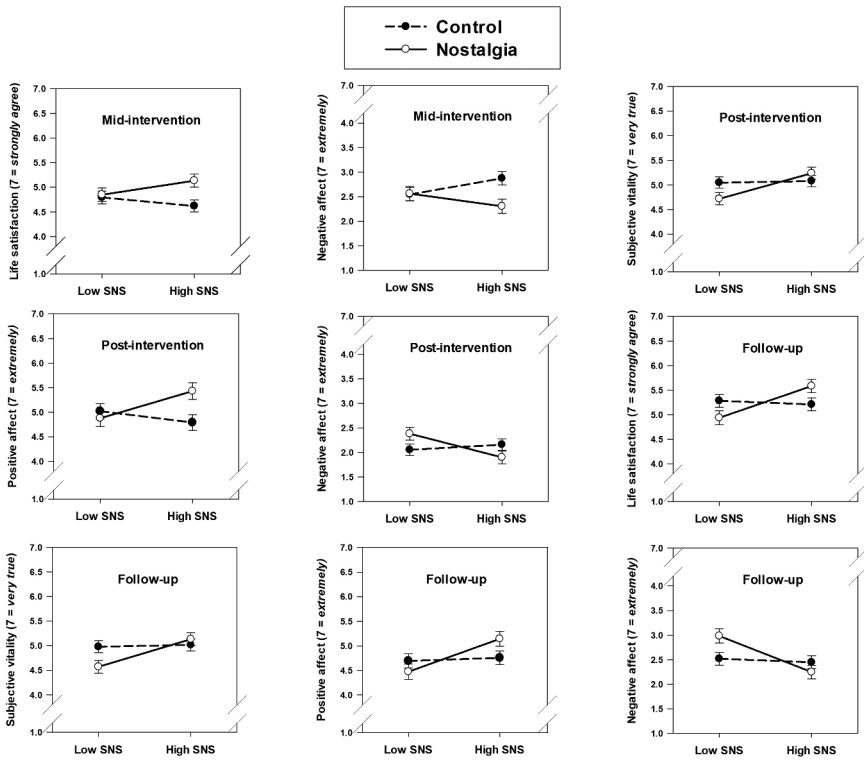


Figure 7. Intervention Condition (nostalgia vs. control) \times Dispositional Nostalgia interactions on key outcomes: Layous et al. (2021)

Note. SNS = Southampton Nostalgia Scale. For dispositional nostalgia (SNS), low is the 16th percentile and high is the 84th percentile. Error bars represent standard errors. Adapted from “The effect of a multi-week nostalgia intervention on well-being: Mechanisms and moderation,” by K. Layous, J. Kurtz, T. Wildschut, and C. Sedikides, 2021, *Emotion*, Advance online publication. p. 8. Copyright 2021 by the American Psychological Association. Reprinted with permission.

interventions with potentially small but important effects, there are benefits in testing the indirect effect over the total effect. Here, nostalgia-induced, short-term social connectedness, meaning, and self-continuity may have prompted behavioural changes that cascaded to produce long-term well-being (Cohen & Sherman, 2014; Funder & Ozer, 2019; Walton & Wilson, 2018).

Turning to the person-activity fit hypothesis, Intervention \times Disposition interaction effects indicated that those who were high (compared to low) on dispositional nostalgia benefitted more from the nostalgia intervention on multiple outcomes at different time points (Figure 7). At mid-intervention

(T4) the beneficial effects of the intervention on life satisfaction and NA were strongest among those who were high in dispositional nostalgia. At post-intervention (T7), there were significant interaction effects on subjective vitality, PA, and NA. With respect to PA and NA, those high on dispositional nostalgia derived greater benefit from the nostalgia intervention. Conversely, adverse effects of the intervention emerged on subjective vitality and NA among those low on dispositional nostalgia. At follow-up (T8), one month after the intervention, results revealed interaction effects on life satisfaction, subjective vitality, PA (trending), and NA. As at post-intervention, two patterns were observed – one in which participants high in dispositional nostalgia accrued greater benefit from the intervention and one in which those low in dispositional nostalgia evinced an adverse effect of the intervention. Specifically, on life satisfaction and PA, participants high on dispositional nostalgia gained the most from the intervention. On life satisfaction, subjective vitality, and NA, those low on dispositional nostalgia were disadvantaged by the intervention. In all, individuals who reported valuing and engaging in nostalgia as part of their everyday lives (i.e., those who were relatively high on dispositional nostalgia) tended to benefit the most from a weekly nostalgia intervention. These findings suggest that future nostalgia interventions should include a pre-screening to identify those who are most likely to benefit. We discuss this and other desiderata for future nostalgia interventions in the concluding section of our article.

Nostalgia interventions: Future directions

Person-activity fit and the role of pre-screening

Future interventions should aim to achieve optimal person-activity fit by pre-screening for individual differences that have been shown to catalyse (and not antagonise) the benefits of nostalgia (Lyubomirsky & Layous, 2013). In addition to trait resilience (Wildschut et al., 2019) and dispositional nostalgia (Cheung et al., 2016; Layous et al., 2021), two other individual differences that deserve continued scrutiny in future research are attachment-related avoidance and neuroticism. High-avoidance (compared to low-avoidance) individuals view others as unavailable or unresponsive, and rely less on social bonds to regulate distress (Mikulincer & Shaver, 2007). Given the characteristic salience of close others in nostalgic memories, it follows that insecurities about one's social relationships would attenuate the benefits of nostalgic reverie. In support, Wildschut et al. (2010) demonstrated that reflecting on a nostalgic (vs. ordinary) memory imbued a sense of social connectedness (e.g., “connected to loved ones”; Study 4) and interpersonal competence (e.g., “Being a good and sensitive listener for a companion who is upset”; Study 5) among low-avoidance (but not high-avoidance)

participants. These traces of attachment-related avoidance can be detected in the written content of nostalgic narratives as well. Abeyta et al. (2015) content-analysed the nostalgic narratives of 101 U.S. undergraduates. Narratives written by low-avoidance (compared to high-avoidance) authors included more frequent expressions of attachment feelings (i.e., “loved,” “trusted”) and fewer expressions of agency (i.e., “success,” “power”). Research in romantic contexts has added corroborating evidence. Juhl et al. (2012) showed that low-avoidance (compared to high-avoidance) undergraduates who reflected on a nostalgic memory reported higher levels of relationship satisfaction when dating (e.g., “Right now, how satisfied are you with your current romantic relationship?”; Study 1) and stronger relationship desire when single (e.g., “Right now, how much do you desire to start a romantic relationship?”; Study 2). Muise et al. (2020) found that low-avoidance individuals recruited sexual nostalgia when they were single or unfulfilled in their current relationships, whereas high-avoidance individuals did not calibrate their sexual nostalgia based on their current fulfilment. Low-avoidance individuals, then, were more discerning in their use of sexual nostalgia, recruiting it as a compensatory strategy to restore feelings of connectedness and sexual confidence. In all, the extant evidence points to greater nostalgia benefits for low-avoidance individuals.

Neuroticism (i.e., emotional instability and susceptibility to negative mood) is highly relevant to clinical practice, as it can render individuals vulnerable to adverse events (Gunthert et al., 1999; McKeever & Huff, 2003), including COVID-related stress (Asmundson et al., 2020; Taylor et al., 2020). Frankenbach et al. (2021) asked whether nostalgic engagement can be beneficial for individuals who are high in neuroticism. To answer this question, they conducted a meta-analysis of experiments that measured trait neuroticism and manipulated nostalgia ($k = 19$ studies, $m = 155$ effect sizes, $N = 3,556$). They focused on three major outcome categories – self-oriented, existential, and social – each of which comprised a number of subcategories. For the self-oriented category, subcategories included self-esteem, optimism, and inspiration. For the existential category, subcategories were meaning in life and self-continuity. Subcategories within the social category were social connectedness and social action tendencies. The overall nostalgia (vs. control) main effect was statistically significant for each of the major outcome categories (self-oriented, existential, and social). Furthermore, with the exception of social action tendencies, nostalgia increased each of the subcategories (self-esteem, optimism, inspiration, meaning, self-continuity, and social connectedness). Crucially, these beneficial nostalgia effects were not significantly qualified by neuroticism, as they emerged for both high-neuroticism and low-neuroticism individuals. This is encouraging regarding the generalisability of nostalgia's benefits in clinical settings.

Content diversity and the role of different modalities

In Layous et al.'s (2021) 6-week study, the effects of the nostalgic writing activity out to mid-intervention were generally positive, but they continued to be so over time only for those who were particularly high on dispositional nostalgia. In an open-ended question at the end of the intervention, many participants commented on the repetitiveness of the weekly writing task, and this may have attenuated potential well-being benefits. Future interventions may be strengthened by developing more multifaceted content and inducing nostalgia via different modalities. For example, nostalgia can be induced with music (Barrett et al., 2010; Sedikides et al., 2021), scents (Reid et al., 2015), food (Zhou et al., 2019), photographs (Oba et al., 2015; Yang et al., 2021), websites (Cox et al., 2015), social media (Davalos et al., 2015; Youn & Jin, 2017), and games (Wulf & Baldwin, 2020). Participants could be allowed to choose the type of activity in which they want to engage on each occasion, thus supporting their autonomy and boosting their intrinsic motivation to perform the activity (Vansteenkiste et al., 2004). Such multifaceted interventions are likely to be more interesting and involving over time.

Interventions could also be made more interesting and involving over time by inviting participants to provide a set of nostalgic memories at baseline and then randomly expose them to these memories on different occasions, thereby introducing an element of surprise and diversity that could prevent adaptation (Lyubomirsky, 2011). This principle was borne out by a happiness intervention focused on kindness, in which those who varied their kind acts each week reported sharper increases in well-being than those who carried out the same kind acts, with the latter evincing decreased well-being (Sheldon et al., 2012).

Intervention delivery and the role of user interfaces

Our final observations concern several promising user interfaces for delivering nostalgia interventions. These have been trialled primarily among older adults and people living with dementia, but can be readily adapted for different populations. Chao et al. (2017) designed a jigsaw task based on a typically nostalgic experience – making rice dumplings – in their target population of elderly Chinese individuals living with dementia. The procedure of making rice dumplings is divided in six sequential steps or pieces, each piece consisting of a photograph with a text description. The player is instructed to arrange the pieces in the correct sequence. If the player does not understand the meaning of a given piece, they can use a tablet to scan a QR code on the reverse side, prompting an audio explanation, folksongs about dumpling wrapping, and ingredient information. Wang et al. (2020) developed an interactive multimedia device resembling a music turntable that allowed their older-adult users to select and play nostalgic songs. The user

assumes the role of a disc jockey who is “spinning” records. Dodd et al. (2021), in collaboration with people living with dementia and their carers, drafted a workbook to facilitate nostalgic conversations. They piloted this over five weeks with six couples, each of whom included a person living with dementia. The couples were supported by coaches through alternating weekly home visits and phone calls. During the first meeting, the coaches introduced the workbook and encouraged couples to use it for recording their own nostalgic memories. The couple and the coaches then jointly planned how the couple could incorporate a nostalgic conversation into the upcoming week's activities. These plans were subsequently recorded in the workbook, and the coaches encouraged the couples to use the workbook for guidance in incorporating nostalgic conversations into their everyday life. Coaches implemented the experiences that couples recorded in the workbook to initiate discussion at each follow up session. Couples were able to identify nostalgic memories and integrate nostalgic conversations and activities in their day-to-day lives.

Whereas some of these initiatives are in their infancy, others have witnessed more rapid development. Research on individualised music-based interventions, such as the one implemented by Ismail et al. (2018, Experiment 2), has shown that these can reduce neuropsychiatric symptoms associated with dementia (Sung & Chang, 2005). In a recent study, Schroeder et al. (2018) created 31 music playlists, with songs grouped according to decade, music genre, and sometimes individual artist. Older adults living with dementia (or their carer) were asked which type of music they used to enjoy when they were younger and individualised playlists were then assigned to each individual based on their preferences. Compared to care as usual, the intervention decreased agitation and negative mood, and increased positive mood. Patented systems and methods for identifying nostalgic musical content developed by the music-streaming company Spotify have opened the door to delivering individualised music-based nostalgia interventions on a previously unimaginable scale (Gibson et al., 2019). This work underpins the Your Time Capsule playlist, a collection of personalised nostalgic songs curated based on user attributes and available to Spotify's 158 million subscribers worldwide (as of 31 March 2021).

Limitations

The studies we reviewed indicate that nostalgia is a valuable resource for vulnerable individuals from a range of national and cultural backgrounds, including Greece (Petkanopoulou et al., 2021), Syria (Wildschut et al., 2019), China (Zhou et al., 2021), and The Netherlands (Van Dijke et al., 2019). Nevertheless, studies with western participants, particularly from the U.K. and U.S., predominated, as they do in the wider nostalgia literature. Further,

systematic cross-cultural comparisons of nostalgia's implications for psychological wellbeing are scarce, and available studies involved opportunity-based samples rather than a systematic cross-section of continents or cultures (Jiang et al., 2021). Thus, there is clear need for systematic cross-cultural, multi-laboratory research to involve individuals whose voices have been underrepresented, particularly those from African countries (Hepper et al., 2014; McCrae & Terracciano, 2005).

Although experimental studies on nostalgia have induced the emotion in variety of ways, most have used the ERT. Newman et al. (2020, Study 5) questioned the ecological validity of the ERT, proposing that, because this task instructs participants to recall their *most* nostalgic experience (cf. Zhou et al., 2021, Studies 4–6), it overestimates the benefits of nostalgic experiences in everyday life. They found that participants who recalled their most nostalgic event rated it as more positive and less negative than those who recalled an everyday nostalgic event. These findings should be interpreted with caution, however, given the operationalisation of everyday nostalgia. To be precise, participants were instructed to rate the extent to which four items of a nostalgia scale described them today (e.g., “To what extent did you feel a longing to return to a former time in your life”; 1 = *not at all*, 7 = *very much*). The researchers then instructed “those who reported some level of nostalgia (by endorsing a value greater than ‘not at all’ for any of the four items)” (p. 341) to recall and describe the experience that made them feel nostalgic that day. This is an extraordinarily low bar and one wonders what participants who scored just fractionally above the scale minimum thought when instructed to describe the nostalgic experience they had (or, rather, did not have) that day; ecologically valid it is not. To address the important issue of ecological validity in future research, researchers could capitalise on sensory stimuli known to evoke mundane nostalgia in everyday life, such as scent (Reid et al., 2015), food (Zhou et al., 2019), photographs (Oba et al., 2015; Yang et al., 2021), and music (Barrett et al., 2010; Sedikides et al., 2021).

Concluding remarks

A perennial debate in social psychology concerns the supposed artificiality of laboratory experiments. In the 1970s, doubts surrounding the everyday relevance of laboratory findings gave rise to the “crisis in social psychology” (Gergen, 1973). In its most recent incarnation, the debate has centred on the external validity of laboratory experiments on racial discrimination (Cesario, 2021). Then as now, advocates of laboratory research asserted that its key objective is the identification of theoretical principles and causal mechanisms, and that it is these principles and mechanisms, rather than the specific study characteristics (e.g., sample, setting, operationalisations), that one

seeks to generalise (Mook, 1983). We count ourselves among the defenders of laboratory research, but have sought to avoid “smugness about the generality of laboratory principles” (Banaji & Crowder, 1989, p. 1191) by examining the role of nostalgia in psychological functioning with multiple methods in diverse populations and settings. Under the impetus of the COVID-19 pandemic, and with the ultimate goal of harnessing nostalgia for psychological wellbeing, we reviewed recent findings for the emotion's benefits in vulnerable populations and evaluated evidence from the first randomised intervention studies in applied contexts. In a number of instances, we observed strong agreement between past laboratory experiments with typical undergraduate samples and these more recent studies. For example, consistent with prior findings (Sedikides et al., 2015), ERT- and music-induced nostalgia produced uniformly positive effects across three experiments with dementia patients (Ismail et al., 2018). In other cases, discrepancies arose. Syrian refugees residing in Saudi Arabia, for instance, evinced reduced optimism after recalling a nostalgic (compared to ordinary) event from their past (Wildschut et al., 2019), contrary to laboratory findings with U.K. and U.S. undergraduates, for whom nostalgia increased optimism (Cheung et al., 2013). Such contrasting evidence can, in turn, stimulate follow-up research to discover what additional processes may be operating. Perhaps nostalgia reduced optimism among the Syrian refugees, because they had lost hope of ever recapturing their cherished past (Iyer & Jetten, 2011). Indeed, when studies in diverse populations and settings do not produce compatible results, scientific progress is best served by initiating further theoretical and empirical efforts to identify the reasons for these discrepancies rather than by wholesale dismissal of the findings (Anderson & Bushman, 1997). We aspire for this article to serve as springboard for such future initiatives and, by so doing, help to translate basic nostalgia research into valuable real-world applications.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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