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To Nostalgize: Mixing Memory with Affect and Desire

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Abstract

Nostalgia is a self-conscious, bittersweet but predominantly positive and fundamentally social emotion. It arises from fond memories mixed with yearning about one's childhood, close relationships, or atypically positive events, and it entails a redemption trajectory. It is triggered by a variety of external stimuli or internal states, is prevalent, is universal, and is experienced across ages. Nostalgia serves a self-oriented function (by raising self-positivity and facilitating perceptions of a positive future), an existential function (by increasing perceptions of life as meaningful), and a sociality function (by increasing social connectedness, reinforcing socially-oriented action tendencies, and promoting prosocial behavior). These functions are independent of the positive affect that nostalgia may incite. Also, nostalgia-elicited sociality often mediates the self-positivity and existential functions. In addition, nostalgia maintains psychological and physiological homeostasis along the following regulatory cycle: (i) Noxious stimuli, as general as avoidance motivation and as specific as self-threat (negative performance feedback), existential threat (meaninglessness, mortality awareness), social threat (loneliness, social exclusion), well-being threat (stress, boredom), or, perhaps surprisingly, physical coldness intensify felt nostalgia; (ii) In turn, nostalgia (measured or manipulated) alleviates the impact of threat by curtailing the influence of avoidance motivation on approach motivation, buttressing the self from threat, limiting defensive responding to meaninglessness, assuaging existential anxiety, repairing interpersonal isolation, diminishing the blow of stress, relieving boredom through meaning re-establishment, or producing the sensation of physical warmth. Nostalgia has a checkered history, but is now rehabilitated as an adaptive psychological resource.

KEYWORDS: nostalgia, emotions, self-conscious emotions, self-positivity, self-esteem, meaning in life, social connectedness, prosocial behavior, well-being, psychological homeostasis, physiological homeostasis.

“You must know that there is nothing higher and stronger and more wholesome and good for life in the future than some good memory, especially a memory of childhood, of home. People talk to you a great deal about your education, but some good, sacred memory, preserved from childhood, is perhaps the best education. If a man carries many such memories with him into life, he is safe to the end of his days, and if one has only one good memory left in one’s heart, even that may sometime be the means of saving us.”

—Fyodor Dostoyevsky, *The Brothers Karamazov* (2007, p. 868)

INTRODUCTION

Nostalgia is an overlooked construct and long absentee from the social psychological vernacular. The construct has been through plentiful ups and mostly downs in its extensive historical trajectory. Recent empirical findings, which we review, clarify what nostalgia is, document its functionality, and embed it in the broader literature. We begin with a historical exposition.

A HISTORICAL PERSPECTIVE ON NOSTALGIA

The construct of nostalgia has a history spanning three millennia. Its inspiration was a legendary Greek king, Odysseus, whose trials and tribulations were eulogized by a wandering poet, Homer. Having spent 10 years fighting, and eventually winning, the Trojan war, Odysseus, a canny and cunning buccaneer, spent another 10 years fighting and also prevailing over an assortment of temperamental Gods, menacing monsters, heinous evil-doers, and possessive lovers in his resolute quest to return to this homeland, the Ionian island of Ithaca, to be reunited with his loved ones (his wife Penelope, his son Telemachus, his parents Laertes and Anticlea, and, last but not least, his loyal dog Argos), and to reclaim his kingdom.

Not all of Odysseus’ decade-long sea voyage was consumed by the daily struggle for survival. Seven of those years were spent at another Ionian island, Ogygia, where he was detained by, and became intimate with, the enchanting sea nymph Calypso, who offered him immortality if he were to become her husband and stay with her. Our fabled hero’s reaction was

a steadfast refusal: “Full well I acknowledge Prudent Penelope cannot compare with your stature or beauty, for she is only a mortal, and you are immortal and ageless. Nevertheless it is she whom I daily desire and pine for. Therefore I long for my home and to see the day of returning” (Homer, *The Odyssey*, trans. 1921, Book V., pp. 78-79).

What fortified Odysseus’ unflinching spirit despite his distressing and horrifying, albeit not entirely unpleasurable, experiences? Odysseus felt both *nostos* (“return home or homecoming”) and *algos* (“pain or suffering”) for his loved ones and Ithaca. His fervent wish for *nostos* (a positive feeling) inflicted unending *algos* (a negative feeling) on him. Yet, these feelings, key ingredients of the bittersweet emotion of nostalgia, served only to galvanize his determination for reaching his final destination (Austin, 2010). In his epic, Homer depicts nostalgia as a psychological resource on which individuals can draw to overcome punitive life circumstances.

The depiction of nostalgia as a psychological resource did not last across the ages (Batcho, 2013a; Davis, 1979; Sedikides, Wildschut, & Baden, 2004). Ironically, the construct lost this connotation at the dawn of its scholarly treatment. In the 17th century, Hofer (1688/1934), a Swiss medical student who coined in his dissertation the term *nostalgia*, conceptualized it as a medical or neurological disease. Based on his studies of Swiss mercenaries serving in the lowlands of Italy or France and pining for the mountainous landscapes of their native country, Hofer observed a disturbing array of symptoms, including despondency, bouts of weeping, fainting, indigestion, stomach pain, anorexia, high fever, cardiac palpitations, and suicidal ideation or even death. He diagnosed *nostalgia* as “a cerebral disease of essentially demonic cause” (p. 387) brought about by “the quite continuous vibration of animal spirits through those fibers of the middle brain in which impressed traces of ideas of the Fatherland still cling” (p. 384). Hofer might well have been influenced by the Greek physician Hippocrates (ca. 460-377 BC), who believed that the “nostalgic reaction” was caused by an oversupply of black bile in the blood (Zwingmann, 1959). Regardless, the German-Swiss physician Scheuchzer (1732) echoed and reinforced Hofer’s diagnosis. *Nostalgia*, Scheuchzer pontificated, was due to

“a sharp differentiation in atmospheric pressure causing excessive body pressurization, which in turn drove blood from the heart to the brain, thereby producing the observed affliction of sentiment” (cited in Davis, 1979, p. 2). Consensus emerged that nostalgia was a disease confined to the Swiss, and nostalgia acquired the label *mal du Suisse* (*Swiss illness*). Military physicians even went so far as to propose that the cause of *mal du Suisse* was the incessant clanging of cowbells in the Alps, which damaged the eardrum and brain cells (Davis, 1979).

The view of nostalgia as a medical or neurological disease persevered in the 18th and 19th centuries. Yet, cracks in the chorus of disapproval for the construct began to appear. Scheuchzer’s (1732) account of increases in atmospheric pressure was rejected, as new evidence indicated that ordinary Swiss persons from mountainous regions were rarely afflicted by the malady. Persons diagnosed as suffering from nostalgia were found free of bodily diseases (Rutledge, 1977). Physicians searching for a bodily location of nostalgia, and in particular a nostalgic bone, failed to find one (Boym, 2001). Crucially, nostalgia was observed among other ethnicities besides the Swiss, such as British soldiers (Jackson, 1986), French soldiers fighting in the Revolutionary and Napoleonic armies (O’Sullivan, 2012), and American soldiers fighting the Civil War (Matt, 2007). To add to all this, the grandee of scientific inquiry at the time, Charles Darwin, offered a more positive outlook on nostalgia in *The Expression of the Emotions in Man and Animals*. Darwin (1896, Chapter VIII, p. 216) classified “the vivid recollection of our former home, or of long-past happy days” as belonging to the family of tender emotions and wrote: “The feelings which are called tender are difficult to analyse; they seem to be compounded of affection, joy, and especially of sympathy. These feelings are in themselves of a pleasurable nature, excepting when pity is too deep, or horror is aroused, as in hearing of a tortured man or animal.” Darwin seemed to express an appreciation for the bittersweet, yet mostly congenial, nature of the emotion. Given the demise of the view of nostalgia as a physical ailment, an alternative explanation was needed, and one was soon born: nostalgia was a mental disorder.

By the beginning of the 20th century, the position that nostalgia was a psychiatric or psychosomatic disorder was well-entrenched (McCann, 1941). The list of symptoms included

anxiety, sadness, weakness, pessimism, loss of appetite, insomnia, and fever (Havlena & Holak, 1991a). This position was voiced loudly in the mid-20th century, facilitated by the dominance of psychodynamic theorizing (Sohn, 1983). Psychoanalysts concurred on “the importance of the preoedipal mother in the emotional developments of nostalgics” (Kleiner, 1977, p. 17), with nostalgia being regarded as “an acute yearning for a union with the preoedipal mother, a saddening farewell to childhood, a defense against mourning, or a longing for past forever lost” (H. A. Kaplan, 1987, p. 466). Nostalgia was a “monomaniacal obsessive mental state causing intense unhappiness” – a state arising from a subconscious yearning to return to one’s fetal state, a “mentally repressive compulsive disorder” (Fodor, 1950, p. 25), and an intense reaction to fear of alienation given that “being oneself is still a wearisome and painful experience” (Neumann, 1949/1971, p. 16). Nostalgia was also labeled an “immigrant psychosis” (Frost, 1938, p. 801).

These assessments were softened toward the end of the 20th century. In the midst of dissenting voices (Davis, 1979; Hertz, 1990; L. J. Kaplan, 1984), however, dysfunction lingered as the hallmark of nostalgic yearning. Nostalgia was seen as a variant of depression, “a regressive manifestation closely related to the issue of loss, grief, incomplete mourning, and, finally, depression” (Castelnuovo-Tedesco, 1980, p. 110). Nostalgic experience was thought to fluctuate from sadness to “an overwhelming craving that persists and profoundly interferes with the individual’s attempts to cope with his present circumstances” (Peters, 1985, p. 135), and nostalgia was considered an impediment to progress (Lears, 1998). Further, the construct came to be regarded as synonymous to homesickness. Nostalgia was allegedly bounded to four fringe populations: immigrants, seamen, soldiers, and first-year boarding or university students (Jackson, 1986).

By the advent of the millennium, the nostalgia and homesickness literatures had gone their separate ways. Evidence revealed that the construct “homesickness” had negative connotations compared to the construct “nostalgia” (Davis, 1979; Hepper, Ritchie, Sedikides, & Wildschut, 2012; Wildschut & Sedikides, 2011), research pointed to the functional benefits of nostalgia (Routledge, Wildschut, Sedikides, & Juhl, 2013; Sedikides, Wildschut, Arndt, &

Routledge, 2006, 2008), and the homesickness literature diverged by focusing on adjustment challenges (e.g., separation anxiety) that accompany young persons' transitions away from the home environment (Hendrickson, Rosen, & Aune, 2010; Kerns, Brumariu, & Abraham, 2008; Thurber & Walton, 2007). Faced with mounting empirical evidence and theoretical reformulations, unflattering characterizations of nostalgia began to retreat (albeit not entirely: Zinchenko, 2011). Concurrently, the original Homeric view of the construct as a repository of psychological sustenance toward goal pursuit gained sway. Nostalgia's odyssey had come full circle.

At present, nostalgia is considered an emotion, and a predominantly positive one at that. It is also deemed a vital intrapersonal resource that contributes to psychological equanimity, and that has potent implications for motivation and behavior. Moreover, nostalgia is prevalent, universal, and experienced by persons of virtually all ages. The purpose of this chapter is to document the remarkable rehabilitation of the construct.

WHAT NOSTALGIA IS

We provide dictionary and layperson definitions of nostalgia. We also discuss the content of nostalgic narratives, the triggers of nostalgic reverie, and the prevalence of nostalgizing.

Definition of Nostalgia

Nostalgia is capturing the public's imagination now more than ever. Books on the topic are proliferating (e.g., Boym, 2001; J. L. Wilson, 2005), and so are newspaper or periodical articles (e.g., S. Elliot, 2009; Schäfer, 2014). Nostalgic themed movies (e.g., *Hugo*, *The Artist*) led the 2012 Oscar nominations (Cieply & Barnes 2012), and television shows that harken to past times (e.g., *Downton Abbey*, *Mad Men*) are rising in popularity (Wickman, 2012). General Mills launched retro packaging for their big five brands of cereal (Cheerios, Cinnamon Toast Crunch, Honey Nut Cheerios, Lucky Charms, Trix), whereas PepsiCo introduced nostalgic versions of Pepsi-Cola and Mountain Dew, their popular sodas, intending to evoke sentiments of the 60s and 70s. Nostalgia is also a common theme in social media. In recent years, several web-based social platforms that focus on facilitating connections to and reminders of people's past

have emerged. For example, Facebook, currently the most dominant social media website, allows individuals to reconnect electronically with old friends and schoolmates. Indeed, a popular new trend on Facebook is “Throwback Thursday” in which people upload old photographs so that they can relive nostalgic memories with close others. Fittingly, a CNN article declared 2011 “the year of nostalgia” (http://www.cnn.com/2011/12/27/showbiz/2011-year-of-nostalgia/index.html?hpt=hp_bn4). But what is nostalgia?

Dictionary Definitions

A sample of dictionary definitions depicts nostalgia as “a sentimental longing or wistful affection for the past” (The New Oxford Dictionary of English, 1998, p. 1266), “a bittersweet longing for the past” (American Heritage Dictionary, 1994), “a yearning for the return of past circumstances, events, etc.” (Collins English Dictionary – Complete & Unabridged 10th Edition, 2009), “pleasure and sadness that is caused by remembering something from the past and wishing that you could experience it again” (Merriam-Webster Dictionary, 2014), and “a wistful desire to return in thought or in fact to a former time in one’s life ...; a sentimental yearning for the happiness of a former place or time” (Random House Dictionary, 2014). These definitions emphasize sentimental longing or yearning, bittersweetness, and the positivity to be found in the nostalgic episode.

Layperson Definitions

We wondered how laypersons think of nostalgia. Answers to this issue could provide clues on whether nostalgia has entered the cultural, and indeed cross-cultural, lexicon.

Findings from UK and US samples. Already in 1979, Davis reported that US university students associated words such as “warm,” “old times,” and “yearning” more frequently with nostalgia than with homesickness, a finding that contributed to the parting of the two literatures. Hepper et al. (2012) launched an in-depth examination of lay conceptions of nostalgia among UK and US participants by capitalizing on a prototype approach, according to which people’s understanding of nostalgia (or any construct/category) is shaped by repeated experience and becomes cognitively organized around a prototype (Wittgenstein, 1953/1967). A prototype is a

fuzzy category with no necessary or sufficient members or features, but with more representative features being closer to the prototype (Cantor & Mischel, 1977; Rosch, 1978). More representative features are termed central, whereas less representative features are termed peripheral.

Hepper et al. (2012) took several steps in establishing the prototype of nostalgia. In Study 1, participants listed all descriptors that they thought were characteristic of nostalgia (7.5 per participant for a total of 1752). Two independent judges coded the descriptors into 35 features. In Study 2, participants rated each feature for centrality or peripherality, that is, how closely each was related to their view of nostalgia (1 = *not at all related*, 8 = *extremely related*). A median-split (Median = 5.68) resulted in 18 central features (with means ranging from 5.68 to 7.10) and 17 peripheral features (with means ranging from 2.46 to 5.59). We present all features in Table 1. Central nostalgia features entailed fond, rose-colored, and personally significant memories of childhood or social relationships. They involved such verbs as remembering, reminiscing, thinking, and reliving. Further, they consisted of positive more than negative feelings, although they also implicated longing, missing, and wanting to return to the past. Finally, they encompassed nostalgia triggers such as keepsakes and sensory cues. Peripheral features, on the other hand, entailed such features as warmth/comfort (the highest-scoring feature), dreams/daydreaming, change, calm/relaxed, regret, prestige/success, and lethargy/laziness.

 Insert Table 1 about here

Hepper et al. (2012) sought further validation of the features' centrality or peripherality. According to prototype theory (Cantor & Mischel, 1977; Rosch, 1978; see also Gregg, Hart, Sedikides, & Kumashiro, 2008), central features are more readily encoded, and more memorially accessible, than peripheral ones. Also, central, compared to peripheral, features are more likely to be ascribed falsely to a prototypical target. In Study 3, participants viewed all prototypical features presented on a computer screen for 4 seconds each. To activate conceptions of nostalgia,

we embedded each feature in a sentence (e.g., “Nostalgia is about childhood,” “Nostalgia feels like comfort or warmth”). Following a distractor task, participants were instructed to recall all features. Next, they were provided with all features and were asked to indicate which one they had seen earlier—a procedure that yields indices of correct and false recognition. We proceeded to calculate proportions of central and peripheral features recalled and recognized. Consistent with prototype theory, participants both recalled and falsely recognized a higher number of central than peripheral features. In Study 4, participants were (a) presented with central, peripheral, and control (i.e., nostalgia-free) features, and (b) instructed to respond with a Yes or a No, and as fast as possible, to the question “Is this a feature of nostalgia?”. Participants were more accurate and speedy at classifying central features (compared to peripheral or control ones) as belonging to nostalgia. In Study 5, participants perceived vignettes describing a character’s autobiographical event with central (as opposed to peripheral) features as being more nostalgic. Finally, in Study 6, participants wrote about a nostalgic versus ordinary event from their lives (i.e., the Event Reflection task; see section WHAT NOSTALGIA DOES and Appendix B) and then rated it on all 35 features. In addition, they recorded their level of state nostalgia on three items (i.e., “thinking about this event leaves me feeling nostalgic,” “I feel nostalgic when I think about this event,” “This is a nostalgic event for me”). Participants rated nostalgic (compared to ordinary) events higher on central features than on peripheral or control features. Also, participants in the nostalgic-event condition felt more nostalgic relative to those in the ordinary-event condition. Finally, feature centrality mediated the ensuing nostalgia. Stated otherwise, participants felt more nostalgic because the nostalgia events they had generated were imbued with, or were better characterized by, central features.

The Hepper et al. (2012) findings indicate that laypersons view nostalgia as a predominantly positive, social, and past-oriented emotion. In nostalgic yearning, one brings to mind a fond and personally meaningful event, typically involving one’s childhood or a close relationship. The person often sees the event through rose-colored glasses, misses that time or relationship, and may even long to return to the past. Consequently, the person feels sentimental,

most often happy but with a tinge of longing. Taken together, this research demonstrates that lay conceptions of nostalgia dovetail with formal dictionary definitions. Nostalgia is entrenched in the cultural lexicon.

Findings from 18 cultures. We inquired about the cross-cultural generalizability of the Hepper et al. (2012) findings. Some scholars have expressed relevant skepticism. Sprengler (2009, p. 1), for example, wrote: “There are too many variables at work that inform different understandings and variants of the term . . . What nostalgia means in Japanese culture may be quite different than what it means in American culture.” We (Hepper, Wildschut, et al., 2014) gauged the equivalence of prototypical conceptions of nostalgia in a range of cultures that spanned 18 countries (e.g., Australia, Chile, China, Ethiopia, Germany, India, Japan, Uganda, Romania, US) across five continents.

We adopted an etic approach (Segall, Lonner, & Berry, 1998), as we were interested in comparing multiple cultures at once. In particular, we focused on the prototypical UK/US conceptions of nostalgia and explored their generalizability to other cultures. We confined our participant recruitment to university students for the purpose of maintaining consistency in sample educational attainment and age (Van de Vijver & Leung, 1997). The procedure was similar to Hepper et al.’s (2012) Study 2. We provided participants with the list of 35 features, accompanied by descriptors for each feature, and instructed them to rate how closely each feature was related to their view of nostalgia. We also directed them to record, in an open-ended fashion, words or phrases expressive of nostalgia that were not included in the feature list.

We conducted three sets of analyses. *First*, we aimed to examine the cross-cultural similarity of nostalgia conceptions. To do so, we assessed rank-order correlations between countries’ feature rankings and also assessed whether the ordinal pattern of central and peripheral features previously obtained in the UK/US could be observed across countries. We focused here on the relative centrality of nostalgia features (i.e., is there consensus among cultures on which features are more central than others?). This approach bypasses confounds due to cultural differences in response bias or scale interpretation (Van de Vijver & Leung, 1997).

Second, we explored between-country variation, and specifically whether some cultures are more similar than others and, if so, in what ways. To that effect, we carried out cluster analyses on the mean ratings of the 35 features. Specifically, we clustered a data array of 18 rows (representing countries) and 35 columns (representing features). We focused here on absolute mean ratings, an approach that enables country clusters to reflect differences in feature ranking profiles and absolute feature ratings (e.g., whether a group of countries rated all features very low). Additionally, we carried out cluster analyses on the 595 non-redundant correlations between the 35 features. Specifically, we clustered a data array of 18 rows (representing countries) and 595 columns (representing non-redundant feature pairs). This approach enabled us to identify clusters of countries with similar correlation matrices and, subsequently, to perform factor analysis in order to pinpoint nostalgia's prototypical dimensions within clusters. *Third*, we coded participants' open-ended responses to determine if additional nostalgia features emerged in a given country.

The results attested to high levels of cross-cultural agreement. *To begin*, the ranking profiles of the 18 countries were highly and positively intercorrelated. All 153 correlations were positive and statistically significant, with 96.08% of them being greater than $\rho = .50$ (Cohen's [1988] criterion for a large effect), and 40.52% being greater than $\rho = .80$. The overall mean and median correlation (which we calculated using Fisher's *r*-to-*z* transformation) were both $\rho = .78$. Such a high consensus on the prototypicality of nostalgia features aligns well with the notion that conceptions of nostalgia are pancultural. We *proceeded* with grouping the 35 features into four parcels (two central, two peripheral) based on their UK/US prototypicality. Participants in all countries but one (Cameroon) rated the four parcels along the same ordinal pattern. That is, participants in virtually all countries considered the same feature sets as most and as least prototypical. This high consensus level is also congruent with the notion that conceptions of nostalgia are pancultural. *Next*, we tested differences in standard deviations of ratings among the four parcels. In all countries, the standard deviations were smaller for central than peripheral parcels. Participants demonstrated greater consistency on the central than peripheral nostalgia

features, as predicted by prototype theory (Fehr & Russell, 1984). In addition, the prototypical profile of nostalgia features was remarkably similar across cultures: all clusters manifested a significant and linear trend which decreased from ratings of most central to most peripheral nostalgia features. These findings constitute further evidence for the panculturality of the nostalgia prototype. *Subsequently*, we identified, via cluster analysis, groups of countries that shared similar intercorrelation patterns (i.e., factor structures) among the 35 features. All but three countries (Cameroon, Ethiopia, Uganda) formed a single cluster. This pattern indicates high cross-cultural consistency in the factor structure of the nostalgia prototype. *Finally*, 95% of the open-ended accounts fit reliably into one of the 35 nostalgia features. No new features were proposed by more than two participants. The current prototype structure described nostalgia sufficiently in all countries.

The Hepper, Wildschut, et al. (2014) findings indicate that individuals across a range of cultures share strikingly similar conceptions of nostalgia. We will illustrate this point by means of the features within the central cluster (Cluster 1), which was rated highest in all countries but one: Nostalgia is universally regarded as an *emotion*, especially one of *longing*. It entails *remembering or reminiscing about fond memories from the past*. These memories have *personal relevance* or involve *relationships with others*. There was also considerable cross-cultural agreement regarding the interrelations among the 35 features. A factor analysis of the pooled correlation matrix revealed three factors. The primary factor, *longing for the past*, comprises cognitive, motivational, and contextual features of nostalgia along with longing and loss. The second factor, *negative affect*, consists of peripheral negative affective features. The third factor, *positive affect*, contains central and peripheral affective features – both general (e.g., emotion, relationships) and positive (e.g., warmth, happiness) ones. Taken together, lay conceptions of nostalgia across many cultures converge with both lay conceptions of nostalgia in UK/US and formal definitions of UK/US dictionaries. Nostalgia is thought to be a past-oriented, self-conscious (i.e., personally meaningful), keenly social, and bittersweet, albeit predominantly positive, emotion. It appears that nostalgia is also entrenched in the cross-cultural lexicon.

Nostalgia in Vivo

It is one thing what people believe nostalgia is, and another thing what it actually is. We start by discussing the content of nostalgic reverie. To paraphrase Raymond Carver (1981), what do people talk about when they talk about nostalgia? We continue with a consideration of the structure, valence, triggers, and prevalence of nostalgic experience.

Content of Nostalgic Experiences

Narrative analyses. We probed the content of nostalgic chronicles with a narrative analysis (Wildschut, Sedikides, Arndt, & Routledge, 2006, Studies 1-2). The study of narratives has methodological shortcomings. For example, the narratives may be ridden with systematic biases, such as selective encoding and retrieval. There are, however, also methodological strengths. For example, the subjectivity of narratives offers a window into personal experience of daily life, thus complementing the experimental method (Baumeister, Wotman, & Stillwell, 1993). Content analysis of narratives has been used effectively in empirical approaches to such emotions as anger (Baumeister, Stillwell, & Wotman, 1990), shame and guilt (Tangney, 1991), and hurt feelings (Leary, Springer, Negel, Ansell, & Evans, 1998).

In Study 1, we used 42 nostalgia accounts published in the periodical *Nostalgia* between 1998 and 1999 (Wildschut et al., 2006). The periodical invited readers to submit nostalgic stories from their personal past. The length of narratives varied from 1,000 to 1,500 words. Authors ranged in age (which we inferred from the stories) from their early 20s to their late 80s. We enlisted the help of two coders with experience in qualitative data analysis, who coded the stories into relevant categories. The content analysis uncovered the properties of nostalgic reverie. The most common objects of nostalgic yearning were close others (e.g., family, romantic partners, friends), followed by momentous life events that included close others (e.g., weddings, graduations, family gatherings), animals (i.e., pets), tangibles (e.g., a coat), and settings (e.g., a lake). The self was featured prominently in the nostalgic account and assumed a protagonistic role in most of them. Yet, the self was, for the most part, surrounded by close others. Finally, the affective signature of nostalgic accounts validated that the emotion is ambivalent, but more

positive than negative. The coders rated the extent to which each of the 20 Positive and Negative Affect Scheme (PANAS; Watson, Clark, & Tellegen, 1988) adjectives was expressed in the narratives. The narratives were substantially richer in positive affect than in negative affect.

In Study 2, we (Wildschut et al., 2006) collected nostalgic narratives from UK undergraduate students. We instructed them to record a nostalgic experience and detail how it made them feel. The results paralleled those of Study 1. The most common nostalgia objects were close others, momentous events, and settings, followed by periods in life (e.g., childhood, adolescence). The self was, once again, the Master of Ceremonies in most events. Finally, narratives entailed substantially more positive affect than negative affect.

Conceptually similar results have been reported by other narrative analyses. In Holak and Havlena (1992), participants (ranging in age from their 20s to their 70s) read a dictionary definition of nostalgia and then generated three nostalgic experiences referring to persons, tangibles, and events. Persons reflected in the 164 resulting experiences included family members, friends, or an assortment of others who became parts of participants' lives since schooling (ex-partners, co-workers, neighbors); tangibles included toys, books, cars (particularly one's first car), jewelry, clothing, or antiques; and events included holidays, birthdays, or reunions. More generally, in Havlena and Holak (1991b), participants reported that nostalgic events are often leisure activities that are inherently satisfying or are satisfying to close others.

Broader qualitative analyses provide testimony to the ambivalence of nostalgia. Holak and Havlena (1998) showed that nostalgia's experiential content was characterized primarily by positive emotions (i.e., warmth, affection, joy, elation, tenderness, serenity, innocence, gratitude), and secondarily by negative emotions (i.e., sadness, irritation, loss, fear). In a content analysis of nostalgic lyrics, Batcho (2007) identified the themes of bittersweetness, loss of the past, identity, and meaning. Finally, Reid, Green, Wildschut, and Sedikides (2014) demonstrated, in a sample of US undergraduates, that scent-evoked nostalgic memories were characterized by more positive emotions compared to non-nostalgic autobiographical memories or non-nostalgic non-autobiographical memories.

Experimental inductions of nostalgia and ensuing narrative analysis. Another approach to understanding the content of the nostalgic experience involves experimental manipulations of nostalgia followed by narrative analyses. Robertson, Wildschut, Sedikides, and Vingerhoets (2014) asked UK undergraduates to bring to mind either a nostalgic or ordinary event and then write about it. The authors coded the resulting protocols on the basis of the Linguistic Inquiry and Word Count software (LIWC; Pennebaker, Booth, & Francis, 2007). Nostalgic, compared to ordinary, recollections contained more first-person plural pronouns (e.g., “we,” “us,” “ours”) and social words (e.g., “mother,” “father,” “friend”).

Abeyta, Routledge, Sedikides, and Wildschut (2014) gave US undergraduates either a nostalgic-event or an ordinary-event writing prompt (see Appendix B). Three coders rated the ensuing narratives on three categories. The first category included social content (i.e., social interactions, relationships), the second included more specific attachment-related content (i.e., feeling loved, protected, and trusted by others), and the third included agency (i.e., personal competence, success, power). The coders also rated the presence of positive and negative feelings. Nostalgic (compared to ordinary) narratives contained more references to all three categories, attesting to the relevance of sociality and identity for the nostalgic experience. The nostalgic (compared to ordinary) narratives were characterized by more positive than negative feelings, and more feelings in general.

Stephan, Sedikides, and Wildschut (2012) manipulated nostalgia in UK undergraduate samples using a writing-prompt procedure similar to that of Abeyta et al. (2014). In Experiment 1, narrative coding focused on the abstractness versus concreteness of nostalgic experiences, and relied on classification techniques pioneered in the Linguistic Category Model (Coenen, Hedeboom, & Semin, 2006) and LIWC (Pennebaker et al., 2007). In the Linguistic Category Model, increasingly higher level of abstraction is denoted by the following four categories: descriptive action verbs (i.e., directly observable actions), interpretive action verbs (i.e., inferred actions with a clear beginning and an end), state verbs (i.e., inferred enduring cognitive or emotional states), and adjectives (i.e., inferred psychological attribute qualifying a person). In

LIWC, words related to causation or insight denote a higher level of abstraction. Nostalgic (relative to ordinary) recollections entailed high frequency of both abstract terms and concrete terms. The latter terms highlighted the relevance of the nostalgic event for one's present. For example, concrete terms comprised an action or a state in the present that was instigated by a past event (e.g., "I smile, when I look at my family photo on my desk"). Experiment 2 included not only a nostalgic-event and ordinary-event condition, but also a positive-event condition. Once again, nostalgic (compared to ordinary or positive) recollections contained more abstract construal and also more concrete construal that linked the past with the present. This latter comparison is particularly informative, as it begins to touch on what nostalgia might uniquely bring to the table relative to other positive contemplations. We note a number of such comparisons throughout our article.

Individual differences. Individual differences qualify the above findings. Narcissism is a case in point. Based on a US undergraduate student sample, Hart and colleagues (2011, Study 1) instructed high and low narcissists to describe in writing a nostalgic event from their life. These authors measured narcissism with the Narcissistic Personality Inventory (Raskin & Terry, 1988), which contains 40 pairs of forced choices items: a narcissistic versus a non-narcissistic one. Examples of such pairs are: (a) "If I ruled the world it would be a much better place" (narcissistic item) versus "The thought of ruling the world frightens the hell out of me" (non-narcissistic item), and (b) "I think I am a special person" (narcissistic item) versus "I am no better or no worse than most people" (non-narcissistic item). Hart et al. submitted the written protocols to a LIWC analysis having first created an internal dictionary that included 188 communion words (e.g., cooperate, listen, charitable) and 190 agency words (e.g., competitive, achieve, leader). (For a recent treatment of the communion-agency dimension, see Abele & Wojciszke, 2014.) High narcissists reported a greater proportion of agency words in their narratives compared to low narcissists. Level of narcissism was unrelated to proportion of communion words.

Attachment avoidance is also a relevant moderator. Abeyta et al. (2014) assessed individual differences in attachment avoidance on the basis of the Experiences in Close

Relationships scale (Brennan, Clark, & Shaver, 1998). Sample scale items are: “I prefer not to show people close to me how I feel deep down” and “I worry about being abandoned.” Then, as described above, these authors instructed participants to record a nostalgic or ordinary event from their lives, and subjected the ensuing narratives to coding on social content, attachment-related content, and agency (see above). Nostalgic (compared to ordinary) narratives contained more references to attachment-related content, and fewer references to agency, among low- relative to high-avoidance participants.

Such findings reveal how nostalgia can provide a window into important individual differences. As we will see in the subsequent sections, individual differences play a key role in how nostalgia ultimately influences social and emotional lives.

Structure of Nostalgic Accounts

What is the internal structure, or trajectory, of nostalgic descriptions? Davis (1977) theorized about nostalgia’s structure in terms of the juxtaposition of positive and negative affective states. He maintained that, when nostalgic experience has negative components, these “hurts, annoyances, disappointments, and irritations . . . are filtered forgivingly through an ‘it was all for the best’ attitude” (p. 418). More broadly, McAdams and colleagues (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001) elaborated on two narrative sequences. In redemption, the narrative advances from an affectively negative situation to an affectively positive one (“The bad is redeemed, salvaged, mitigated, or made better in light of the ensuing good;” McAdams et al., p. 474). In contamination, the narrative progresses from an uncomplicated or personally favorable scene to a complicated or personally unfavorable one (“The good is spoiled, ruined, contaminated, or undermined by what follows it;” McAdams et al., p. 474).

We used the McAdams et al. (2001) classification to understand the structure of nostalgia. In particular, we asked which sequence (redemption vs. classification) is more typical of nostalgic accounts. We engaged in a content analyses of stories submitted to the periodical *Nostalgia* (Wildschut et al., 2006, Study 1) and of event descriptions that participants furnished

under a nostalgia writing prompt (Wildschut et al., Study 2). In both cases, a redemptive sequence far outweighed a contamination sequence. Nostalgic accounts are, for the most part, redemptive. Notably, redemptive (compared to contaminative) trajectories in life narratives are more strongly related to well-being and improved health (Dunlop & Tracy, 2013; McAdams & McLean, 2013), an observation that foreshadows many of our research findings.

Valence of Nostalgic Episodes

As one might expect from their redemptive structure, nostalgic episodes are positively valenced. They reflect momentous occasions from one's life, involve valued others, and are personally or vicariously satisfying (Havlena & Holak, 1991b). Relatedly, the higher participants score on trait nostalgia (as measured by Batcho's [1995] Nostalgia Inventory described below), the chronic tendency to engage in nostalgic reflection and to find such engagement personally important, the more they rate their past more favorably (Batcho, 1998) and report positive childhood experiences (Batcho, 2013b).

Nostalgic episodes are also considered atypically positive. A consideration of the consumer literature led Morewedge (2013) to define nostalgia in terms of the belief that past experiences were better than present ones. Specifically, he noted that consumers show preferences for products (e.g., actors, film, television shows, music) that were popular during their late adolescence and early adulthood (Holbrook & Schindler, 1996), a phenomenon related to the reminiscence bump (i.e., the overrepresentation of events that took place between one's 10th and 30th year) which typifies autobiographical memory (Rubin & Schulkind, 1997). Given that these preference patterns occur irrespective of consumer age, they cannot be attributed to superior product quality. Participants in Morewedge's experiments similarly considered the quality of television shows of their late adolescence and early adulthood as superior to that of the current shows, with show quality being essentially controlled for. Morewedge identified the mechanism underlying these preferences as the atypical representativeness of past shows. Participants thought that the atypically good television shows of the past were more

representative of shows of past decades (spanning their later adolescence and early adulthood) than were the atypically good shows of their current decade.

Research on the Fading Affect Bias (Skowronski, Walker, Henderson, & Bond, 2013) offers a compelling account why event positivity is more likely to be recalled than event negativity. Mostly because of the social sharing or rehearsal of the positive affect associated with positive autobiographical memories, the negative affect linked with negative autobiographical memories fades faster across time than the positive affect linked with positive autobiographical memories. Stated differently, the positive affect of an event lasts longer than its negative affect. In the case of nostalgic reminiscing, the resulting positive affect of the event may offset its negative affect—an emotional dynamic felt as ambivalence. As the columnist Herb Caen (1975) put it, “Nostalgia is memory with the pain removed.”

Triggers of Nostalgia

Nostalgia is a profoundly social emotion, and, as such, it will be often elicited during social encounters or conversations with close others. Yet, a variety of additional, more specific sources qualify as triggers of nostalgia. Some of those are external, others are internal.

Examples of external triggers are music or songs (Nash, 2012; Routledge et al., 2011, Study 1), song lyrics (Cheung et al., 2013, Study 4; Routledge et al., Study 2), smells (Reid et al., 2014), tastes (Supski, 2013), objects or events experienced in childhood (Holbrook & Schindler, 1996; Schuman & Scott, 1989), and, perhaps surprisingly, cold ambient temperature (Zhou, Wildschut, Sedikides, Chen, & Vingerhoets, 2012). Examples of internal triggers are discomfiting states such as negative affect (Barrett et al., 2010; Wildschut et al., 2006, Study 3), social exclusion (Seehusen et al., 2013, Studies 3-4; Wildschut, Sedikides, Routledge, Arndt, & Cordaro, 2010, Study 3), loneliness (Wildschut et al., Study 4; Wildschut et al., 2010, Study 1; Zhou, Sedikides, Wildschut, & Gao, 2008, Study 4), meaninglessness (Routledge et al., Study 3; Routledge, Wildschut, Sedikides, Juhl, & Arndt, 2012, Study 3), existential terror (Routledge, Arndt, Sedikides, & Wildschut, 2008), discontinuity between one’s past and one’s present (Sedikides, Wildschut, Gaertner, Routledge, & Arndt, 2008; Sedikides, Wildschut, Routledge,

&Arndt, in press), and boredom (Van Tilburg, Igou, & Sedikides, 2013). As we will discuss later, nostalgia serves to counter these discomforting states and restore psychological equilibrium.

Prevalence of Nostalgia

Nostalgia is a prevalent emotion in terms of frequency, age, and culture. Among UK undergraduates and adults aged 18-91, nostalgia is experienced at least once a week and modally three times a week (Hepper, Robertson, Wildschut, Sedikides, & Routledge, 2014, Study 1; Wildschut et al., 2006, Study 2). Also, nostalgia is experienced not only among adults of all ages (in UK and US samples; Hepper, Robertson, et al.; Routledge et al., 2011), but also among older children and teenagers (in Chinese samples; Zhou et al., 2008). Finally nostalgia is experienced in many cultures across five continents (Hepper, Wildschut, et al., 2014).

Summary

Theorists, albeit unanimous in labeling nostalgia an emotion, have debated whether it is positive (Chaplin, 2000; Holak & Havlena, 1998; H. A. Kaplan, 1987), negative (Best & Nelson, 1985; Johnson-Larid & Oatley, 1989; Peters, 1985), or ambivalent (Davis, 1979; Socarides, 1977; Werman, 1977). Our research helps paint the canvas of nostalgia. It is predominantly positive, albeit bittersweet, and self-relevant. It is characterized by a high-level construal pattern, whereby nostalgic (vs. ordinary or positive) memories are retrieved more abstractly and interpreted in a gist-oriented manner. Its perceived content—reflecting fond memories intermixed with yearning about one’s childhood, close relationships, or a satisfying and atypically positive event—is similar in many countries spanning all continents. It entails a redemption rather than contamination trajectory. Its content is considered atypically positive, and its ensuing net positive affect may be due to memorial mechanisms that underlie the fading of unpleasantness. It is triggered by a variety of external stimuli or internal, discomforting states. And it is prevalent in terms of its experiential frequency across ages and likely across cultures.

WHAT NOSTALGIA DOES

We have reviewed evidence that nostalgia has been regarded throughout history as an abnormal, debilitating condition. Contemporary treatments of nostalgia, however, depict it as a normal, adaptive emotion. How can the two approaches be reconciled?

Physicians and psychiatrists have traditionally viewed nostalgia as both a sentiment reflecting longing for home and a physical or mental health stigma. These two views, then, covaried. It is possible that nostalgia caused the observed symptoms (e.g., anorexia, insomnia, anxiety, weeping), but it is equally possible that these symptoms triggered nostalgia (Routledge et al., 2013; Sedikides, Wildschut, Routledge, Arndt, & Zhou, 2009). We propose that physicians and psychiatrists incorrectly settled on the former direction of causation and abandoned the latter possibility. Nostalgia does not cause physical malady or mental disorder. Instead, it is generally a resource that individuals recruit in times of distress to help them cope with it.

This argument rests on the notion that nostalgia is an active, coping resource (Batcho, 2013b; Sedikides et al., 2009). Specifically, the argument presupposes that nostalgia is positively associated with, and indeed instigates, the fundamental action tendency of approach motivation. This presupposition has received empirical backing in our research (Stephan et al. 2014). In Study 1, we tested a community sample of Dutch nationals. We assessed trait nostalgia with two scales. One was the Southampton Nostalgia Scale (Barrett et al., 2010; Routledge et al., 2008) presented in Appendix A. This scale consists of seven items pertaining to proneness to, as well as frequency and personal relevance of, nostalgia. The second scale was the Nostalgia Inventory (Batcho, 1995), which gauges nostalgia for 20 items of one's past ("my family," "toys," "the way people were," "having someone to depend on"). Given that the two scales were correlated, we standardized them to create a common metric and then formed a composite. Further, we assessed approach motivation with the 13-item Behavioral Activation System (BAS) subscale of the BIS/BAS Scales (C. S. Carver & White, 1994), which comprises Fun Seeking (e.g., "I will often do things for no other reason than that they might be fun"), Drive (e.g., "I go out of my way to get things I want"), and Reward Responsiveness (e.g., "It would excite me to win a

contest”). The composite nostalgia scale was positively correlated with all three BAS components (see also Pierro, Pica, Klein, Kruglanski, & Higgins, 2013). In a follow-up investigation (Stephan et al., Study 3), we induced nostalgia and measured approach motivation. Participants received a nostalgic-event versus an ordinary event prompt (Appendix B), and completed the BAS. Participants in the nostalgia condition scored higher on Fun Seeking and Drive, but not Reward Responsiveness, than those in the control condition. In all, nostalgia is positively related to approach motivation and sparks approach motivation. To paraphrase from T. S. Eliot’s (1888-1965) poem “The Waste Land,” nostalgia is “mixing memory with desire.”

 Insert Appendix A about here

We elaborate below on our argument that nostalgia is an active psychological resource entailing an approach orientation. We posit, in particular, that nostalgia serves three vital intrapersonal and interpersonal functions: self-oriented, existential, and social. We cover in depth the social function, because it is pervasive and often enables or facilitates the other two functions.

For the most part, we have approached the functionality issue experimentally. Although we have successfully elicited nostalgia in controlled settings through music, song lyrics, or scents, we have equally successfully and most frequently induced the emotion by relying on the Event Reflection Task (ERT; Appendix B). Participants visualize a personally-experienced nostalgic event versus an ordinary (e.g., everyday, regular) event, and sometimes versus a positive or anticipated (i.e., future) positive event. Then, they list keywords reflecting the gist of the event, provide a brief (i.e., 5-minute) written account of the event, or both list keywords and provide a written account. Following a manipulation check (Appendix B), participants complete the relevant dependent measures, which typically pertain to one or more of the postulated psychological functions of nostalgia. Depending on theoretical interest, participants may respond

to measures assessing additional outcomes of nostalgia (e.g., well-being, motivation, behavioral intentions, behavior).

Insert Appendix B about here

Self-Oriented Function

Theorists have speculated about the self-oriented function of nostalgia. The emotion is thought to solidify identity by serving as a reservoir of (mostly positive; Sedikides & Gregg, 2008) self-knowledge and to encourage identity exploration (Batcho, DaRin, Nave, & Yaworsky, 2008; Cavanaugh, 1989; Mills & Coleman, 1994). We examined the self-oriented function of nostalgia in terms of its capacity to strengthen self-positivity (i.e., positive self-attribute activation, self-esteem) and to foster perceptions of a positive future (i.e., optimism, psychological growth).

Self-Positivity

Nostalgia is thought to increase the positivity of self-conceptions and self-esteem by prompting a return to an idealized past (H. A. Kaplan, 1987) and by “bestowing an endearing luster on past selves that may not have seemed all that lustrous at the time” (Davis, 1979, p. 41). H. A. Kaplan (1987) went as far as labeling nostalgia “ego ideal” (p. 471). We have reported that nostalgic narratives are characterized by themes where the self is the main character in a positive chain of events (i.e., redemption; Wildschut et al., 2006, Study 2). We have also reported that nostalgic narratives encompass agency themes (e.g., competence, success, power; Abeyta et al., 2014), which can be conceptualized as proxies to self-esteem (Wojciszke, Baryła, Parzuchowski, Szymkow-Sudziarska, & Abele, 2011).

Positive self-attribute activation. We (Vess, Arndt, Routledge, Sedikides, & Wildschut, 2012, Experiment 1) tested whether nostalgic engagement results in self-positivity. Participants completed the ERT (nostalgic-event vs. future positive-event) and then categorized positive and neutral traits as self-descriptive or non self-descriptive. Specifically, participants viewed random

presentations of 13 positive and 20 neutral traits. Each trait appeared in the center of the computer screen and remained there until participants made their categorization decision. A blank screen followed, and, after 1sec, the next trait appeared. We recorded the response latency from trait onset to categorization, with shorter latencies designating greater concept accessibility. Categorization speed is a valid index of concept accessibility (Schlegel, Hicks, Arndt, & King, 2009).

We (Vess et al., 2012, Experiment 1) reasoned that imagining a future positive event would likely engender perceptions of self-positivity, making this a stringent control condition. However, nostalgic reflection has the potential to bring online agentic references (Abeyta et al., 2014) or redemptive themes glorifying the self (Wildschut et al., 2006, Study 2). Consequently, we expected nostalgic event reflection (“bring to mind a nostalgic event in your life; Specifically, try to think of a past event that makes you feel most nostalgic”) compared to future positive event (“bring to mind a future positive event in your life; specifically, try to think of a past event that makes you feel most positive”) to activate positive self-attributes, thus increasing categorization speed of positive (relative to neutral) traits. The results were consistent with the hypothesis. Nostalgia boosts self-positivity.

Self-esteem. Wildschut et al. (2006) obtained direct experimental support for the idea that nostalgia augments self-esteem. Participants in the nostalgic-event (relative to ordinary-event) condition reported higher self-esteem, regardless of whether it was assessed with a brief scale (“high self-esteem,” “significant;” Study 5) or the Rosenberg (1965) self-esteem scale (Study 6). We (Hepper et al., 2012, Study 7) replicated these findings using a prototype-based induction of nostalgia. We presented participants of varying ages with a list of either central or peripheral features of nostalgia, and then instructed them to bring to mind an event characterized by at least five of those features and to circle all the relevant ones. Use of the prototype manipulation has methodological advantages. By discarding the label “nostalgic event,” the manipulation removes demand characteristics (e.g., expectations to feel better or more “emotional”) and reduces dependency on familiarity with the term “nostalgia.” Participants in

the central-prototype condition reported higher self-esteem (i.e., “value myself,” “have many positive qualities,” “feel good about myself,” “like myself better”) than those in the peripheral-prototype condition.

We further tested the replicability of these findings in an age-diverse sample of Dutch nationals by capitalizing on music’s capacity to evoke nostalgia (Barrett et al., 2010). In this replication (Cheung et al., 2013, Study 3), half of the participants listened to a nostalgic song, half to a control song. The songs were by the same artist, and their capacity to evoke nostalgia had been determined previously through pretesting with other respondents. Participants in the nostalgic-song condition reported higher levels of self-esteem (assessed with two items adapted from Hepper et al., 2012, Study 7; “feel good about myself,” “satisfied with myself”) than participants in the control-song condition. We wondered if this pattern generalized to situations where the song is idiosyncratically, rather than nomothetically, nostalgic and to a sample of UK undergraduates. This new experiment (Cheung et al., Study 4) consisted of two study sessions. In the first session, we asked participants to read a dictionary definition of nostalgia and write down the titles and performing artists of three songs that made them feel nostalgic. Three weeks later (second session), we randomly assigned participants to conditions. In the nostalgia condition, we selected randomly one of the three songs that they had listed, and we retrieved from the internet the relevant lyrics (no music was played). In the control condition, we yoked participants to those in the nostalgia condition, making sure they were presented with the same lyrics. Thus, any two participants in the two conditions read the same lyrics, but for some (experimental condition) the lyrics were nostalgic, whereas for others (control condition) the lyrics were non-nostalgic. Participants in the nostalgic-lyrics condition evinced higher self-esteem (assessed with the four items of Hepper et al., 2012, Study 7) than those in the control-lyrics condition.

Finally, we examined whether scent-evoked nostalgia raises self-esteem among US undergraduates (Reid et al., 2014). We carried out a pretest in an effort to identify the appropriate scents to use in our subsequent experiment for inducing nostalgia. Participants randomly sampled 33 pleasant and neutral scented oils and indicated how nostalgic each made

them feel. We retained for use in the experiment the 12 scents with the highest corrected item-total correlations (following an analysis in which we treated scents as items). The list of selected scents included a perfume (Chanel #5), a pet fragrance scented with citrus and fresh flowers (purr and paw), eggnog, apple pie, fresh-cut roses, and cappuccino. Note that the selected scents did not necessarily have the highest mean level of nostalgia: the three scents with the highest potential for nostalgic evocation (i.e., Hawaiian suntan, toasted marshmallow, honeysuckle) were omitted. In the subsequent experiment, participants were informed that they would be presented with scents in glass test tubes – one at a time – and that they would need to continue smelling each scent while answering relevant questions and before moving on to the next scent to repeat the process. Participants sampled the 12 scents in random order, indicated how nostalgic each scent made them feel, and completed a 2-item self-esteem measure (“feel good about myself,” “value myself”). Higher levels of scent-evoked nostalgia predicted higher levels of state self-esteem.

Taken together, these findings establish that nostalgia elevates self-esteem. Although prior work has indicated that denigrating memories of one’s past can help maintain one’s current level of self-esteem (Peez & A. Wilson, 2008; A. Wilson & Ross, 2003), this is primarily the case when people evaluate their attributes (e.g., social skills, common sense). People like to think they get better with age. But when it comes to reflecting on experiences and events from one’s past, our research shows that nostalgia increases self-esteem above and beyond pertinent control conditions.

Perceptions of a Positive Future

Nostalgia is a past-oriented emotion that has implications for the present, as it leads to increments in self-esteem. But does it also have implications for the future? This is a topical question given the surge of interest in the representation of possible futures, including possible future selves (Gilbert & Wilson, 2007; Seligman, Railton, Baumeister, & Sripada, 2013).

There are good reasons why nostalgia might impact on the nostalgizer’s future. Recollection and projection into the future are interdependent (Johnson & Sherman, 1990). For

example, some past experiences predict sanguinity in decision-making (Albarracin & Wyer, 2000) and in close relationships (Carnelley & Janoff-Bulman, 1992). Also, recollection and projection share cognitive and neurological processes. Patients with difficulty in remembering past events also have difficulty imagining new experiences (Hassabis, Kumaran, Vann, & Maguire, 2007; Klein, Loftus, & Kihlstrom, 2002) or anticipating their future in detail (Addis, Sacchetti, Ally, Budson, & Schacter, 2009; Brown, Dorfman, Marmar, & Bryant, 2012). Lastly, pondering the past and the future entails a common neural network (Buckner & Carroll, 2007; Viard et al., 2011). It follows from this literature that, if nostalgic recollection is positive, this positivity may be projected onto the future. We focused on optimism and psychological growth.

Optimism. Davis (1977, p. 420) prophetically argued that nostalgia spawns a buoyant outlook on the future:

It [nostalgia] reassures us of past happiness and accomplishment; and, since these still remain on deposit, as it were, in the bank of our memory, it simultaneously bestows upon us a certain worth, irrespective of how present circumstances may seem to question or obscure this. And current worth, as our friendly bank loan officer assures us, is titled to at least some claim on the future as well. (p. 420)

We (Cheung et al., 2013, Study 1) obtained empirical support for Davis's (1977) intuition. We subjected the narratives from the ERT task (nostalgic vs. ordinary event) to LIWC analyses. Nostalgic events incorporated more references to optimism than ordinary events. In another investigation (Reid et al., 2014; see above for fuller description), participants sampled 12 scents, one at a time, indicating for each how nostalgic it made them feel and reporting their level of optimism ("optimistic about my future," "ready to take on new challenges"). Higher levels of scent-evoked nostalgia predicted greater levels of optimism.

We turned to an examination of the causal relation between nostalgia and optimism. In Cheung et al. (2013, Study 2), we induced nostalgia with the ERT (nostalgic vs. ordinary event), and assessed optimism ("makes me feel ready to take on new challenges," "makes me feel

optimistic about my future,” “makes me feel like the sky is the limit,” and “gives me a feeling of hope about my future”). Nostalgia increased optimism.

In the above quote, Davis (1977) implied that nostalgia raises optimism via gains in self-esteem (“current worth”). When nostalgizing, individuals retrieve positivity accumulated from their past to boost their current self-esteem and, as a result, they feel optimistic about their future. Indeed, self-esteem is positively associated with optimism (Chemers, Watson, & May, 2000; Mäkikangas, Kinnunen, & Feldt, 2004), although the two constructs are sufficiently distinct to warrant independent treatment.

We (Cheung et al., 2013, Study 3) addressed this issue in an age-diverse sample of Dutch nationals. We induced nostalgia by asking participants to listen to a (pretested) nostalgic or control song. Next, we instructed them to complete brief measures of self-esteem (“feel good about myself,” “satisfied with myself”) and optimism (“optimistic about the future,” “hopeful about the future”). We conducted a mediational analysis using bootstrapping (Hayes, 2013; PROCESS macro; model 4). Nostalgia elevated optimism both directly and indirectly via self-esteem. We replicated these result patterns in Cheung et al., Study 4, with a sample of UK undergraduates who read idiosyncratically derived nostalgic versus control song lyrics. In sum, nostalgia boosts optimism directly and also indirectly by raising self-esteem. Davis’ (1977) intuition was supported by our data.

Psychological growth. Nostalgic accounts entail psychological growth, defined as “the potential to cultivate inner potentialities, seek out optimal challenges, and integrate new experiences into the self-concept” (Baldwin & Landau, 2014, p. 163; see also Sedikides & Hepper, 2009). We (Hepper et al., 2012, Studies 1-2) found that the central features of the nostalgia prototype included growth-denoting words (e.g., change, desire, future). However, such words may be symptomatic of linguistic conventions rather than changes in perceived growth or intentions to behave in pursuit of growth. In an experimental test, Iyer and Jetten (2011, Studies 2-3) showed that nostalgia promotes growth-related outcomes in the academic realm. First-year university students who focused on the continuity (rather than discontinuity) between their

nostalgic recollections and their current self-concept were more enthusiastic about starting their university education, viewed fewer obstacles to their academic progress, and expressed more interest in opportunities during their university years.

Given these findings were restricted to the academic realm and to persons coping with life transition, their generality is in question. Baldwin and Landau (2014) provided a broader test of the proposition that nostalgia promotes psychological growth across two experiments using adult participants. Participants in the nostalgic (vs. ordinary) event condition reported greater growth-related self-perceptions (i.e., self-expansion, curiosity, inclination toward new experiences; Kashdan et al. 2009) and stronger growth-related behavioral intentions (i.e., to engage in novel, self-expansive activities; Luke, Sedikides, & Carnelley, 2012). Further, the effects of nostalgia on growth-related self-perceptions and behavioral intentions were mediated by self-esteem. Relatedly, we (Stephan et al., 2012, Study 2) asked whether nostalgia bolsters the sense of self as true or real (“authentic;” Lenton, Bruder, Slabu, & Sedikides, 2013). We reasoned, based on theory and research (e.g., Kernis & Goldman, 2006), that authenticity involves acceptance and integration of one’s liabilities and strengths, and thus is indicative of psychological growth. Participants in the nostalgic-event (as opposed to the ordinary-event and positive-event) condition reported a stronger sense of authenticity: they stated that the event they described reflected “the person you truly are” (p. 294). Participants regarded the nostalgic event as capturing the essence of the self.

Baldwin, Biernat, and Landau, (in press) pushed this agenda further. They found that nostalgia elevated the accessibility of the intrinsic self-concept, but not the accessibility of the mundane (e.g., everyday) self-concept (Study 3). Further, they proposed and found (Studies 1, 2, 4, 7) not only that nostalgia is associated with and induces a sense of authenticity (the “intrinsic self-concept”) and well-being, but that it is also associated with and induces distancing from extrinsic concerns (e.g., meeting external standards of evaluation). In all, nostalgia strengthens perceptions of psychological growth.

Existential Function

Nostalgia “quiet[s] our fears of the abyss,” Davis (1979, p. 41) asserted. Saul Bellow had anticipated this assertion. In *Mr. Sammler’s Planet* (1970), one of the characters, Wallace, advocates eloquently the utility of nostalgic memories: “They keep the wolf of insignificance from the door” (p. 190). We endorsed the view that nostalgia fulfils an existential function. Further, we proposed that it does so, in part, by serving as a source of meaning in life (Routledge, Sedikides, Wildschut, & Juhl, 2013; Sedikides et al., 2004).

The construct of meaning can be approached from several levels of analysis (Arndt, Landau, Vail, & Vess, 2013). In line with the existential traditions of Frankl (2006) and Sartre (2001), we defined meaning at the personal level. From that perspective, “meaning” can be the perception that one’s existence is purposeful and significant (*presence of meaning*). “Meaning” can also be the perception that one is on a quest for meaning, because it is lacking in their life (*search for meaning*).

Nostalgic reverie refers to momentous life events (Wildschut et al., 2006, Studies 1-2), such as family traditions, relational celebrations, or cultural rituals (e.g., family Thanksgiving, high school graduation, wedding anniversary, playing in a championship basketball game). These are normative, culturally specific occurrences—what Berntsen and Rubin (2004) labeled cultural-life-script events. Such occurrences entail textured, personally important experiences that, when contemplated upon, may serve as a platform for reassuring the individual of presence of meaning in their life. Relatedly, when individuals pose questions about purpose in their life, that is, when they engage in search for meaning, this catalogue of nostalgic events may supply evidence that their lives have been meaningful.

Based on the above review and rationale, we offered two hypotheses. First, trait nostalgia is positively related to the presence of meaning. Second, nostalgic engagement instils meaning.

Trait Nostalgia Is Linked to Meaning

If nostalgia is a potent method for meaning derivation and maintenance, then individuals who habitually become nostalgic will report higher levels of meaning. We tested this hypothesis

in two correlational studies. In a laboratory setting involving US undergraduates, we (Routledge et al., 2011, Preliminary Investigation) measured nostalgia with the Southampton Nostalgia Scale, and meaning with two *presence of meaning* scales. Presence of Meaning in Life (subscale of the Meaning in Life Questionnaire; Steger, Frazier, Oishi, & Kaler, 2006) has five items (e.g., “I have a good sense of what makes my life meaningful”), and Purpose in Life (McGregor & Little, 1998) has four items (e.g., “My personal existence is purposeful and meaningful”). The Southampton Nostalgia Scale correlated positively with both meaning scales.

In an online survey involving a Dutch community sample, we (Routledge et al., 2011, Study 1) focused on music-evoked nostalgia. Participants listened to popular songs and indicated the extent to which each of them made them feel nostalgic and that “life is worth living” (a measure of *presence of meaning*). The more nostalgic a song made participants feel, the more meaningful their life seemed to be. Taken together, these results indicate that trait nostalgia is positively related to presence of meaning.

Nostalgic Engagement Instills Meaning

If momentous life events are reservoirs of meaning, then nostalgic reflection would readily dip into them. We tested the hypothesis that nostalgia instills meaning in six studies. In Reid et al. (2014), scent-evoked nostalgia was associated with meaning (“life is meaningful,” “life has a purpose”). In Van Tilburg et al. (2013, Study 5), following the ERT, participants in the nostalgic-event condition perceived their life as more meaningful (“sense of meaning,” “sense of purpose,” “things make sense,” “sense of value”) than those in the ordinary-event condition. In Hepper et al.’s (2012, Study 7) prototype investigation, participants of varying ages who pondered an event characterized by central (as opposed to peripheral) features of nostalgia experienced more meaning (“life is worth living,” “life is meaningful,” “life has a purpose,” “there is greater purpose to life”). In Routledge et al. (2011, Study 2), UK undergraduates exposed to nostalgic (vs. control) lyrics—identified as such in a prior session—reported heightened meaning, measured with Presence of Meaning in Life (subscale of the Meaning in Life Questionnaire; Steger et al., 2006).

We proceeded with two studies that involved more rigorous control groups. In Routledge et al. (2012, Experiment 1), we asked whether meaning (measured, again, with the Presence of Meaning in Life subscale of the Meaning in Life Questionnaire; Steger et al., 2006; Steger et al., 2006) would be higher in a nostalgic-event condition than in a desired-future-event condition. Students have a good deal of educational accomplishments (e.g., achieving good grades, graduating), personal milestones (e.g., getting a job, living alone), and relational goals (e.g., getting married, having children) to which to look forward. Imagining a desired future event would likely promote perceptions of life as meaningful, making this a stringent control condition. If nostalgic reflection is potent, then it should increase meaning above and beyond contemplation of desired future events. This is indeed what we found in a sample of US undergraduates. Nostalgic events instilled a stronger sense of meaning than desired future events.

Positive past events also constitute sources of meaning (King, Hicks, Krull, & Del Gaiso, 2006). As such, having participants ponder a past life event would provide another informative contrast to a nostalgic-event condition. In addition, as we stated above, one definition of the construct of meaning pertains to *search for meaning* (Arndt et al., 2013). People will search for meaning when they lack it (Juhl & Routledge, 2012). If nostalgia helps an individual find meaning, then it will reduce the need to keep searching for it. Additionally, if nostalgic reflection is potent, then it will reduce the search for meaning to a greater degree than reflection on a positive past event. Results from a sample of US undergraduates documented that nostalgic engagement decreases search for meaning to a greater degree than pondering a positive past event (Routledge et al., 2012, Experiment 2). Here, we assessed search for meaning with the 5-item state version of the Search for Meaning subscale of the Meaning in Life Questionnaire (Steger et al., 2006).

As meaning-making animals (Becker, 1971), humans are prone to seeking and maintaining a sense of meaningfulness in their lives. They do so, in part, by being prone to nostalgia or by becoming momentarily nostalgic. Nostalgia helps find and sustain meaning.

Sociality Function

Nostalgic narratives and the nostalgic experience are rich in social themes (Abeyta et al., 2014; Batcho et al., 2008; Holak & Havlena, 1992; Hepper et al., 2012; Robertson et al., 2014; Wildschut et al., 2006, Studies 1-2). We argue that, not only is nostalgia fundamentally social, but it also acts as a well of sociality with downstream consequences.

Individuals have a need to belong, that is, a “need for frequent, nonaversive interactions with ongoing relational bonds” (Baumeister & Leary, 1995, p. 497). However, social networks are dynamic, often times resulting in weakening or deterioration of relationships. Individuals defy resolutely the dissolution of relationships (Vaughan, 1986) and may feel adrift or lonely in their absence (Cacioppo & Cacioppo, 2014). Gardner, Pickett, and Knowles (2005) drew a distinction between direct and indirect compensatory strategies. An individual will use direct strategies when suitable interaction partners are available for the purpose of forming or repairing relationships with them. An individual will use indirect strategies when suitable interaction partners are unavailable by relying on mental representations of social relationships as sources of sociality. We submit that nostalgia constitutes an indirect strategy for sustaining sociality. In nostalgic reverie, “the mind is ‘peopled’” (Hertz, 1990, p. 195), as important figures from one’s past are brought to life and become part of one’s present (Davis, 1979). Our experimental work illustrates that: (a) nostalgia increases social connectedness, (b) nostalgia promotes socially-oriented action tendencies and prosocial behavior, (c) nostalgia-elicited social connectedness mediates the other two functions of nostalgia (self-oriented, existential), and (d) individual differences relevant to interpersonal motives moderate the sociality function of nostalgia.

Nostalgia Fosters Social Connectedness

We demonstrated a causal connection between nostalgia and social connectedness, which we operationalized as: feeling loved, protected, connected to others, and trusting of others; experiencing attachment security; feeling socially supported; or being empathetic.

Feeling loved, protected, connected to others, and trusting of others. To begin, participants influenced by scent-evoked nostalgia felt loved and connected to loved ones (Reid et

al., 2014). Also, following the ERT, participants in the nostalgic-event condition reported feeling loved and protected to a greater degree than those in the ordinary-event condition (Wildschut et al., 2006, Study 5). Moreover, participants who reflected on an event characterized by central nostalgia features felt more loved, protected, connected to loved ones, and trustful of others than those who reflected on an event characterized by peripheral nostalgia features (Hepper et al., 2012, Study 7).

We (Turner, Wildschut, & Sedikides, 2012, Experiments 1-2) applied the same line of reasoning to the domain of intergroup perception. UK undergraduates contemplated either a nostalgic or ordinary interaction with a real outgroup member—in this case, an overweight person (“Please bring to mind a nostalgic event in your life that involved interacting with an overweight person. Specifically, try to think of a past event involving an overweight person that makes you feel most nostalgic.”) Subsequently, they completed (among others) a 5-item measure of outgroup trust. Example items are: “Right now, I am able to trust an overweight person as much as any other person” and “Right now, I am able to trust an overweight person with personal information about myself” (Tam, Hewstone, Kenworthy, & Cairns, 2009). Nostalgic participants expressed more trust toward the outgroup member than control participants. We (Turner, Wildschut, Sedikides, & Gheorghiu, 2013, Experiment 2) observed similar result patterns among UK undergraduates who reflected on a nostalgic (as opposed to an ordinary) interaction with a real outgroup member, that is, a person with mental illness.

Experiencing attachment security. In Wildschut et al. (2006, Study 7), following the ERT, participants who reflected on a nostalgic (vs. ordinary) event reported lower levels of attachment anxiety (e.g., “I worry that romantic partners won’t care about me as much as I care about them”) and attachment avoidance (e.g., “I am very uncomfortable with being close to romantic partners”), as measured with a state version of the Revised Experience in Close Relationships Scale (Fraley, Waller, & Brennan, 2000).

Feeling socially supported. We asked whether nostalgia contributes to a subjective sense of social support. It does (Zhou et al., 2008). Chinese undergraduates who brought to mind a

nostalgic (vs. ordinary) event manifested stronger perceptions of social support. In particular, they scored higher on a standardized measure of social support, the 12-item Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988; e.g., “I can count on my friends when things go wrong,” “I can talk about my problems with my friends”). They also estimated that a higher number of their peers would support them by volunteering in a psychology experiment so that they could benefit by receiving additional credit. In conclusion, nostalgia fosters social connectedness.

Being empathetic. We (Zhou, Wildschut, Sedikides, Shi, & Feng, 2012, Study 2) wondered if nostalgia augments empathy. Chinese undergraduates completed the ERT and read information about an organization, “Half the Sky Foundation,” whose mission was to aid victims of the May 2008 Wenchuan earthquake. Afterward, they recorded their level of empathy (“sympathetic,” “compassionate,” “softhearted,” “tender”) with the earthquake victims. Participants who had nostalgized expressed stronger empathy than those who had recalled an ordinary event. We replicated this finding with another charitable cause, “Lemon Field Foundation,” whose ostensible mission was to nurture children’s developmental and educational needs in the remote and rural province of Guangdong (Study 3). Finally, we replicated the findings in a diverse sample of expatriates and overseas university students of varying ages, who, albeit enrolled in Chinese universities, completed the materials in English (Study 4). In sum, nostalgia increases empathy.

Nostalgia Promotes Socially-Oriented Action Tendencies and Prosocial Behavior

Relationships imply not only social connectedness or intimacy, but also support or caring for others (George & Solomon, 1999). As such, indirect relational strategies (Gardner et al., 2005), that is, mental representations of relational bonds, will include both intimacy and caring. To the extent that nostalgia is an indirect relational strategy, this should also be the case for nostalgia. Consider as an example that the nostalgic recollection of a vacation with friends will include both the sense of closeness with them and the capacity to be a friend to them. We proposed that nostalgia incites socially-oriented action tendencies and prosocial behavior.

Nostalgia and socially-oriented action tendencies. We operationalized action tendencies as perceived interpersonal competence, charitable intentions, desire for money, and intergroup contact intentions.

Interpersonal competence. In Wildschut et al. (2006, Study 7), we asked whether participants who nostalgize will manifest stronger perceptions of interpersonal competence. We operationalized this construct as agreement with items referring to initiation of social interactions (e.g., “Going to parties or gathering where you don’t know people well in order to start up new relationships”), self-disclosure of personal information (e.g., “Telling a close companion how much you appreciate and care for him or her”), and the provision of emotional support to others (e.g., “Helping a close companion get to the heart of a problem he or she is experiencing”). Relevant items (eight per domain) were part of the Interpersonal Competence Questionnaire (Buhrmester, Furman, Wittenberg, & Reis, 1988). Participants in the nostalgic-event condition indeed reported higher perceived interpersonal competence than their ordinary-event counterparts.

Charitable intentions. Nostalgia also strengthens charitable intentions (Zhou et al., 2012, Study 1). Following the ERT (nostalgic-event vs. ordinary event), Chinese undergraduates read about “Half the Sky Foundation” (see above) and proceeded to list the number of hours they intended to volunteer for, and the amount of money they intended to donate to, this charity. Participants in the nostalgia (vs. control) condition expressed stronger volunteerism and donation intentions.

In follow-up research, we (Zhou et al., 2012, Studies 2-4) used the same nostalgia induction technique and either the same (“Half the Sky Foundation”) or an equivalent (“Lemon Field Foundation”) charitable organization. However, before assessing behavioral intentions, we measured empathy (“sympathetic,” “compassionate,” “softhearted,” “tender”) and distress (“distressed,” “upset,” “perturbed,” “troubled”). We proceeded with mediational analyses using a bootstrapping procedure (Hayes, 2013; PROCESS macro; model 4). In all three studies,

empathy, but not distress, mediated the effect of nostalgia on charitable intentions. Nostalgia imbues individuals with empathy; empathy, in turn, predicts charitable inclinations.

Desire for money. Nostalgia may strengthen charitable intentions, because it diminishes the desire for money. The nostalgic exercise orients the individual in a more socially connected manner, and, as such, may decrease the press for, or appeal of, extrinsic or more tangible resources. We (Lasaleta, Sedikides, & Vohs, 2014, Experiment 2) defined “desire for money” as the motivation to have, hold onto, and acquire money. We implemented the dictator game (Güth, Schmittberger, & Schwarze, 1982), which entails a one-shot exchange where a participant makes a unilateral decision on how much money, if any, to hand over to another participant, with the rest of the money being available to themselves. We endowed participants (US undergraduates) not only with money, but also, as a control, with time. Consumers consider both money and time valuable, and allocate them on a daily basis (Aaker, Rudd, & Mogilner, 2011). Our endowments were as follows. In regards to money, participants received an envelope containing \$4.75 (in fake currency), which they could allocate in \$.25 increments. This constituted a total of 19 units. In regards to time, participants received 19 units representing the time they could depart early from the 30-minute experiment. Participants could allocate these units at 30 seconds each, totaling 9 minutes and 30 seconds. Does nostalgia influence desire for money but not desire for time? Indeed, it does. We induced nostalgia with the ERT (nostalgic vs. ordinary event). Nostalgic participants gave away more money, but not time, than control participants.

In addition, we (Lasaleta et al., 2014, Experiment 5) wondered what costs participants, an MTurk sample subjected to the same ERT as above, would be willing to incur in order to acquire money. Modifying a procedure introduced by Ariely, Loewenstein, and Prelec (2003), we asked participants to listen to a sequence of aversive sounds (8-second clips of a shrill-sounding violin, rooster crowing, and car crash) and then inform us for how long they would be willing to re-listen to these sounds in order to gain \$5. We assumed that a longer wait implies stronger willingness to suffer for the gain. We hypothesized, then, that nostalgics (compared to controls) would submit shorter temporal duration bids due to their weaker desire in money. This

hypothesis was confirmed. More important, we tested the meditational hypothesis noted above: That this effect would be due to nostalgia's capacity to foster social connectedness (i.e., feeling loved and protected); that is, social connectedness would mediate the effect of nostalgia on money. The rationale for this hypothesis derived from research showing that money and social connectedness are compensatory. For example, money reminders reduce the need for dependence on others (Vohs, Mead, & Goode, 2008), and counting money (a stack of hard currency) lowers distress in the wake of social exclusion (Zhou, Vohs, & Baumeister, 2009). We tested this mediational hypothesis using bootstrapping (Hayes 2013; PROCESS macro; model 4). The hypothesis was also confirmed. In conclusion, nostalgia reduces the desire for money, and it does so by fostering social connectedness (see also Gilovich & Kumar, in press).

Intergroup contact intentions. Nostalgia strengthens intergroup contact intentions (Turner et al., 2012, Experiment 1). Specifically, participants who nostalgized about an interaction with an outgroup member (i.e., an overweight person) reported stronger behavioral intentions for intergroup contact than those who recalled an ordinary interaction with an outgroup member. Here, we measured behavioral intentions with a 6-item scale (Mackie, Devos, & Smith, 2000) containing such items as “talk to them,” “find out more about them,” and “spend time with them.” Notably, this effect was mediated by increased outgroup trust and reduced intergroup anxiety. In all, nostalgia for an encounter with an outgroup member increases trust for, and decreases anxiety about, the entire outgroup, resulting in stronger intentions for contact with the outgroup.

Nostalgia and prosocial behavior. We operationalized prosocial behavior as physical proximity, helping, and monetary donations.

Physical proximity. We (Stephan et al., 2014, Study 4) induced nostalgia with the ERT (nostalgic vs. ordinary event) and then informed Chinese undergraduates of an impending conversation they would need to have with another participant waiting in an adjoining room. In preparation for this social interaction, we asked participants to place two chairs (one for themselves, one for the other person) in a certain part of that room. Next, the experimenter left

the room under the pretense of fetching the prospective interaction partner. We measured the distance between the two chairs (Macrae, Bodenhausen, Milne, & Jetten, 1994) and considered it a behavioral index of prosociality. Nostalgics (relative to controls) chose to sit in closer physical proximity to the interaction partner.

Helping. Following the ERT (as above), we (Stephan et al., 2014, Study 4) staged a mishap. An experimenter, who was unaware of experimental condition and hypotheses, walked into the room holding a box of pencils and a folder of papers. Making a clumsy move, the experimenter spilled the pencils on the floor. We counted the number of pencils that Chinese undergraduates picked up, and considered the total an index of prosocial behavior (Vohs et al., 2006). Nostalgics helped more (i.e., picked up a higher number of pencils) than controls.

Monetary donations. We (Zhou et al., 2012, Study 5) applied a novel nostalgia manipulation. In both the experimental and control conditions, Chinese undergraduate and graduate students saw printed charity appeals for “Half the Sky Foundation.” The two appeals were highly similar in appearance (e.g., they portrayed children’s photographs or children engaged in leisure activities), but differed in critical ways. In the experimental condition, the appeal focused on nostalgia: it contained nostalgic cues, such as the headline “Those Were the Days: Restoring the Past for Children in Wenchuan.” In the control condition, the appeal focused on the future: it contained references to the future, such as the headline “Now is the time: Build the Future for Children in Wenchuan.” Pretesting established that the experimental condition appeal elicits more nostalgia than the control condition one.

Prior to the nostalgia induction, participants had completed a series of laboratory tasks and were compensated with 7 renminbi, which they received in 1 renminbi notes. Following the nostalgia induction, we alerted participants to a collection box near the laboratory exit and told them that they could privately donate to charity as much or as little money as they wished, if any. We considered charitable giving an index of prosocial behavior (Batson, 1991). Participants in the experimental condition donated more money than those in the control condition. (We

returned to participants their donated money at a later time, and we donated to “Half the Sky Foundation” the pooled sum.)

In conceptual replication, we demonstrated repeatedly that nostalgia increases charitable behavioral intentions (Zhou et al., 2012, Studies 1-4; see also Merchant, Ford, & Rose, 2011) using a convergent operations approach (D. T. Campbell & Fiske, 1959). We implemented differing inductions of nostalgia and multiple assessments of charitable giving. This last point merits emphasis. Though there are certainly exceptions (e.g., studies assessing physical proximity; Stephan et al., 2014, Study 4), most of our nostalgia research has relied on self-report measures of various psychological functions, motivations, and so forth. Yet, given that the study of prosociality lends itself to measurable behavioral outcomes, this is a notable domain in which we are able to see that the effects of nostalgia extend beyond self-report measures and impact actual behavior.

That nostalgia facilitates monetary giving has broader implications. Charity appeals are often ineffective, as they become all too familiar or reactive (Ackerman-Rose, 1982). Nostalgia constitutes a subtle, non-invasive way to encourage donations. In addition, individuals across all ages and cultures who engage in prosocial spending report increased happiness (Dunn, Aknin, & Norton, 2014). Nostalgizing, either at the state or trait level, may contribute to personal happiness in the long run through prosocial giving.

Nostalgia-Elicited Sociality Mediates Other Functions of Nostalgia

Nostalgia is a fundamentally social emotion. As a key illustration of this property, we established that nostalgia fosters sociality. We build on the relevance of sociality by arguing that it underpins, at least in part, the self-oriented and existential functions of nostalgia.

Nostalgia-Elicited Sociality and the Self-Oriented Function of Nostalgia

Our research on nostalgia, self-esteem, and optimism (Cheung et al., 2013, Study 4) offers an example of how sociality (i.e., social connectedness) undergirds the self-oriented function of nostalgia. We have reported so far on the causal sequence among nostalgia, self-esteem, and optimism (Cheung et al., Study 3). Self-esteem mediates the effect of nostalgia on

optimism, but where does self-esteem originate? A sizeable literature points to sociality or, more formally, relational and sociocultural processes. This literature includes contingencies of self-worth (Crocker & Wolfe, 2001), sociometer (Leary, 2005), attachment (Mikulincer & Shaver, 2004), and terror management (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004) theories. On that basis, we hypothesized an extended causal sequence, according to which nostalgia fosters social connectedness, which enhances self-esteem, which in turn boosts optimism.

We (Cheung et al., 2013, Study 4) induced nostalgia with song lyrics, and then assessed social connectedness (“loved,” “protected,” “connected to loved ones,” “trust others;” Hepper et al., 2012, Study 7), self-esteem (“I have many positive qualities,” “good about myself,” “I like myself better,” “I like myself more;” Hepper et al., 2012, Study 7), as well as optimism. We operationalized optimism with the 6-item Revised Life Orientation Test (Scheier, C. S. Carver, & Bridges, 1994). Sample items are: “In uncertain times, I usually expect the best,” and “If something can go wrong for me, it will” (reverse scored). We went ahead with mediational analyses calculating bias-corrected 95% bootstrap confidence intervals (CIs) and bootstrap standard errors for direct and indirect effects. The results were consistent with our hypothesis. Mediational analyses showed that nostalgia nurtured social connectedness, which in turn raised self-esteem, which subsequently increased optimism (Figure 1).

 Insert Figure 1 about here

Nostalgia-Elicited Sociality and the Existential Function of Nostalgia

Our research on nostalgia and meaning also offers an example of how sociality underpins nostalgia’s existential function. Nostalgic narratives are replete with social themes (e.g., friends, family, partners), and such themes are key sources of meaning (Hicks, Schlegel, & King, 2010; Lambert et al., 2010). Relatedly, social threat (i.e., social exclusion; Stillman et al., 2009) lowers

meaning. Also, sociality bolsters well-being and promotes adaptive responding to existential threat (Arndt, Routledge, Greenberg, & Sheldon, 2005).

We have established that nostalgia fosters sociality (i.e., social connectedness). We (Routledge et al., 2011, Study 1) hypothesized that social connectedness, in turn, would increase meaning. To test this, we presented participants with two tasks in a fixed order. For the first task, they were instructed to bring to mind two of their favorite songs. For each song, they rated how “nostalgic” the song made them feel, how “loved” the song made them feel (to assess social connectedness), and how much the song made them feel that “life is worth living” (to assess meaning). For the second task, participants listened to two popular Dutch songs using a media player in their Internet browser and then completed the same set of ratings (“nostalgic,” “loved,” and “life is worth living”). Because participants completed ratings for a total of four songs, we tested for mediation with a hierarchical linear modelling analysis (four songs nested within each participant). We included meaning as the dependent variable and added social connectedness as a Level 1 covariate. A Sobel test established a significant indirect effect of nostalgia (“nostalgic”) on meaning (“life is worth living”) via social connectedness (“loved”). As hypothesized, then, social connectedness mediated the effect of music-evoked nostalgia on meaning: Nostalgia instilled meaning through its capacity to foster social connectedness.

In a follow-up investigation, we (Routledge et al., 2011, Study 2) tested the replicability of these findings. We induced nostalgia with the ERT (nostalgic vs. ordinary event). We subsequently measured sociality with the Social Provisions Scale (Cutrona & Russell, 1987). This 24-item scale assesses the six provisions that relationships may confer: Guidance (e.g., “There is someone I could talk to about important decisions in my life”), Reliable Alliance (e.g., “There are people I can count on in an emergency”), Reassurance of Worth (e.g., “There are people who admire my talents and abilities”), Nurturance (e.g., “There are people who depend on me for help”), Attachment (e.g., “I have close relationships that provide me with a sense of security and emotional well-being”), and Social Integration (e.g., “I feel part of a group of people who share my attitudes and beliefs”). Finally, we measured meaning with the Presence of

Meaning in Life subscale of the Meaning in Life Questionnaire (Steger et al., 2006). We obtained support for the hypothesis. Social connectedness mediated the effect of nostalgia on meaning: Nostalgia instilled meaning through its capacity to foster social connectedness. In conclusion, nostalgia invigorates sociality and, through this, regenerates and sustains meaning.

A Note on the Effects of Nostalgia-Elicited Sociality

Although these studies offer evidence of the hypothesized mediational sequence (i.e., with nostalgia increasing sociality which in turn boosts meaning, or, in the previous section, with nostalgia increasing connectedness which then boosts self-esteem which in turn increases optimism), we had questions about whether these mediational relations manifested at least in part because of simple construct overlap or shared method variance, especially since these studies all relied on self-report responses. Thus, in all these studies, we assessed models with alternative causal sequences. If the mediational findings reported above simply reflected construct overlap or shared method variance, then these alternative causal orderings should perform equally well. However, across all studies tested, the hypothesized sequence showed the best model fit. Taken together with experimental studies utilizing causal chain approaches to establishing mediation (Spencer, Zanna, & Fong, 2005), the available data support theoretically derived accounts of how nostalgia impacts the cognitive, affective, and behavioural systems.

Individual Differences Moderate the Psychological Benefits of Nostalgic Reverie

Nostalgia is positively linked with, and stimulates, approach motivation (Stephan et al., 2014). As a reminder, various physicians and psychiatrists had proposed that nostalgia is linked with malady, when, in actuality, harsh life circumstances evoke nostalgia. The positive link between nostalgia and neuroticism (Barrett et al., 2010) is a case in point. According to the old school of thought, nostalgia is responsible for high neuroticism. According to our perspective, nostalgia rushes in to soothe frequent worries that accompany high levels of neuroticism, in particular uncertainties concerning one's level of social inclusion (Seehusen et al., 2013). Regardless, we argue that nostalgia, as an approach-oriented emotion, facilitates coping at hard times (Routledge et al., 2013; Sedikides et al., 2009).

Batcho's (2013b) research illustrates our argument. She assessed trait nostalgia (Nostalgia Inventory; Batcho, 1995) and coping (COPE inventory; C. S. Carver, Scheier, & Weintraub, 1989). Nostalgia was positively related to adaptive coping strategies (e.g., seeking emotional social support, expressing emotions, planning) and was unrelated to maladaptive coping strategies (i.e., denial, behavioral disengagement, substance abuse). Further, as our experimental research indicates, nostalgia serves key psychological functions (self-oriented, existential, sociality) that have downstream consequences for psychological well-being. For example, self-esteem (Alicke & Sedikides, 2009), optimism (C. S. Carver, Scheier, & Segerstrom, 2010), meaningfulness (Zika & Chamberlain, 1992), and social connectedness (Leary, 2005) all positively contribute to well-being. However, the utility of nostalgia for psychological functioning and well-being is moderated by individual differences. We consider three moderators that dovetail with the psychological (i.e., self-oriented, relational, and existential) functionality of nostalgia: narcissism, attachment avoidance, and perceptions of meaning in life.

Narcissism

In an online investigation by Hart et al. (2011, Study 2), high and low narcissists (assessed with the Narcissistic Personality Inventory; Raskin & Terry, 1988) read a definition of nostalgia, visualized a nostalgic event in their lives, and completed assessments of the self-positivity and sociality functions of nostalgia, respectively (as in Hepper et al., 2012, Study 7). Subsequently, participants indicated their nostalgia for nine agentic themes (e.g., “past successes/achievements,” “having dreams and aspirations,” “being able to focus on what I want”) and nine communal themes (e.g., “my family,” “someone I loved,” “my friends”), which we drew from the literature (Hart et al., Study 1; Wildschut et al., 2006, Studies 1-2). High (compared to low) narcissists derived more self-positivity (but not more sociality) from nostalgia, and were more nostalgic for agentic (but not for communal) themes.

A follow-up online survey involving a Dutch community sample tested the generalizability of these findings, controlling for the Big Five personality traits (Hart et al., 2011,

Study 3). Participants filled out measures of narcissism (16-item Narcissistic Personality Inventory; Ames, Rose, & Anderson, 2006) and the Big Five (revised Ten Item Personality Inventory; Denissen, Geenen, Selfhout, & Van Arken, 2008). Then, they brought to mind a nostalgic song and listed the names of the song and performing artist. Finally, they responded to items assessing the self-positivity function (i.e., self-esteem—extent to which the song made them feel good about themselves) and sociality (i.e., social connectedness—extent to which the song made them feel connected to the people they cared about). Replicating the previous study, high (compared to low) narcissists derived more self-positivity by listening to a nostalgic song. In addition, high (relative to low) narcissists derived marginally more sociality by listening to a nostalgic song. These results generalized above and beyond the contributions of the Big Five. Taken together, the self-positivity function of nostalgia is stronger among high than low narcissists.

Attachment Avoidance

Individuals vary in their level of attachment avoidance, and given the sociality of typical nostalgic reflections, it follows that individuals' insecurities about close relationships would color the downstream effects of nostalgic reflection. We examined this guiding hypothesis in several studies. In one such study, we (Wildschut et al., 2010, Study 4) assessed attachment avoidance with the Revised Experience in Close Relationships Scale (Fraley et al., 2000) in a sample of UK and US undergraduates. Next we administered the ERT and instructed participants to respond to measures of sociality (i.e., social connectedness: “loved,” “connected to loved ones”) and self-positivity (i.e., self-esteem: “I have many positive qualities,” “value myself more”). Reflecting on a nostalgic (vs. ordinary) event fostered social connectedness among low-avoidance, but not among high-avoidance, participants. Low-avoidants are more capable of harnessing nostalgia as a source of sociality. This conclusion is consistent with findings that low (compared to high) avoidants rely more on social relationships to regulate distress (Mikulincer & Shaver, 2008). Nevertheless, low- and high-avoidants are equally likely to benefit from nostalgia

in regards self-positivity: reflecting on a nostalgic (vs. ordinary) event raised their self-esteem to a comparable extent.

In Wildschut et al. (2010, Study 5), we extended these findings to perceived interpersonal competence. We assessed attachment avoidance in a sample of US undergraduates at Time 1 with a 3-item subset (“Others often want me to be closer than I feel comfortable being,” “I worry about others getting too close to me,” “I find it relatively easy to get close to others”) of the Relationships Scales Questionnaire (Griffin & Bartholomew, 1994; Kurdek, 2002). At Time 2 (three weeks later), we administered the ERT (nostalgic vs. ordinary event) and then measured emotional support with the 8-item Emotional Support scale of the Interpersonal Competence Questionnaire (Buhrmester et al., 1988). Nostalgia increased perceived competence to provide social support in low (compared to high) avoidants.

Juhl, Sand, and Routledge (2012) conceptually replicated these findings. They measured attachment avoidance (with the Revised Experience in Close Relationships Scale; Fraley et al., 2000), administered the ERT (nostalgic vs. ordinary event), and measured either relationship satisfaction (3 items; e.g., “Right now, how satisfied are you with your current romantic relationship?”) among dating US undergraduates in Study 1 or relationship desire (3 items; e.g., “Right now, how much do you desire to start a romantic relationship?”) among single US undergraduates in Study 2. Nostalgia rendered low avoidance persons more satisfied with their relationships and more desirous of a relationship. In all, nostalgia is more socially beneficial to individuals who are low (rather than high) on attachment avoidance.

Perceptions of Meaning in Life

Some persons are more likely than others to endure meaning deficits, and, to the extent that nostalgia imbues life with meaning, it should help to offset this void. We (Routledge et al., 2011, Study 5) assessed individual differences in meaning deficits with the Purpose in Life scale (McGregor & Little, 1998). Following the ERT (nostalgic vs. ordinary event), we measured vitality, an index of eudaemonic well-being (Ryan & Deci, 2001; Ryff, 1989), with the 7-item State Vitality scale (Ryan & Frederick, 1997). Vitality reflects heightened energy for living (e.g.,

“At this moment, I feel alive and vital,” “I am looking forward to each new day”). Nostalgia increased subjective vitality in participants with meaning deficits (but not with meaning surfeits).

Summary and a Note on the Relation between Nostalgia and In-The-Moment Affect

Nostalgia has motivational implications: It strengthens approach motivation. The motivational potential of nostalgia is exemplified by its functions. Nostalgia serves a self-oriented function. It raises self-positivity (i.e., positive self-attribute activation, self-esteem) and facilitates perceptions of a positive future (i.e., optimism, psychological growth). Further, nostalgia serves an existential function. It increases perceptions of life as meaningful. Moreover, nostalgia fosters sociality. It strengthens social connectedness (feeling loved, protected, connected to others, and trusting of others; experiencing lower attachment anxiety and attachment avoidance; feeling socially supported; being empathetic to others), reinforces socially-oriented action tendencies (interpersonal competence, charitable intentions, desire for money, intergroup contact intentions), and promotes prosocial behavior (physical proximity, helping, monetary donations). In nostalgic musing, the mind is indeed “peopled” (Hertz, 1990, p. 195), and this “peopling” confers key psychological benefits. That nostalgia is a deeply social emotion is underlined by findings that nostalgia-elicited sociality mediates the self-positivity function (i.e., increases in self-esteem and optimism) and the existential function (i.e., increases in meaning in life). The utility of nostalgia is moderated by narcissism, attachment avoidance, and perceptions of meaning in life.

As an emotion, nostalgia would be expected to yield in-the-moment affect. In almost all of the above-reviewed experiments, and using a variety of nostalgia inductions, we measured nostalgia-generated affect either with the PANAS (Watson et al., 1988) or with an equivalent list of adjectives (e.g., Martin, Abend, Sedikides, & Green, 1997). We highlight four findings. *First*, nostalgic narrations or songs produce more positive affect than negative affect (Barrett et al., 2010; Reid et al., 2014; Wildschut et al., 2006, Studies 1-2). *Second*, a nostalgia condition produces stronger positive affect than a control condition (Cheung et al., 2013, Study 2 and 4; Hepper et al., 2012, Study 7; Lasaleta et al., 2014, Experiment 4; Wildschut et al., 2006, Studies

5-7; Zhou, Wildschut, Sedikides, Shi, & Feng, 2012, Study 1; see also Batcho, 2013b, and Verplanken, 2012), although sometimes the two conditions do not differ (Cheung et al., Study 3; Zhou, Wildschut, Sedikides, Shi, & Feng, 2012, Studies 2-4; Stephan et al., 2014, Studies 4-5). *Third*, although nostalgia increases positive affect, it generally does not decrease negative affect, compared to control (Cheung et al., 2013, Study 1; Wildschut et al., 2010, Study 4). *Finally*, and most importantly, nostalgia has unique effects above and beyond positive affect or negative affect. That is, we obtained evidence for nostalgia's self-positivity, existential, and sociality functions even when controlling for the effect of nostalgia on positive affect, if any.

HOW NOSTALGIA WORKS

We have elaborated so far on the nature and functions of nostalgia. We now offer a comprehensive account of the operation of this emotion within the broader psychological system. Specifically, we propose a regulatory model that showcases the relevance of nostalgia for homeostasis (Wildschut, Sedikides, & Cordaro, 2011; Sedikides, Wildschut, Arndt, & Routledge, 2008).

The impetus for the growing interest in positive emotions originated partly in the view that these emotions play an essential role in the regulation of psychological distress and the maintenance of psychological or physiological homeostasis (Aspinwall, 1998; Folkman & Moskowitz, 2000). Levenson (1988, p. 125) expressed this view succinctly in his undoing hypothesis: "the evolutionary meaning of positive emotions such as happiness might be to function as efficient 'undoers' of states of ANS (autonomic nervous system) arousal produced by certain emotions." Building on this hypothesis, Fredrickson and Levenson (1988, p. 125) theorized: "If negative emotions promote the activation of a limited number of well-rehearsed, time-tested, adaptive actions along with their attendant physiological support, certain emotions can be seen as assuming a complementary role, efficiently restoring equilibrium to the organism both in terms of returning physiological activation to prior levels, and restoring psychological openness to a wide range of action possibilities."

The regulatory or homeostatic model that we propose is as follows. A noxious stimulus or aversive psychological/physiological state will have a negative influence on an outcome (e.g., function), but it will also trigger nostalgia. Nostalgia, in turn, will alleviate this negative influence. Accordingly, the negative direct influence of the noxious stimulus is attenuated or counteracted by its positive indirect influence via nostalgia. In this way, the model is similar to the optimal vigilance hypothesis proposed by Roese and Olson (2007) in that an active mechanism is used to ameliorate adverse effects of a psychological state. We report below complete or partial tests of the model.

Testing the Full Model in a General Domain: Approach and Avoidance Motivation

We obtained initial evidence for the model (presented in Figure 2) in our research on approach and avoidance motivation (Stephan et al., 2014). We concurrently assessed avoidance motivation (7-item Behavioral Inhibition Scale or BIS; Carver & White, 1994), nostalgia (Southampton Nostalgia Scale and the Nostalgia Inventory—Batcho, 1995), and approach motivation (13-item BAS; Carver & White, 1994) in a Dutch community sample. Avoidance motivation (aversive state) predicted weaker approach motivation in regards to Fun Seeking and Drive (negative influence on an outcome). Avoidance motivation also predicted greater nostalgia. In turn, nostalgia softened the influence of avoidance motivation on approach motivation. Statistically speaking, although the direct effect of avoidance motivation on approach motivation was negative, the indirect effect of avoidance motivation on approach motivation via nostalgia was positive (suppressor situation; Paulhus, Robins, Trzesniewski, & Tracy, 2004). Stated otherwise, the negative effect of avoidance motivation on approach motivation was strengthened when we controlled for the positive association between nostalgia and approach motivation. Notably the indirect effect of avoidance motivation on approach motivation via nostalgia remained significant after controlling for the Big Five traits (assessed with the revised Ten Item Personality Inventory; Denissen et al., 2008).

 Insert Figure 2 about here

To achieve a causal ordering of avoidance motivation, nostalgia, and approach motivation, we (Stephan et al., 2014, Study 2) conducted an online experiment. In the experimental condition (avoidance motivation), participants considered their life unfolding in the future and listed five events that they wanted to avoid. In the control condition, participants considered their life unfolding in the future and listed five ordinary, likely events. Then, participants completed a state version of the Nostalgia Inventory (Batcho, 1995) by rating the extent to which they were missing 20 aspects of their past. Finally, they responded to a measure of approach motivation (13 BAS items; Carver & White, 1994). Avoidance (relative to control) motivation tended to lower approach motivation. Also, avoidance motivation led to higher nostalgia. In turn, avoidance-elicited nostalgia predicted stronger approach motivation. When avoidance motivation and nostalgia jointly predicted approach motivation (i.e., when the positive association between nostalgia and approach motivation was controlled for), the negative effect of avoidance motivation on approach motivation was strengthened.

Testing the Model Partially or Fully in Specific Domains:

Threat and Nostalgia-Facilitated Responses to Threat

Our research on approach and avoidance motivations tested the full model in its general form. We now review partial and full tests of the model within specific domains. We organize our exposition on the basis of the triggering stimulus. We call that stimulus “threat.” The threat can be directed at the self (corresponding to the self-oriented function of nostalgia), can pertain to existential concerns (corresponding to the existential function of nostalgia), can refer to the social sphere (corresponding to the sociality function), can target well-being, or can undermine physical integrity. We will describe the ways in which nostalgia helps to ward off these diverse threats.

Self-Threat

Negative performance feedback presents a threat to the self (Sedikides, 2012). We wondered whether nostalgia regulates responses to such feedback. Can nostalgia buttress the self from threat?

To buttress the self, nostalgia must be able to strengthen self-positivity in the first place. We have already reviewed evidence that it does so both explicitly and implicitly. At an explicit level, nostalgic narratives include redemptive and agency themes (Abeyta et al., 2014; Wildschut et al., 2006, Study 2), and nostalgia renders a generalized view of self (i.e., self-esteem) more positive and fosters perceptions of psychological growth (Baldwin & Landau, 2014; Cheung et al., 2013; Wildschut et al., Study 5). At an implicit level, nostalgia increases the cognitive accessibility of positive self-attributes (Vess et al., 2012, Experiment 1). Nostalgia, then, sets up cognitive (i.e., self-positivity) barricades, both explicit and implicit, upon which threats to self may be deflected.

We (Vess et al., 2012, Experiment 2) obtained direct evidence for this proposition. US undergraduates completed the Remote Associates Test (Mednick, 1962), an ostensible test of analytic reasoning, and received bogus negative or positive feedback. The ERT (nostalgic vs. ordinary event) followed. Finally, participants specified the degree to which their performance was due to their ability. Past research has established that individuals respond defensively on this measure: They deny that failure was caused by lack of ability on their part (Sedikides, W. K. Campbell, Reeder, & A. J. Elliot, 2002). Overall, participants took less personal responsibility for failure than success, exhibiting the typical defensive or self-serving attributional pattern (W. K. Campbell & Sedikides, 1999). However, this pattern was qualified by nostalgic reflection. In the failure (but not success) condition, nostalgics assumed more personal responsibility than controls. Nostalgia buttressed the self, lending individuals the fortitude to accept responsibility for failure and curtail defensiveness.

Baldwin et al. (in press) also demonstrated that nostalgia buffers against threats to the intrinsic (i.e., authentic) self. Nostalgia was spontaneously triggered in response to self-expression that was experimentally blocked, that is, when participants imagined situations where

it was virtually impossible for them to feel like their real self (Study 5). In addition, threats to the intrinsic self led to deterioration of intrinsic self-expression (e.g., “In general, I have a clear sense of who I am and what I am,” “I feel like I have betrayed who I really am”—reverse coded) and of well-being among control participants but not among nostalgic participants (Study 6).

Existential Threat

We discuss the regulatory role of induced (i.e., state) or measured (i.e., trait) nostalgia in two types of existential threat: meaninglessness and mortality awareness.

Meaninglessness. We (Routledge et al., 2011, Study 3) introduced an experimental manipulation of meaninglessness (p. 643). In the meaning-threat condition, UK undergraduates read an essay (ostensibly written by a University of Oxford philosophy professor) arguing that life has no meaning: “There are approximately 7 billion people living on this planet. ... The Earth is 5 billion years old and the average human life span across the globe is 68 years. What is 68 years of one person’s rat-race compared to 5 billion years of history? We are no more significant than any other form of life in the universe.” Participants in the control condition read an essay about the limitations of computers: “... the computer never understood a word of this text. A computer does not comprehend what is stored in its “memory” any more than a book in the library understands what it contains.” The two essays were of similar length, and were pre-rated equivalently on engagement, interest, and originality. A 3-item measure of state nostalgia (e.g., “I feel nostalgic at the moment”) followed. Participants in the meaning-threat condition reported higher levels of nostalgia than controls. Meaninglessness evokes nostalgia.

But does nostalgia, in turn, act to diffuse threat? Existential psychologists have proposed that individuals use a variety of strategies for threat diffusion, one of which is derogation of the meaning-undermining source and their message (Berger & Luckman, 1967; Greenberg et al., 1990). We capitalized, as before, on the principle that, if a psychological resource protects from threat, then bolstering that resource will reduce defensiveness toward that threat (Pyszczynski et al., 2004; Sherman & Hartson, 2011). Assuming that nostalgia fortifies the self-system (Routledge et al., 2011, Study 5; Vess et al., 2012, Experiment 1), a nostalgia infusion will

decrease the need to respond defensively to meaning threat. We (Routledge et al., 2011, Study 4) put this idea to test in a sample of UK undergraduates. Following the ERT (nostalgic vs. ordinary event), we exposed participants to the meaning-threat manipulation used in Study 3.

Subsequently, we measured defensive responding via participants' reactions to the author (four items; e.g., "The author is a reliable source") and the essay (two items; e.g., "The essay is convincing in its points"). When exposed to meaning threat, nostalgics derogated the author and the essay less than controls. Nostalgia curbed defensiveness to meaning threat.

We have conceptualized meaning either as presence of meaning or search for meaning. At a different level of analysis, however, meaning refers to making sense of the world in terms of basic relations between objects or events (Arndt et al., 2013). An example can be found in the domain of art (Proulx, Heine, & Vohs, 2010), where certain forms of art depict greater or lesser structure and may thus satiate or threaten psychological needs (Landau, Greenberg, Solomon, Pyszczynski, & Martens, 2006). Although representational art could be considered as upholding one's sense of meaning (i.e., structure preserving), Surrealist art could be considered as threatening one's sense of meaning (i.e., structure threatening). We (Routledge et al., 2012, Study 3) capitalized on these notions. In the meaning-threat condition, US undergraduate viewed a Surrealist painting (Rene Magritte's *The Son of Man*), whereas, in the control condition, they viewed a representational painting (John Constable's *Landscape With a Double Rainbow*). Next, participants undertook the ERT (nostalgic vs. positive event). Lastly, participants completed a state version of Presence of Meaning in Life. The Surrealist (but not representational) painting undermined sense of meaning. However, nostalgia mitigated this effect. Within the Surrealist art condition, nostalgics reported a higher sense of meaning than controls. Nostalgia buffered against loss in meaning.

Mortality awareness. Mental time travel *forward* renders humans cognizant of their inescapable demise, which can constitute a potent threat to meaning (Becker, 1971). However, this ability to think symbolically and in temporal context, that is, mentally time travel *backward* (e.g., nostalgic reverie), may serve to preserve or restore meaning. In other words, when people

are faced with the existential threat of future mortality, they may counter this threat by revisiting nostalgically the well of memories that serve to reassure them that they have lived meaningful lives. We tested the possibility that individuals cope with the threat of mortality awareness by sourcing meaning from nostalgic memories. We examined, in particular, the regulatory contribution of nostalgia concerning mortality-instigated threat to (a) collective identity, (b) meaning, (c) activation of death cognitions, and (d) death anxiety.

Nostalgia buffers mortality-instigated threat to collective identity. Meaning drawn from the well of nostalgia softens defensive responding to mortality-salience threats directed at collective identity. Juhl, Routledge, Arndt, Sedikides, and Wildschut (2010, Study 1) asked US undergraduates to complete a trait nostalgia scale, the 8-item Positive Past subscale of the Time Perspective Inventory (Zimbardo & Boyd, 1999; e.g., “I get nostalgic about my childhood”). As in previous studies derived from terror management theory, they were then assigned to a mortality salience or control (i.e., dental pain) condition (Rosenblatt, Greenberg, Solomon, & Pyszczynski, 1989). In the mortality salience condition, they read: “Briefly describe the emotions that the thought of your own death arouses in you. Jot down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead.” In the control condition they read parallel instructions, with “dental pain” replacing “death.” Following a 3-minute delay (a standard procedure aimed to remove explicit death reminders from focal attention; Arndt, Cook, & Routledge, 2004), participants reacted to an essay by a fellow senior student who assaulted their collective identity by expressing a critical view of their university. The student wrote that “North Dakota State University just is not that great of a college to be honest” and that “... I feel like I may have made a mistake by going to North Dakota State University.” Low nostalgics responded more unfavorably (i.e., defensively) to the essay in the mortality salience than control condition. However, high nostalgics responded equally favorably to the essay in the two conditions. Nostalgia reduced the need to invest in collective identity as a response to death reminders. This role of trait nostalgia may have been strengthened additively by state nostalgia. In a study implementing a similar design, participants high on trait nostalgia

spontaneously experienced heightened levels of state nostalgia in response to death reminders (Juhl et al., 2010, Study 3).

Routledge, Juhl, Abeyta, and Roylance (2014) examined whether the buffering properties of nostalgia extend to mortality-instigated threat to national (Study 1) or religious (Study 2) identity. In Study 1, US undergraduates completed the Southampton Nostalgia Scale, underwent a mortality salience (vs. extreme pain) manipulation, and responded to a 3-item nationalistic sacrifice scale (e.g., “I would die for my nation”). Low, but not high, nostalgics were more inclined toward nationalistic sacrifice in the mortality salience than control condition. High nostalgics were less defensive of their national identity. In Study 2, rather than manipulating mortality salience, we assessed participants’ current level of death-thought accessibility (Routledge et al., 2010) with a word completion task (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994). This task consists of 28 word fragments (e.g., COFF_ _), six of which can be completed to form either a death-related (e.g., COFFIN) or neutral (COFFEE) word. The sum of death words that each participant completed served as the measure of death-thought accessibility. Following the administration of the ERT (nostalgic vs. ordinary event), participants responded to a 3-item religious self-sacrifice scale (e.g., “I would die for my religion;” Routledge, Juhl, Vess, Cathey, & Liao, 2013). Nostalgia disrupted the positive association between death-thought accessibility and religious self-sacrifice. Control participants reported greater willingness for religious self-sacrifice when death-thought accessibility was high (compared to low), but for nostalgics death-thought accessibility did not predict greater willingness to self-sacrifice. High nostalgics were less defensive of their religious identity. This research illustrates that destructive responding to the existential threat of mortality awareness is not inevitable (Vail et al., 2012): self-sacrifice is relatively unappealing to persons who attain meaning from nostalgia.

Nostalgia buffers mortality-instigated threat to meaning. Does nostalgia also buffer meaning that is threatened by mortality reminders? In Routledge et al. (2008, Experiment 1; US undergraduate sample), we assessed trait nostalgia with the Time Perspective Inventory (Zimbardo & Boyd, 1999) and then manipulated mortality salience (vs. dental pain). Next, we

assessed state levels of meaning with the No Meaning Scale (Kunzendorf & Maguire, 1995) and in particular with 12 of its 18 items that make no explicit reference to death (e.g., “All strivings in life are futile and absurd”). In the case of mortality salience (but not control), more nostalgic participants reported higher meaning. When mortality awareness heightens the need for meaning, the more individuals reflect nostalgically on their past, the more meaningful they perceive their lives to be at the present.

Nostalgia buffers mortality-instigated activation of death cognitions. These findings raise the possibility that nostalgia buffers consequences of mortality awareness. For example, nostalgia may decrease the accessibility of death cognitions. Other psychological buffers such as self-affirmation (Schmeichel & Maartens, 2005) or cultural values endorsement (Arndt, Cook, & Routledge, 2004) operate that way. We put this possibility to the test (Routledge et al., 2008, Experiment 2). We assessed trait nostalgia with the Southampton Nostalgia Scale and then assigned US undergraduates to the mortality salience or control (dental pain) conditions. Subsequently, we measured death-thought accessibility with the above-described word completion task. In the mortality salience (but not control) condition, higher levels of nostalgia were associated with lower death-thought accessibility. Nostalgia buffers death awareness by suppressing death cognitions. We reinforced this conclusion with a subsequent experiment where, following the same mortality salience manipulation, we administered the ERT (nostalgic vs. ordinary event) and measured death-thought accessibility (Routledge et al., 2008, Experiment 3; US undergraduate sample). Again, in the mortality salience condition, nostalgia decreased death-thought accessibility.

Nostalgia buffers mortality-instigated death anxiety. Nostalgia may offer some protection from consequences of death awareness at the cognitive level (i.e., by weakening death cognitions), but does it also offer protection by alleviating death anxiety? Terror Management Theory answers this question in the affirmative. If a structure (e.g., mental representation) affords existential safety, it ought to prevent death awareness (i.e., mortality salience) from turning into death anxiety (Pyszczynski et al., 2004). Correspondingly, if nostalgia holds fear of

death at bay, it ought to buffer the harmful effects of death awareness on death anxiety. We (Juhl et al., 2010, Study 2; US undergraduate sample) assessed nostalgia with the Southampton Nostalgia Scale, manipulated mortality salience (vs. extreme pain), and measured death anxiety with the Death of Self subscale of the Revised Collett-Lester Fear of Death Scale (Lester, 1990), which assesses anxiety for eight death aspects (e.g., “the shortness of life,” “the total isolation of death”). Participants in the mortality salience condition (relative to controls) manifested greater death anxiety, but only if they were low on nostalgia. High levels of trait nostalgia prevented death cognitions from becoming death anxiety. Nostalgia protects from death anxiety.

Social Threat

We next consider the role of nostalgia in regulating social threat, and specifically relational deficiencies stemming from loneliness or social exclusion. Our research on loneliness and nostalgia offers an illustration of the full regulatory model. Loneliness is a discrete emotion characterized by a set of negative feelings and thoughts (e.g., unhappiness, pessimism, self-blame, depression, perceived lack of social support, having fewer and less satisfying relationships than desired; Cacioppo et al., 2006). Loneliness can be combated through either direct or indirect strategies (Gardner et al., 2005); the former include active pursuit of relationship formation, the latter nostalgia.

Loneliness, nostalgia, and sociality. Lonely persons seek refuge in nostalgia. Loneliness emerged as the most frequently mentioned discrete emotional trigger of nostalgia in UK undergraduates’ narratives (Wildschut et al., 2006, Study 2). Loneliness also engenders nostalgia. In Wildschut et al. (Study 4), we induced loneliness in the laboratory. In the experimental condition, UK undergraduates responded to 15 items drawn from the UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980). We rigged response options (cf. Salancik & Conway, 1975) to evoke agreement and thus the subjective impression of high loneliness (e.g., “I sometimes feel isolated from others”). In the control condition, we rigged response options to evoke disagreement and thus the subjective impression of low loneliness (e.g., “I always feel isolated from others”). We followed up with false feedback. In the experimental condition,

participants learned that they fell on the 62nd percentile of the loneliness distribution and therefore were “above average on loneliness,” whereas in the control condition participants learned that they fell on the 12th percentile and therefore were “very low on loneliness.” Finally, participants responded to a state version of the Nostalgia Inventory (Batcho, 1995). Participants in the high (vs. low) loneliness condition reported higher levels of nostalgia.

We have shown that nostalgia fosters sociality, such as increases in social connectedness (i.e., being loved, protected, connected to others, and trusting of others), empathy, or perceived interpersonal competence, and decreases in attachment avoidance and anxiety. These findings are generally consistent with our regulatory model: loneliness evokes nostalgia, which then augments sociality. However, the findings are only suggestive. We describe next a comprehensive test of the full model.

Loneliness, nostalgia, and social support. In a correlational investigation involving Chinese migrant children and teenagers (aged 9-15), we (Zhou et al., 2008, Study 1) assessed loneliness (UCA Loneliness Scale; Russell, 1996), nostalgia (Southampton Nostalgia Scale), and social support (Multidimensional Scale of Perceived Social Support; Zimet et al., 1988). We replicated conceptually the suppressor situation (Paulhus et al., 2004) pattern obtained in Stephan et al. (2014, Studies 1-2). Lonely participants perceived little social support, but they were also prone to nostalgia. In turn, nostalgia augmented their perceptions of social support, thereby countering the negative impact of loneliness.

In an experimental investigation, we (Zhou et al., 2008, Study 2) proceeded with a causal ordering of the variables of interest in a sample of Chinese undergraduates. First, we induced loneliness using the procedure described above under the subheading “Loneliness, nostalgia, and sociality;” Wildschut et al., 2006, Study 4). Subsequently, we measured nostalgia (with a state version of the Southampton Nostalgia Scale) and social support (with a state version of the Multidimensional Scale of Perceived Social Support; Zimet et al., 1988). We replicated the prior findings (i.e., suppressor situation; Paulhus et al., 2004), demonstrating directionally opposite causal effects of loneliness on nostalgia and perceived social support. Lonely participants

reported lacking in social support but also felt nostalgic. Nostalgia, in turn, predicted stronger social support in their lives.

Individual differences. Although the available research speaks to the overall tendency for nostalgia to play a key role in maintaining equanimity in response to threat, there are individual differences in the adoption of this strategy as well as the persons for whom it is most effective. We examined the role of two individual differences in the regulatory cycle among social threat, nostalgia, and neutralization of social threat. These are resilience and attachment avoidance.

Resilience. Researchers have defined resilience as the ability to experience positive emotions (Bonanno, 2005), recover from shock and resist being affected by disturbance (Garmezy, 1991), and use personal and social resources for effective self-regulation in the face of adversity (Tugade & Fredrickson, 2004). In an investigation involving Chinese factory workers, we (Zhou et al., 2008, Study 4) concurrently assessed (a) resilience (with the 15-item version of Wagnild & Young’s [1993] Resilience Scale; e.g., “When I’m in a difficult situation, I can usually find my way out of it”), (b) loneliness (with the UCLA Loneliness Scale; Russell et al., 1980), (c) nostalgia (with the Southampton Nostalgia Scale and the Nostalgia Inventory—Batcho, 1995), and (d) perceptions of social support (with the Multidimensional Scale of Perceived Social Support; Zimet et al., 1988). As before, the direct effect of loneliness was to decrease perceptions of social support, and its indirect effect was to augment perceptions of social support via nostalgia. However, resilience moderated the relation between loneliness and nostalgia. Specifically, the positive link between loneliness and nostalgia was stronger in participants high (compared to low) on resilience. Stated otherwise, high resilient persons are more likely or able to recruit nostalgia when feeling lonely.

Attachment avoidance. Evidence indicates that attachment avoidance influences the extent to which individuals rely on relationships to cope with distress. Low (compared to high) avoidants perceive others as available or responsive and depend on them for distress regulation (Mikulincer & Shaver, 2008) or social support (Collins & Feeney, 2000). We tested the idea that

low (compared to high) avoidants benefit more from nostalgia, given its sociality, in the face of loneliness. In a preliminary investigation, we (Wildschut et al., 2010, Study 1) asked UK undergraduates to write about situations in which they became nostalgic. Low (compared to high) avoidants stated more frequently that they became nostalgic when they were feeling lonely.

We (Wildschut et al., 2010, Study 2) proceeded with a more detailed examination of the putative moderation by attachment avoidance of the link between loneliness and nostalgia. We assessed attachment avoidance (with the Revised Experience in Close Relationships Scale (Fraley et al., 2000), loneliness (with the UCLA Loneliness Scale; Russell et al., 1980), and nostalgia (with the two Southampton Nostalgia Scale items that pertain to frequency of nostalgic engagement: See Appendix A, items 6-7). Low (but not high) avoidants evinced an association between perceived lack of social support and nostalgia frequency. Low avoidants relied on nostalgia to counter deficiencies in their relational network.

We (Wildschut et al., 2010, Study 3) conceptually replicated these findings in a social exclusion experiment. We provided participants with bogus personality feedback suggesting that they would not (future alone) or that they would (future belonging) have lasting friendships or marriages (Twenge, Baumeister, Tice, & Stucke, 2001). Subsequently, we measured state nostalgia (3-item scale; e.g., “I feel nostalgic at the moment”). Social exclusion (i.e., future alone) compared to social inclusion (i.e., future belonging) increased nostalgia among low-avoidance, but not among high-avoidance, participants. Low avoidants were better able to utilize nostalgia when confronted with social exclusion. They regulated relational deficiencies more effectively by recruiting nostalgia.

Well-Being Threat

We focused on the regulatory role of nostalgia in regards to two instances of well-being threat: stress and boredom.

Stress. Individuals with chronic meaning deficits are particularly vulnerable to experiencing stress in challenging circumstances (Park & Folkman, 1997). Does trait nostalgia help to alleviate their stress? We (Routledge et al., 2011, Study 6) assessed individual differences

in current perceptions of meaning (“My life has meaning”) and proceeded with the ERT (nostalgic vs. ordinary event). We then induced stress with the Trier Social Stress Test (Kirschbaum, Pirke, & Hellhammer, 1993), a laboratory protocol consisting of public speaking and mental arithmetic. We assessed stress with three items (“jittery,” “fearful,” “ashamed”) immediately after the TSST. Nostalgia lowered stress in participants with meaning deficits, but not in those with meaning surfeits (Figure 3). Nostalgia affords individuals who lack meaning in life the fortitude to maintain equanimity in stressful circumstances.

 Insert Figure 3 about here

Boredom. Boredom is an unpleasant emotion marked by negative affect, dissatisfaction, anxiety, and a sense of purposelessness (Van Tilburg & Igou, 2012a). Boredom signals lack of meaningful engagement. Boredom, then, will incite a search for meaning. Such a search may reach the nostalgia repository. As a result, nostalgia will act to re-establish the boredom-induced meaning loss. We (Van Tilburg et al., 2013) tested this instantiation of the full regulatory model (cf. Stephan et al., 2014, Studies 1-2) in samples of Irish participants.

We (Van Tilburg et al., 2013, Studies 1-3) began by demonstrating that boredom gives way to nostalgia. We induced boredom either by asking participants to copy 10 (high-boredom) versus 2 (low-boredom) references about concrete mixtures (Study 1) or by asking participants to trace a line through either 9 (high-boredom) or 3 (low-boredom) large spirals (Studies 2-3). Regardless of induction task, participants in the high-boredom condition reported greater levels of state nostalgia (measured with 3 items—e.g., “Right now, I am feeling quite nostalgic;” Wildschut et al., 2006) than participants in the low-boredom condition.

We (Van Tilburg et al., 2013, Study 4) then proceeded to examine the meaning-regulation role of nostalgia. We manipulated boredom with the reference-copying task of Study 1. Then, we measured search for meaning at the state level by asking participants whether they were inclined to do something “meaningful,” “purposeful,” “of significance,” “that makes

sense,” and “that is valuable” (Van Tilburg & Igou, 2012b). Subsequently, we assessed nostalgia with a subtle procedure. We instructed participants to retrieve a memory. Afterwards, we provided them with five items that, on the basis of past research (Wildschut et al., 2006, Studies 1-2), exemplified nostalgia’s content. These items were: “This memory is about something that happened to me,” “This memory revolves around interactions with valued others,” “This memory revolves around a momentous event (e.g., graduation ceremony, birth of a child),” “This memory involves the redemption or mitigation of a loss or disappointment,” and “The content of this memory is rich.” Participants indicated their level of agreement with each item. Boredom increased the search for meaning and also raised nostalgia. Importantly, search for meaning mediated the effect of boredom on nostalgia. In a follow-up investigation (Van Tilburg et al., Study 5), we tested the replicability of these findings using a trait assessment of boredom (“How often do you experience boredom?” and “How prone are you to feeling bored?”), a trait assessment of search for meaning (Search for Meaning subscale of the Meaning in Life Questionnaire; Steger et al., 2006), and a state assessment of nostalgia (state version of the Southampton Nostalgia Scale). We conducted mediational analyses (Hayes, 2013; PROCESS macro; model 4) with a bootstrap method. Trait boredom was associated with greater trait search for meaning and nostalgia. Search for meaning, in turn, predicted stronger or more frequent nostalgic engagement.

Finally, we (Van Tilburg et al., 2013) tested the full model in Study 6. We manipulated boredom with the reference-copying task of Study 1 and then gauged attempts at meaning re-establishment via nostalgia. Participants recalled a past event, listed four relevant keywords, and indicated the extent to which the event-related memories were nostalgic. Next, participants reported their level of state nostalgia and rated the degree to which the event-related memories afforded them meaningfulness (“a sense of meaning,” “a sense of purpose,” “the impression that things make sense,” “a sense of value,” “a sense of significance.”). Afterwards, participants indicated presence of meaning (Presence of Meaning subscale of the Meaning in Life Questionnaire; Steger et al., 2006); the goal here was to assess whether meaning was re-

established. We analysed the data with two structural equation models. In the main model, we focused on the key variables of interest, whereas, in the subsidiary model, we controlled for positive and negative affect. Further, we estimated the effects via bootstrapping. Boredom led to nostalgia: Bored (vs. control) participants considered their memories more nostalgic and felt more nostalgic. Increased nostalgia, in turn, instilled meaningfulness, which contributed to meaning re-establishment (i.e., presence of meaning in their lives).

Physical Threat

We have documented that nostalgia counteracts various aversive psychological states, such as those triggered by interpersonal isolation or meaninglessness, by bolstering their opposing process, such as sociality or meaningfulness. Nostalgia facilitates psychological homeostasis, sharing a key attribute with other positive emotions (DeWall & Baumeister, 2007; Manstead, Frijda, & Fischer, 2004). We propose a broader role of nostalgia, which include its facilitation of physiological homeostasis.

This proposal is consistent with evidence for the relevance of the anterior insular cortex not only in emotional awareness but also in the representation of interoceptive conditions (e.g., temperature, pain) that produce the sense of the body's physiological condition (Craig, 2009; Damasio et al., 2000). This latter literature suggests that emotions act as homeostatic correctives via two pathways. *First*, emotions can influence directly the physiological condition of the body ("body loop" mechanism; Damasio, 1993), as expressed in Levenson's (1999) "undoing hypothesis." *Second*, emotions can circumvent the body and contribute to homeostatic comfort by stimulating a felicitous body state as if it were occurring ("as-if body loop" mechanism; Damasio, 1993), and particularly so when this state has occurred previously in the organism (Damasio & Damasio, 2006). We reasoned that nostalgia, given its representation of the self in a felicitous state, is well-suited to engage the "as-if body loop" mechanism. We also focused on the interoceptive feeling of temperature due to nostalgia's connotations with warmth. For example, nostalgia has been labeled a "warm feeling about the past" (H. A. Kaplan, 1987, p. 465) or a "warm glow from the past" (Davis, 1977, p. 419), participants associate "warmth" with

“nostalgia” (Davis, 1979) or consider warmth a prototypical feature of nostalgia (Hepper et al., 2012), nostalgia engenders feelings of interpersonal affiliation which is mentally associated with warmth (IJzerman & Semin, 2009), and brain areas that are implicated in the perception of physical warmth are also implicated in the perception of psychological warmth (Inagaki & Eisenberger, 2013). We approached this putative homeostatic corrective of nostalgia—namely, to restore and maintain thermoregulatory comfort—from three angles. We hypothesized that: (a) colder temperatures would be associated with, or lead to, higher levels of reported nostalgia; (b) nostalgia would be associated with, and lead to, higher perceived warmth; and (c) nostalgia would increase tolerance to coldness.

We conducted five studies (Zhou, Wildschut, Sedikides, Chen, & Vingerhoets, 2012). We began with testing the relation between physical coldness and nostalgia. In Study 1, we assessed daily levels of nostalgia (a retrospective estimate collected at 10pm each night) for 30 consecutive days in a sample of Chinese undergraduates. We then retrieved temperature data from the local weather station for the same temporal period. Average daily temperature was negatively associated with daily nostalgia: cold temperatures were linked to higher levels of nostalgia (t -to- r transformation: $t[550] = -2.17$, $r = -.09$). We proceeded to test the causal relation between these variables in Study 2. We placed Chinese undergraduates in one of three ambient temperatures: cold (20° C), normal/comfortable (24° C; Craig, 2003), or hot (28° C). Subsequently, we assessed state nostalgia (with the state version of the Nostalgia Inventory; Batcho, 1995). Participants reported higher nostalgia under cold than under normal or hot temperatures. As hypothesized, colder temperatures were linked with and contributed to greater nostalgia.

In Study 3, we relied on music’s capacity to evoke nostalgia to examine the relation between nostalgia and perceived physical or ambient warmth. Dutch community members listened to four songs covering themes of love and personal loss, and indicated how nostalgic each song made them feel. They also stated whether each song produced the physical sensation of warmth. Higher levels of music-evoked nostalgia predicted greater perceived physical

warmth. In Study 4, we examined the causal relation between these two variables in a sample of Chinese undergraduates. Following the ERT (nostalgic vs. ordinary event), participants estimated the room temperature as accurately as possible. Nostalgics estimated the room temperature to be higher than controls. As hypothesized, nostalgia was associated with the bodily sensation of warmth and led to the estimation of higher ambient warmth.

Finally, we carried out an experiment, testing Chinese undergraduates, in which we examined nostalgia's capacity to strengthen endurance to coldness. Emotions that ameliorate the thermoregulatory discomfort linked with innocuous cooling may also ameliorate the thermal distress linked with exposure to coldness (Craig, 2003). We hypothesized that reflecting on a nostalgic (vs. ordinary) life event would bolster endurance to a cold pressor task (Mitchell, MacDonald, & Brodie, 2004). Consistent with our hypothesis, nostalgics (compared to controls) kept their dominant hand immersed longer in a water bath maintained at 4° C.

Summary

We highlighted the role of nostalgia in maintaining psychological and physiological homeostasis. Our regulatory model posits that a noxious stimulus will impact negatively on a psychological outcome (e.g., function) while also triggering nostalgia. In turn, nostalgia will exert a palliative influence, softening the negative impact of the stimulus. We amassed support for this model from disparate lines of research. Noxious stimuli were as general as avoidance motivation and as specific as self-threat (i.e., negative performance feedback), existential threat (i.e., meaninglessness or mortality awareness), social threat (i.e., loneliness or social exclusion), and well-being threat (i.e., stress or boredom). All these stimuli increased felt nostalgia. In turn, nostalgia (measured or manipulated) alleviated the impact of threat by bolstering an opponent process. That is, nostalgia curtailed the influence of avoidance motivation on approach motivation, buttressed the self from threat, reduced defensive responding to meaninglessness, assuaged the anxiety accompanying mortality awareness, repaired interpersonal isolation, diminished stress in taxing circumstances, and relieved boredom by re-establishing a sense of meaning. Further, our regulatory model posits that a noxious stimulus (e.g., cold) will impact

negatively on a physiological outcome (e.g., thermoregulatory comfort) but will also trigger nostalgia. Nostalgia, in turn, will serve to counteract this negative impact and to maintain subjective physiological comfort. We accumulated support for the model in the case of thermoregulatory threat. Colder temperatures were linked to, or yielded, higher nostalgia. Also, nostalgia was linked to, and produced, the perception of warmth. Finally, nostalgia strengthened tolerance to the sensation of cold.

NOSTALGIA'S FUTURE

As early as 1965, Nawas and Platt mused: “It is rather curious that a phenomenon as pressing, as ubiquitous, and as little understood as nostalgia has received only passing attention from psychologists ...” (p. 51). As late as 1994, Frijda pronounced: “Longing for something definitely lost is meaningless; so is vomiting after hearing morally disgusting information; so is freezing in anxiety when there is nobody to watch you or taking advantage of your actions Emotions like nostalgia indeed are, in a sense, luxuries that one indulges in for the sweetness of their bittersweetness, if one indulges in them – which one does only infrequently.” (p. 121).

Our research program answers Nawas and Platt’s (1965) call while posing a challenge to Frijda’s (1994) claims. Sentimental longing is meaningful, not meaningless; Nostalgia is a necessity, not a luxury; And nostalgia occurs frequently, not rarely.

Overview

More formally, our research established that nostalgia is a self-conscious, social, mostly positive, and past-oriented emotion that is elicited by a variety of external (e.g., music, song lyrics, smells, tastes, physical coldness) or internal (e.g., negative affect, loneliness, meaninglessness, existential terror, boredom) triggers. Nostalgia involves revisiting personally relevant and fond occurrences that highlight gist elements of one’s childhood, close relationships, or critical periods in one’s lives. These occurrences are recounted with rose-colored glasses, are redemptive, and may be longed for in the midst of sentimentality and joy.

Indeed, nostalgic memories are believed to be atypical (Morewedge, 2013), are treasured, and are protected as resources likely to maximize future well-being (Baldwin et al., in press; Van

Boven & Gilovich, 2003; Zauberman, Ratner, & Kim, 2009), as Fyodor Dostoyevsky astutely observed in *The Brothers Karamazov* (opening quote). We advocated the metaphorical view that nostalgia is a deposit in the “bank of our memory” that can be retrieved during hard times (Davis, 1977, p. 420—previously quoted).

Our research has further documented that nostalgia is an approach emotion that facilitates optimal functioning of the affective, cognitive, motivational, and behavioral systems. Nostalgia enables a self-oriented function, as it fosters self-positivity (positive self-attribute activation, self-esteem) and strengthens perceptions of a positive future (optimism, psychological growth). It facilitates an existential function, as it adds meaning to life. It contributes to a sociality function, as it engenders social connectedness (being loved, protected, connected to others, trusting of others), social support, empathy, and lower attachment anxiety or avoidance. Further, nostalgia provokes socially-oriented action tendencies (perceived interpersonal competence, charitable intentions, reduced desire for money, intergroup contact intentions) and prosocial behavior (physical proximity, helping, monetary donations). Critically, nostalgia-incited sociality mediates the self-oriented and existential functions, while individual differences (narcissism, attachment avoidance, perceptions of meaning) moderate some functions. In addition, these functional benefits are typically obtained regardless of the presence or absence of positive affect, and they generalize across age and gender.

Nostalgia plays a crucial role in the maintenance of psychological and physiological homeostasis. We have proposed and validated a general regulatory model, which specifies the following cycle. *First*, a noxious stimulus exerts a negative influence on an outcome (e.g., function). The stimulus can range from avoidance motivation to self-threat (negative performance feedback), existential threat (meaninglessness, mortality awareness), social threat (loneliness), well-being threat (stress, boredom), or physical coldness. *Second*, the stimulus elicits nostalgia. *Finally*, nostalgia alleviates the negative influence of the stimulus on the outcome. For example, nostalgia counteracts the impact of the relevant threat on the self, life

meaningfulness, death concerns, feelings of interpersonal isolation, stress or boredom, and the bodily sensation of cold.

We considered several external and internal nostalgia inductions or triggers. However, the most frequent and potent facilitator of nostalgia is likely social exchange that takes place over time, entails repetition, and can be intense or arousing. The inductions that we implemented in our research occurred momentarily, took place once, and were mundane. Arguably, then, our nostalgia manipulations were minimal. Yet, they produced powerful and reliable effects. On that basis, our research may have underestimated the prevalence and functional potency of nostalgia.

The presence and functional benefits of nostalgia are more prevalent than previously thought. Nostalgia is experienced with a modal frequency of three times a week (in a UK sample), and is found across cultures. Importantly, the functional benefits of nostalgia generalize cross-culturally. These benefits were reported by participants in China, Ireland, The Netherlands, UK, and US. Finally, nostalgia and its benefits are prevalent across age. Nostalgia is experienced by children and teenagers (in a Chinese sample), and by adults of all ages (18-91 in a UK sample). Indeed, nostalgia acts as a catalyst for successful aging. In a developmental investigation of nostalgia (Hepper, Robertson, et al., 2014), well-being evinced a more positive age-related trajectory for individuals high (than low) on trait nostalgia (Study 1). Although an experimental induction of limited time perspective decreased well-being among young adults who recalled an ordinary life event, this induction left well-being intact among young adults who recalled a nostalgic event (Study 2). Thus, nostalgia shields well-being from the foreboding sense of limited time horizons.

The construct of nostalgia has undergone a remarkable historical transformation. Its connotations changed as the socio-cultural context changed (Danziger, 1997; Nikelly, 2004; Rosen, 1975). Over most of its tumultuous past, the construct has suffered neglect or a bad reputation. Its conceptual trajectory, though, has been redemptive. The construct has now been fully rehabilitated, occupying its rightful place in the pantheon of self-conscious emotions.

Additional Considerations and Implications for Research

We turn to a discussion of additional issues as well as theoretical and empirical implications.

Happy Childhood Memories as a Prerequisite for Nostalgia

Rose-colored, fond, and personally significant childhood memories occupy a central place in the prototypical nostalgic experience (Hepper et al., 2012). In addition, events or objects from one's childhood can trigger nostalgia (Holbrook & Schindler, 1996), and high nostalgics recount more positive childhood occurrences (Batcho, 2013b). But how about persons with predominantly negative childhood recollections? Verplanken (2012) found that persons high on habitual worrying (i.e., the “attempt to engage in mental problem solving of unresolved or uncertain issues or challenges;” p. 285), do not benefit as much as those low on habitual worrying from a nostalgia induction (ERT: nostalgic vs. ordinary event). Although participants in his study generally reported elevated mood immediately following the ERT, high habitual worriers manifested more signs of anxiety and depression than low ones after a temporal delay. These findings beg the question of whether favorable childhood memories are a prerequisite for nostalgia to be beneficial. Put differently, do individuals with a miserable childhood have the capacity for nostalgia or for harvesting the benefits of nostalgia?

We argue that persons with unhappy childhoods, as well as habitual worriers, can benefit from nostalgia. Our argument is based on the supposition that all persons, regardless of circumstances surrounding their upbringing and regardless of personality characteristics, have a certain store of positive, atypical events from which they can draw nostalgically in times of need. Nostalgizing on the basis of this store will likely confer beneficial outcomes. At the same time, there are caveats to this analysis and they pertain to the store at which one shops, so to speak. If a person reflects back on the negative experiences of childhood, or reflects on their past in a way that primarily reinforces a discontent with the present, we suggest this is a different bread of nostalgia, if nostalgia at all, and beneficial outcomes will be less likely. In some instances, certain reflections may even create additional psychological adversity (e.g., homesick first year

university students who wish they were back in high school; Iyer & Jetten, 2011). In this way, the content of past reflection is important and merits continuing research. To bring Dostoyevsky (2007) into the forum, nostalgizing even on a single positive and atypical event—even perhaps originating in a relatively recent period in one’s life—can reap psychological benefits.

Nostalgia in the Motivational, Relational, and Behavioral Domains

Research would do well to address lingering motivational, relational, and behavioral implications of nostalgia. Nostalgia has been a consistent theme of creative works of art such as those of Marcel Proust (1927), John William Cheever (2003), Fyodor Dostoyevsky (Hudspith, 2004), and William Wordsworth (Goodman, 2008). We have found that nostalgia nurtures optimism (Cheung et al., 2013). Nostalgia may have other motivational consequences. It may foster inspiration, stir creativity, and sustain goal pursuit.

Nostalgia is a fundamentally social emotion. As such, it will likely confer relational advantages. The literature has indicated that couples who share positive events enjoy relational benefits (Gable & Reis, 2010). Does sharing nostalgic events confer relational benefits above and beyond those of sharing positive events? Is nostalgic sharing particularly associated with increased relationship satisfaction and relationship duration?

Research may also tune into behavioral consequences of nostalgia. Does it lead to the actual production of creative works? Does it facilitate acculturative behavior in immigrants (Ritivoi, 2002; Sedikides et al., 2009)? We have found that nostalgic reflection strengthens intentions for intergroup contact (Turner et al., 2012, 2013). Does nostalgia enable contact? Relatedly, although we have focused on personal nostalgia, nostalgia may occur at the collective level (Gabriel, 1993). Here, preliminary findings indicate that collective nostalgia promotes collective prosociality (e.g., involvement in fundraising activities; Wildschut, Bruder, Robertson, Van Tilburg, & Sedikides, 2014).

The motivational, relational, and behavioral implications of nostalgia may be understood better by considering it in relation to self-affirmation processes (Steele, 1988). It is reasonable to entertain the extent to which nostalgia overlaps with, and is distinguished from, self-affirmation,

which similarly reflects a rich palette of psychological functioning. Indeed, nostalgia may be considered a type of self-affirmation. Both processes feature a key role of the self and engage relational security as a key catalyst of downstream effects. Crocker, Niya, and Mischkowski (2008; see also Kumashiro & Sedikides, 2005), for example, showed that a traditional values affirmation reduces defensiveness by implicating social connectedness with others. At the same time, nostalgia evidences unique affective and self-oriented signatures that do not appear to be shared by other self-affirming exercises. Future research may enrich both literatures by focusing on where the two converge but also diverge in their triggers, processes, and implications.

The motivational, relational, and behavioral implications of nostalgia may also be better appreciated by situating the emotion in an evolutionary context. Nostalgia builds on the uniquely human capacity to reflect on the past (Routledge & Arndt, 2005; Sedikides & Skowronski, 1997; Sedikides, Skowronski, & Dunbar, 2006). It is worth speculating about the ecological and social pressures that gave rise to this capacity. For example, nostalgia may have evolved in the context of highly unpredictable and dangerous environments, involving constant alterations in the group hierarchy (e.g., losing or gaining status), shifting coalitions (e.g., terminating relationships or forming new ones), and vigilance or defense against predators with the accompanied loss of life. The emotion, then, may have constituted an effective indirect strategy for regulating self-threat (e.g., nostalgizing about higher positions in the hierarchy), social threat (e.g., nostalgizing about valued social bonds), or existential threat (e.g., nostalgizing about meaning-conferring or death-assuaging alliances).

Speculation into the evolutionary origins of nostalgia may lead to the generation and testing of informative hypotheses. We argued that nostalgia acts as a key homeostatic role—both physiological and psychological—under harsh environmental circumstances, such as cold or starvation. We took the lead from relevant (i.e., not evolutionarily-based) anecdotal evidence. Based on testimonies of concentration camp survivors, Goldenberg (2003) reported that nostalgic recollections of recipes and enjoyable meals were a common response to starvation. Such recollections revived comforting settings and moments, thus alleviating, if only temporarily,

current psycho-physiological discomfort. We provided field and experimental evidence for this homeostatic correction of nostalgia (Zhou, Wildschut, Sedikides, Chen, & Vingerhoets, 2012).

Long-Term Benefits of Nostalgia

We have shown that nostalgia increases self-positivity, strengthens meaningfulness, fosters sociality, and assuages existential anxiety, but these benefits may be only transient. A legitimate question concerns nostalgia's capacity to provide structural, long-lasting solutions to self-negativity, meaninglessness or existential terror, and loneliness or social isolation.

We acknowledge this limitation of our research program and the corresponding knowledge gap. Indeed, we have recently initiated interventions to redress the imbalance. Yet, there are reasons to maintain a positive outlook on the long-range benefits of nostalgia. Trait nostalgia is a case in point. For starters, nostalgia is a source of well-being (Baldwin et al., in press), especially among the elderly (Hepper, Robertson, et al., 2014). Also, when individuals feel momentarily efficacious, replete with meaningfulness, and socially competent, they may engage in action likely to have long-lasting ramifications. For example, self-positivity may result in optimistic decision-making or energetic problem-solving (Cheung et al., 2013), meaningfulness may form the basis for health-related behavior such as dieting (McCabe, Vail, Arndt, & Goldenberg, 2013), and interpersonal competence may provide the scaffolding for building successful social relationships (Buhrmester, 1990).

We emphasize that the infusion of nostalgia is not a one-off state of affairs. In fact, individuals can regulate, or can learn to regulate, nostalgic infusion in the face of adversity. Adversity can occur throughout life, and it is can transient even in the case of chronic illness. For example, there is evidence indicating that depressed person differ from non-depressed ones in terms of the frequency of episodes of negative affect rather than the continuity of negative affect (Morrow & Nolen-Hoeksema, 1990). Regardless, individuals, for example, can engage in nostalgic reflection when feeling the blues, lacking in meaning, or feeling lonely, when they need optimism for the pursuit of a challenging goal (e.g., in the middle of a difficult exam; Sweeny & Krizan, 2013), or when they strive to overcome their prejudicial reactions (Monteith,

Mark, & Ashburn-Nardo, 2010). In fact, if individual can harvest even a single recollection, as Dostoyevsky (2007) suggested, repeatedly throughout life to (re)generate psychological benefits, the positive consequences of nostalgia can last for a lifetime.

Nostalgia has momentary (Routledge et al, 2013) and also long-term (Hepper, Robertson, et al., 2014) implications for psychological health. As a positive emotion, nostalgia is likely to aid physical health (cf. Kok et al., 2003) as well, and research would need to examine not only nostalgia's putative role in facilitating physical health but also the mechanisms through which it may do so. For example, nostalgia may promote longevity (Boyle, Barnes, Buchman, & Bennett, 2009) and reduce mortality risk (Hill & Turiano, 2014), and it may do so by instantiating meaningfulness. Regardless, a fuller understanding of the contribution of nostalgia to health would be facilitated by forays into its neuropsychological and genetic underpinnings.

Coda

“What matters in life is not what happens to you but what you remember and how you remember it,” avowed the author Gabriel Garcia Marquez (1927-2014). Remembering nostalgically cultural-life-scripts of personal significance confers psychological benefits. When harvested properly, the past can provide valuable service to the present and future.

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Table 1. *Features of the Nostalgia Prototype*

Central Features

Memory/Memories

The past

Fond memories

Remembering

Reminiscence

Feeling

Personal Meaning

Longing/yearning

Social relationships

Memorabilia/keepsakes

Rose-tinted memory

Happiness

Childhood/youth

Sensory triggers

Thinking

Reliving/dwelling

Missing

Want to return to past

Peripheral Features

Comfort/warmth

Wishing/desire

Dreams/daydreaming

Mixed feelings

Change

Calm/relaxed

Regret

Homesickness

Prestige/success

Aging/old people

Loneliness

Sadness/depressed

Negative past

Distortions/illusions

Solitude

Pain/anxiety

Lethargy/laziness

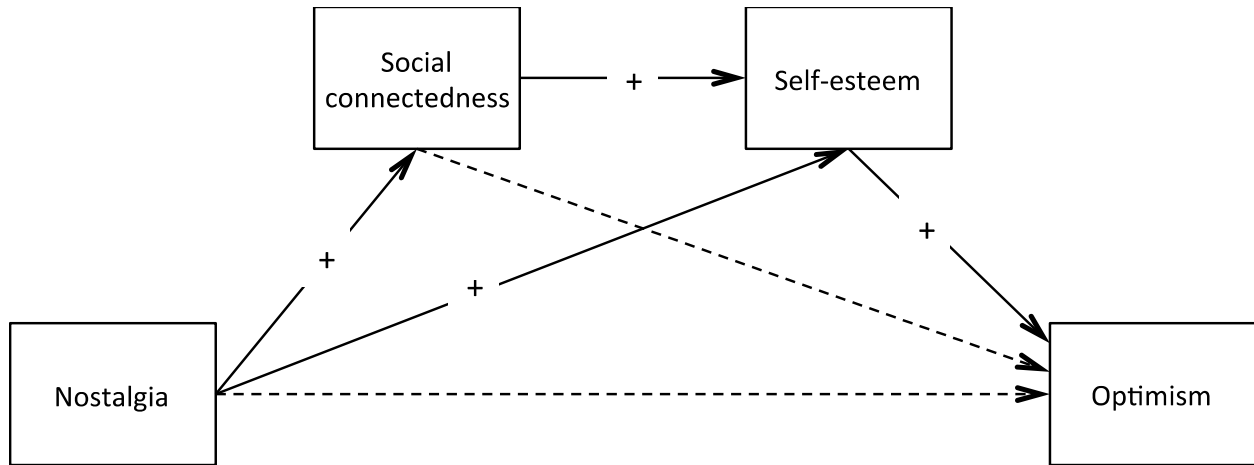


Figure 1. Sequential mediational model supported in Cheung et al. (2013), Study 4. The effect of nostalgia on optimism is mediated by social connectedness and ensuing self-esteem. Solid arrows indicate significant paths. Dashed arrows indicate nonsignificant paths.

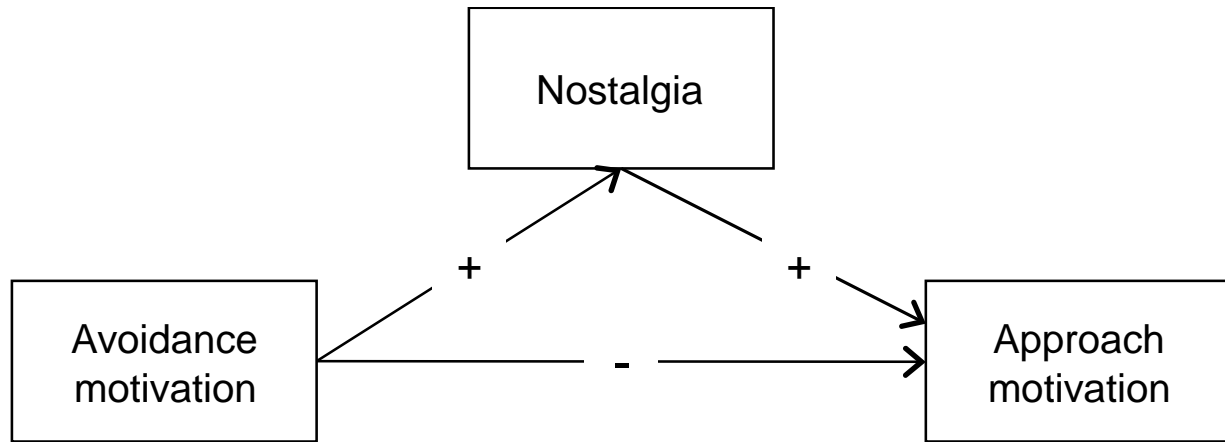


Figure 2. A schematic representation of the regulatory model tested by Stephan et al. (2014). The model specifies a direct negative effect of avoidance motivation on approach motivation and a positive indirect effect of avoidance motivation on approach motivation via nostalgia. The indirect effect consists of a positive effect of avoidance motivation on nostalgia and a subsequent positive effect of nostalgia on approach motivation.

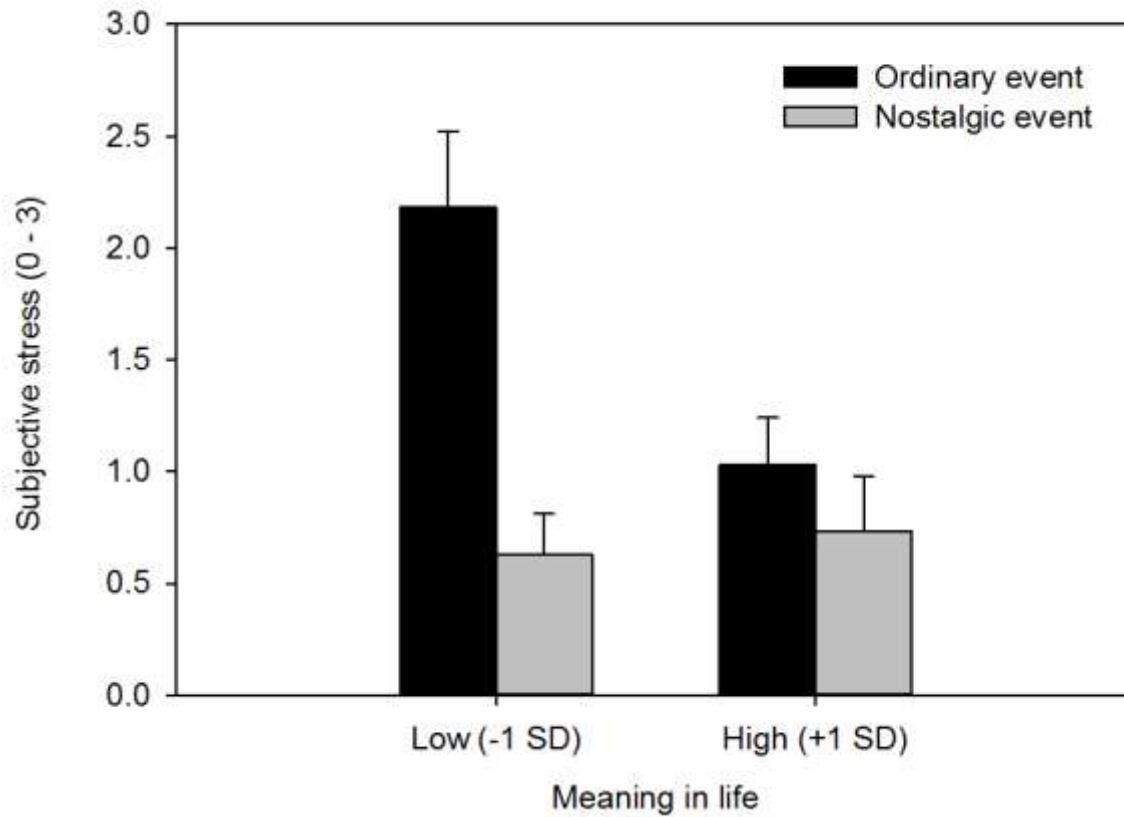


Figure 3. Subjective stress as a function of meaning in life and the nostalgia manipulation (ERT) immediately following the Trier Social Stress Test (TSST) in Routledge et al. (2011), Study 6. Plotted values are predicted means conditioned at one standard deviation (SD) above (high meaning) and below (low meaning) the average for meaning in life. Higher values reflect higher subjective stress. Error bars represent standard errors.

APPENDIX A: Southampton Nostalgia Scale

According to the Oxford Dictionary, ‘nostalgia’ is defined as a ‘sentimental longing for the past.’

1. How valuable is nostalgia for you?

1	2	3	4	5	6	7
Not at all						Very much

2. How important is it for you to bring to mind nostalgic experiences?

1	2	3	4	5	6	7
Not at all						Very much

3. How significant is it for you to feel nostalgic?

1	2	3	4	5	6	7
Not at all						Very much

4. How prone are you to feeling nostalgic?

1	2	3	4	5	6	7
Not at all						Very much

5. How often do you experience nostalgia?

1	2	3	4	5	6	7
Very rarely						Very frequently

6. Generally speaking, how often do you bring to mind nostalgic experiences?

1	2	3	4	5	6	7
Very rarely						Very frequently

7. Specifically, how often do you bring to mind nostalgic experiences? (Please check one.)

- At least once a day
- Three to four times a week
- Approximately twice a week
- Approximately once a week
- Once or twice a month
- Once every couple of months
- Once or twice a year

APPENDIX B

Experimental Induction of Nostalgia: The Event Reflection Task (ERT)

Nostalgia Condition

According to the Oxford Dictionary, ‘nostalgia’ is defined as a ‘sentimental longing for the past.’ Please think of a nostalgic event in your life. Specifically, try to think of a past event that makes you feel most nostalgic. Bring this nostalgic experience to mind. Immerse yourself in the nostalgic experience. How does it make you feel? Please spend a couple of minutes thinking about how it makes you feel. Please write down four keywords relevant to this nostalgic event (i.e., words that describe the experience).

Using the space provided below, for the next few minutes, we would like you to write about the nostalgic event. Immerse yourself into this nostalgic experience. Describe the experience and how it makes you feel.

Control Condition

Please bring to mind an ordinary event in your life. Specifically, try to think of a past event that is ordinary. Bring this ordinary experience to mind. Immerse yourself in the ordinary experience. How does it make you feel? Please spend a couple of minutes thinking about how it makes you feel. Please write down four keywords relevant to this ordinary event (i.e., words that describe the experience).

Using the space provided below, for the next few minutes, we would like you to write about the ordinary event. Immerse yourself into this experience. Describe the experience and how it makes you feel.

Manipulation Check

The following statements refer to how you feel right now. Please indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number should be anywhere from 1 to 6, according to the following scale.

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

- ___ Right now, I am feeling quite nostalgic.
- ___ Right now, I am having nostalgic feelings
- ___ I feel nostalgic at the moment.