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Nostalgia and Wellbeing across the Lifespan

by

Sara Robertson

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ABSTRACT

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In recent years, interest in nostalgia and its many potential benefits has blossomed, yet the nature of nostalgia in older adulthood has remained largely unexplored. This is surprising, given that nostalgia serves many functions which are highly relevant to older adults and which could determine whether they adjust poorly or well to older adulthood. In order to address this shortfall, this thesis reports on research exploring nostalgia and wellbeing across the lifespan. First, I compare the content of nostalgic and ordinary autobiographical memories using multiple coding methods. Results highlight the strong social orientation of nostalgia in older adults (Chapter 2). Second, I examine psychological wellbeing across the lifespan and demonstrate that stability or gains in wellbeing are contingent on nostalgia (Chapter 3). Furthermore, these age-related differences in psychological wellbeing are at least partly driven by a perception of limited time (Chapter 4). Finally, I explore whether there are individual differences in those who stand to benefit most from nostalgia. Results suggest that nostalgia may not meet the affiliative needs of high growth adults as they get older. This is demonstrated across a wide variety of measures, including psychological wellbeing (Chapter 5), subjective wellbeing and health (Chapter 6). Overall, this thesis emphasises the value of taking a lifespan perspective on nostalgia.

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DECLARATION OF AUTHORSHIP

I, *Sara Robertson*

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Nostalgia and Wellbeing across the Lifespan

and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;
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Chapter 1: An Introduction to Nostalgia

This literature review will begin to introduce research which examines the properties and functions of nostalgia over the lifespan. I first seek to define nostalgia and describe research that differentiates it from reminiscence and positive autobiographical memory. Second, I discuss the importance of studying older people, and review findings relating to emotion regulation in older adulthood. Third, I review research which addresses the distinct self, social and directive functions of autobiographical memory and nostalgia. Fourth, I examine research relating to the significance of nostalgia in older adulthood and the prevalence of nostalgia across the lifespan.

Defining Nostalgia

Nostalgia is characterised as "a sentimental longing or wistful affection for the past" (*The New Oxford Dictionary of English*, 1998, p. 1266), which is produced in response to meaningful autobiographical memories (Hepper, Ritchie, Sedikides & Wildschut, 2012). Typically, nostalgic recollections feature interactions between the self and close others during momentous life events and are imbued with warmth, affection and sentimentality (Hepper et al., 2012; Wildschut, Sedikides, Arndt & Routledge, 2006). Although nostalgia was previously linked to homesickness, depression and physical disease (Castelnuovo-Tedesco, 1980; Hofer, 1688/1934; Kaplan, 1987), these conceptualisations lacked empirical support. For instance, Hofer speculated that nostalgia was caused by "the quite continuous vibration of animal spirits through those fibres of the middle brain in which impressed traces of ideas of the Fatherland still clung" (1934, p. 384). Unsurprisingly, this and other similar explanations do not prevail today. Over time, the nostalgia construct has shifted from being conceptualised as a maladaptive response to geographical displacement to being conceptualised as an adaptive response to temporal discontinuity

(Batcho, 2013). One of the first researchers to recognise nostalgia as a positive construct was Davis (1979), who described it as "a positively toned evocation of a lived past" (p. 18). Nostalgia is now recognised as a pervasive, universal and largely beneficial emotional response to psychosocial threat (e.g. Hepper, Wildschut et al., 2013; Sedikides, Wildschut & Baden, 2004; Wildschut et al., 2006). Crucially, it is no longer semantically related to homesickness (Davis, 1979; Werman, 1977). Kaplan (1987) claimed that "there is no one who at one time or another has not experienced nostalgia" (p. 465). Indeed, approximately 80% of participants report feeling nostalgic at least once a week, with a modal response of three or four times a week (Wildschut et al., 2006).

Central features of the nostalgic experience include fond memories, reminiscence, longing, relationships, happiness and childhood (Hepper et al., 2012). Holak and Havlena's (1998) content analysis of nostalgic narratives revealed that they were most likely to contain expressions of sentiment, love, affection and warm-heartedness. Thus, nostalgia was characterised as a "positively valanced complex feeling" (p. 218). Furthermore, Wildschut et al. (2006) found that nostalgic narratives contained more positive than negative affect. In sum, nostalgia is a prevalent and predominantly positive affective response to meaningful memories, and conveys a variety of benefits which will be discussed in more detail below.

Is Nostalgia a Discrete Affective State?

Davis (1979) argued that there are many words to convey the action of reflecting on the past, such as recollection, reminiscence and remembrance, but none have quite the same affective connotations as nostalgia. Is this simply an issue of semantics, or is nostalgia indeed a conceptually distinct construct? If, for instance, nostalgia is characterised as instrumental in the life review process, can it be distinguished from reminiscence? In addition, autobiographical memory and nostalgia appear to serve many

similar functions, albeit in different ways (elaborated below). So, can nostalgia be conceptualised as a discrete affective state, distinct from other types of autobiographical memory?

Nostalgia versus reminiscence. Reminiscence is defined as recall of the self in the past (Bluck & Levine, 1998). By this definition, not all reminiscence will lead to nostalgic affect, evidenced in our ability to recall autobiographical memories with very little affective association. For instance, recalling oneself in a supermarket buying food is unlikely to produce an affective response, whereas recalling oneself at a party may produce positive feelings in response to the memory. Cavanaugh (1989) argued that "reminiscence is a process and nostalgia is an emotion. That is, the act of remembering the past, reminiscence, could result in any of a number of affectively laden outcomes, one of which is nostalgia." (p. 603). Clearly, though, the two constructs are related. Hepper et al. (2012) reported that reminiscence is one of the central features of a prototypical definition of nostalgia. Given that there are nine reminiscence functions identified in the literature (specifically, reminiscence can serve as a source of identity clarity and positive self-regard, to help solve problems, to prepare for death, to pass on lessons learnt, to facilitate conversation, to evaluate difficult life circumstances, to reduce boredom and to maintain intimacy with others; Washington, 2009; Webster, 1993), it is possible that these different reasons for engaging in reminiscence will be related to nostalgia to varying degrees. That is, nostalgia and reminiscence might share some common functions and features, but others may be distinct. Overall, then, nostalgia is best characterised as one possible outcome of reminiscence; while reminiscence encompasses a broad spectrum of autobiographical recall, nostalgia is more specific.

Nostalgia versus positive autobiographical memory. Autobiographical memory and nostalgia are related concepts, in that nostalgia is a possible outcome of positive and meaningful autobiographical memory recall (Hepper et al., 2012). However, there is a growing body of evidence to suggest that nostalgia can be distinguished from

positive memory, despite the fact that they both contain positive recollections from the past.

Research by Hepper et al. (2012) has demonstrated that people have a remarkably consistent shared definition of what nostalgia entails. This definition, which comprises central and peripheral features of nostalgia, includes key aspects of positive memory (such as the past, fond memories and remembering) but also goes beyond to include features of nostalgia which are not necessarily part of a positive memory (such as personal meaning, longing, childhood and a desire to return to the past). Sedikides et al. (2004) argued that while autobiographical memory is a purely cognitive process (i.e. involving 'cold' processing), nostalgia also involves appraisal and affect (i.e. 'hot' processing). Indeed, Robertson, Wildschut and Sedikides (2011) demonstrated the distinction between nostalgic, positive and ordinary event recollections using text analysis methods. Although nostalgic and positive recollections contained similar levels of social content, there was a clear distinction between nostalgic, positive and ordinary memories in the levels of cognitive content and positive and negative affect they conveyed, as well as their patterns of tense usage. Specifically, nostalgic memories were described in longer and more descriptive narratives, and contained both positive and negative affect, a mix of past and present tense, and greater cognitive content, particularly expressions of insight. Overall, then, nostalgia was characterised as a vividly-recalled, ambivalent and socially-focused affective state in which there was a high degree of temporal comparison and appraisal. These findings reflect the 'hot' processing which occurs during nostalgic experience but not during other forms of autobiographical memory recall. In sum, nostalgia involves a unique combination of cognition and affect (Hepper et al., 2012). Furthermore, Stephan, Sedikides and Wildschut (2012) demonstrated construal level differences between recall of nostalgic, positive and ordinary event memories. Nostalgic memories were characterised by a unique combination of abstract and concrete construal levels. Participants used more interpretive action verbs, state verbs and adjectives (abstract

terms) when describing the nostalgic event itself, but more descriptive action (concrete) verbs when discussing the implications of the event in the present. In contrast, positive and ordinary memories were best characterised by consistent concrete-level construal. These findings further demonstrate that nostalgia does differ from positive and ordinary memory.

Recent research has begun to use positive event descriptions as a stringent control group in nostalgia research. Vess, Arndt, Routledge, Sedikides and Wildschut (2012) successfully differentiated between participants who had recalled a nostalgic event or imagined a positive future event on self-esteem outcomes. Specifically, they found that participants who reflected on a nostalgic event could classify positive attribute statements as self-descriptive fastest, suggesting that positive self-attributes were most accessible to these participants. However, the key problem here in terms of the current discussion is that the researchers were comparing nostalgia to positive *future* events, rather than positive *past* events. There are likely to be other reasons why these two conditions would differ, because one condition involved constructing an event from imagination, whereas the other involved reconstructing an event from memory. Other research has successfully used positive *past* memories as a comparison group to nostalgic memories. Routledge, Wildschut, Sedikides, Juhl and Arndt (2012) established that participants who recalled a nostalgic compared to a positive memory were less likely to engage in a search for meaning, because nostalgia was able to provide this sense of meaning in life. These findings demonstrate that nostalgia serves different functions to positive memory, but it is noteworthy that positive memories recalled in this study were constrained to the preceding week, whereas nostalgic memories were not. This constraint once again limits the comparability of the nostalgic and positive conditions in this study. However, Stephan et al. (2012) did demonstrate across comparable conditions that nostalgic (but not positive or ordinary) event recollections promoted feelings of authenticity. These findings

add to the burgeoning evidence that nostalgia differs from positive memory in content, construal level and function.

Furthermore, research has illustrated that the beneficial effects of nostalgia on optimism and group outcomes can be explained by neither the levels of positive emotion words contained in a nostalgic narrative, nor by the levels of positive affect produced by recall of a nostalgic memory (Cheung et al., 2013; Wildschut, Bruder, Robertson, Van Tilburg & Sedikides, 2013). These findings suggest that nostalgic memories have a unique active ingredient which drives their beneficial outcomes, over and above the levels of positivity contained in the memory. Holak and Havlena (1998) suggested as candidates for this active ingredient the key components of tenderness and loss which characterise a nostalgic recollection. Overall, then, research has suggested that nostalgia can be clearly distinguished from positive autobiographical memory.

Nostalgia across Cultures

Both within and between cultures, participants hold remarkably consistent conceptualisations of the nostalgia construct (Hepper et al., 2012; Hepper, Wildschut et al., 2013). Specifically, in studies conducted in the United Kingdom and the United States, Hepper et al. (2012) demonstrated that participants consistently generated and classified the same selection of nostalgia features as central (e.g. memories, the past, reminiscence, feeling, personal meaning, longing) and peripheral (e.g. comfort, desire, daydreaming, mixed feelings, change, calm). Subsequently, participants recalled, falsely recognised and classified these central features as nostalgic more rapidly and more frequently than features which were initially judged to be peripheral. Furthermore, participants reported that these central features were characteristic of their own idiosyncratic nostalgic memories, and produced greater feelings of nostalgia in them. What these findings suggest is nostalgia is defined consistently in two countries and across multiple samples.

These findings are compelling and help to establish nostalgia as a distinct construct. However, what about cultures which differ from the United States and the United Kingdom; would nostalgia be similarly characterised? Recent findings suggest that this is indeed the case. Research examining conceptions of nostalgia in 18 countries across five continents showed strong positive relationships between the rank-ordered centrality of nostalgia features, suggesting that people across many cultures tended to agree which features most and least characterised a prototypical nostalgic experience (Hepper, Wildschut et al., 2013). Furthermore, experimental evidence has demonstrated that nostalgia can be induced effectively in the United Kingdom, Ireland, the United States, Germany and China (e.g. Routledge et al., 2011; Van Tilburg, Igou & Sedikides, 2013; Wildschut et al., 2013; Wildschut et al., 2006; Zhou, Wildschut, Sedikides, Chen & Vingerhoets, 2012), which is promising for future empirical work. In sum, current research suggests that nostalgia is cross-culturally consistent and can be comprehended, manipulated and measured accurately across multiple cultures.

Aging, Memory and Wellbeing

Implications of an Aging Population

An aging population is defined as an increasing median age and a resulting greater proportion of people aged over 60 or 65 years (depending on definition) within a particular country. Worldwide, both observed and projected statistics suggest that we are facing an aging population. For instance, in the United Kingdom between 1984 and 2009, the percentage of the population aged 65 years or above increased from 15% to 16%, whereas the percentage of those under 16 decreased from 21% to 19% (Office for National Statistics, 2010). According to Bloom, Boersch-Supan, McGee and Seike (2011), these changes are "leading us into uncharted demographic waters" (p. 2). Whilst these statistics reflect great improvements in healthcare and life expectancy worldwide (from

48 to 68 years between 1950 and 2010; Bloom et al., 2011), an aging population also presents different challenges. For instance, if projections are correct, how will the younger working age population (who will comprise a much smaller proportion of the population) take care of the much larger older population? Although these particular challenges are not for psychologists to address, the issue of an aging population nevertheless highlights the need for systematic research into aging and adaptation from a psychological viewpoint. This is an area which has been traditionally under-represented in psychological research in favour of examining data from younger, college age samples who are easier to recruit. However, these unprecedented demographic changes intensify the need to understand older age from a psychological perspective. I now discuss some research which has begun to develop this understanding.

Emotion Regulation in Older Adulthood

Although older people are often assumed to be poorly adapted, this does not seem to be the case (Scheibe & Carstensen, 2010). In fact, despite the challenges that older people tend to face, such as social losses and health problems, most research suggests that older people are very good at coping, perhaps through enhanced emotion regulation abilities (Urry & Gross, 2010). In a culturally diverse sample, older participants reported greater emotional control than their younger counterparts (Gross et al., 1997). Furthermore, in an experience-sampling study, older age was associated with improved emotion regulation through stability of emotional states; specifically the continued presence of positive affect, and the continued absence of negative affect (Carstensen, Pasaputhi, Mayr & Nesselroade, 2000). In addition, studies have shown a decrease in self-reported negative affect with age, and stability or even increases in positive affect with age (Carstensen et al., 2000; Charles, Reynolds & Gatz, 2001; Mroczek & Kolarz, 1998; Ryff, 1989). A common criticism of cross-sectional findings which suggest age-related

differences is that they may actually be attributable to cohort effects; that is, perhaps differences are observed between age groups because of differences in the shared experiences of each generation and the environment in which they were raised, and not because of age *per se*. Charles et al. (2001) aimed to address this problem by examining trajectories of positive and negative affect over 23 years for four generations of participants. This allowed the authors to identify whether the observed effects were consistent between cohorts. Although there was some degree of variation between the groups which suggested the presence of cohort effects, the overall trajectories of positive and negative affect were consistent. In sum, there are age-related changes in affective experience, with older people generally faring better.

A more favourable balance between positive and negative affect may in part be due to the positivity bias which has been observed in older adults. In a binocular rivalry task, older adults demonstrated inhibition of angry faces and instead a bias towards happy faces, whereas younger adults demonstrated a general emotionality effect, where both happy and angry faces were more dominant than neutral faces (Bannerman, Regener & Sahraie, 2011). In a study where eye movements were recorded (Isaacowitz, Toner, Goren & Wilson, 2008), younger participants who received a negative mood induction fixated on anger and fear faces for a larger proportion of the time, showing a mood-congruency effect. However, older participants who received this same negative mood induction fixated on the happy faces for a larger proportion of the time. This mood-incongruency effect might reflect attempts at mood-regulation in the older participants. Older adults also exhibit poorer recall and recognition of negative images relative to positive and neutral images than younger adults (Charles, Mather & Carstensen, 2003). Taken together, these findings suggest that older adults promote processing of positive over negative information, to the detriment of subsequent recall of negative information. Indeed, this might be an automatic (pre-conscious) emotion regulation strategy.

Chapter 1

The socioemotional selectivity theory (Carstensen, Isaacowitz & Charles, 1999) proposes that people's perception of time as expansive or limited has important implications for behaviour and the setting of social goals. Broadly, social goals can be divided into those which relate to knowledge acquisition (i.e. preparedness for the future), and those which relate to emotion regulation (i.e. current satisfaction). The theory posits that when time is perceived as limited, individuals are more inclined to prioritise emotional goals to the detriment of informational goals. This is because novel information "is so closely intertwined with future needs" (p. 166), which become less of a priority when the future is no longer perceived as expansive. So, those with limited time tend to take on a present-oriented state and prioritise emotional goals, such as "deriving emotional meaning, and experiencing emotional satisfaction" (p. 167) which have more immediate benefits. For instance, a student who is soon to graduate might prioritise spending time with known others who provide assured high quality emotional interaction, rather than seeking out new friends and novel experiences. This example highlights a key tenet of socioemotional selectivity theory, that the principles of the theory do not apply only to those who are reaching old age and therefore the end of life, but also to those who perceive time to be limited for other reasons. Evidence to support the principles of the theory has been found in both older and younger adults with limited time.

Carstensen and Fredrickson (1998) examined how younger versus older, and HIV-negative versus HIV-positive asymptomatic and HIV-positive symptomatic participants classified potential partners. This allowed them to examine their predictions that social interaction is classified into emotional and knowledge-related dimensions, and that people who perceived they had limited time would place more emphasis on emotional qualities of interactions. Their findings upheld these predictions. Participants classified potential partners on three main dimensions: affective potential (emotion-focused), future contact and information seeking (both information-focused). Both older participants and younger HIV-positive symptomatic participants classified potential partners predominantly in

terms of their affective potential, which was not the case in the younger, HIV-negative and HIV-positive asymptomatic groups. Participants who perceived time as limited appeared to prioritise the emotional potential of partners over their future or informational potential. This supports the predictions of the socioemotional selectivity theory.

In a second set of studies which assessed preference for social partners, Fung, Carstensen and Lutz (1999) asked older and younger participants whether they would prefer to spend time with (a) a family member, (b) a recent acquaintance, or (c) the author of a book they had read. Participants were asked to imagine either that they simply had some free time to spend with another person, or that they were soon to be moving house. In both situations, older people preferred a familiar social partner (i.e. a family member), whereas younger people only showed this preference when they imagined that time was limited. Next, the researchers aimed to see whether they could remove the older participants' preference for familiar social partners if they were able to judge the future as expansive. Indeed, when they were asked to imagine that they had been informed of a recent medical breakthrough that would improve life expectancy by 20 years, older participants no longer showed this preference for spending time with known others. These findings were also replicated in Hong Kong before and during the transition from British to Chinese political rule in 1997. Fung et al. (1999) found that before the handover was salient in the population, only older participants preferred familiar social partners. The study was later repeated when the handover was imminent (four months prior) during a period which produced "a sense of anticipated endings in an entire population" (Carstensen et al., 1999, p. 175). This time, the difference in preference between older and younger participants was eliminated. So, these studies demonstrate that in a range of situations where the future was manipulated to be expansive or limited (i.e. not just in normal aging), people's preferences for the familiar or novel could be altered.

I propose that nostalgia can help to serve some of the emotion regulation functions that, according to the socioemotional selectivity theory, are prioritised when time is

perceived as limited. In this, my stance differs somewhat from the original theory, which posits that when time is limited, a present orientation is adopted to maximise the potential of emotional goals. In fact, both longitudinal and cross-sectional evidence has shown that the proportion of future tense verb use across natural and guided language increases with age (Pennebaker & Stone, 2003). This suggests that people do not tend to adopt a purely present-oriented stance as they approach older age, but still mention and consider the future in their speech and writing. The same may be true for a past-oriented stance, particularly given the role of memory in both self-regulation and life review (e.g. Butler, 1963; Ross & Wilson, 2002). Therefore, nostalgia could have a key role to play in those who perceive that they have limited time. While the frequency of nostalgia might remain relatively stable throughout the lifespan, it may serve different and important functions in those who are older and perceive their time to be limited than in younger individuals. For instance, given its status as an effective means of promoting relevant positive outcomes such as social connectedness (e.g. Wildschut, Sedikides, Routledge, Arndt & Cordaro, 2010) and meaning (e.g. Routledge, Arndt, Sedikides & Wildschut, 2008), nostalgia might serve as a means of integrating the past and the present, promoting a sense of connectedness and of making the most of the time that older adults have remaining.

Accuracy versus Function

Traditionally, much of the emphasis in the psychological literature on memory has been from a cognitive perspective, with a focus on changes in memory accuracy and ability (rather than function) over time. For instance, researchers have compared the trajectories of free recall and recognition memory (Craik & McDowd, 1987), examined whether different components of memory ability decline at the same rate (Wingfield & Kahana, 2002), and investigated deficits in associative memory in older people (Naveh-Benjamin, 2000). These findings are fascinating, but they are not necessarily relevant in terms of

wellbeing throughout the lifespan (Taylor & Brown, 1988). Social psychologists argue that it is the content and correlates (rather than accuracy) of memory which are important for wellbeing (e.g. Janata, Tomic & Rakowski, 2007). Ever since Neisser (1978) famously and convincingly argued that everyday memory research was crucially important to the understanding of memory, many other researchers also began to take a similar, functional approach. Indeed, Cavanaugh (1989) argued that one of the strengths of nostalgia research is that "it is not amenable to evaluation on the accuracy dimension" (p. 603). This means that the focus of research can be on the functions of nostalgia, rather than on trying to establish whether people are accurate in what they recall, which can be extremely difficult to verify. This is crucial because there is a reasonable body of evidence to suggest that memory biases and inaccuracies can actually be adaptive rather than problematic in some circumstances (e.g. Wilson & Ross, 2001). In addition, evidence suggests that participants' recall accuracy or inaccuracy can be biased by the incentive they are given; participants are less likely to exhibit a self-serving memory bias and are more able to recall their previous attitudes accurately when given a financial incentive (Aderman & Brehm, 1976). This suggests that memory recall is more complex than a simple ability or lack of ability to recall information, and that people may sometimes be driven by goals other than accuracy in order to promote wellbeing. So, my focus here will be on the functions that memory can serve and how this might change over the lifespan, rather than on the accuracy of what people remember.

Memory to Serve Self, Social and Directive Functions

The ability to engage in mental time travel by subjectively re-experiencing past events (i.e., through autobiographical memory and nostalgia) is known as chronesthesia and is likely to be unique to humans (Suddendorf & Corballis, 2007; Tulving, 2002). But

what functions does it serve, how can it best be characterised, and what happens when this ability is impaired? I now review research which begins to answer these questions.

The most widely accepted classification of the functions of autobiographical memory was formulated by Pillemer (1992). In this classification, it is hypothesised that memory meets self (e.g. self-continuity, self-concept clarity), social (e.g. bonding, empathy) and directive functions (e.g. using the past to plan and direct future action). So, what people remember about themselves appears to help define their self-perception, behaviour in relationships and future planning.

Self

Autobiographical memory serves many self-relevant functions, including reinforcing the self-concept, self-esteem, and self-continuity.

Self-concept clarity and identity formation. Autobiographical memory has been identified as instrumental in identity development and self-concept clarity. This is a bi-directional relationship, in that memory influences people's self-perception, but self-perception can also influence what people remember (Conway, 2005; Wilson & Ross, 2003). For instance, an individual who believes that they are polite and friendly is more likely to recall episodes where they have behaved in a manner which confirms this view.

The occurrence of a reminiscence bump, a phenomenon where a much higher frequency of memories relating to the period of life between ages 10 and 30 are spontaneously recalled, suggests that there is an "enduring link" between autobiographical memory and the self (Rathbone, Moulin & Conway, 2008, p. 1404). Rathbone and colleagues argued that this is because memories at this time are self-defining and instrumental in identity construction. In support of this assertion, they reported a study in which participants generated self-images (otherwise known as "I am" statements, e.g. I am a mother) which defined their identity, dated the emergence of each

self-image, and recalled memories which related to each of these. Their results showed that memories were normally distributed around periods of self-image formation. So, this suggests that the reminiscence bump can be explained in terms of identity formation; people recall more memories during these periods because they are related to and support the emergence of self-identity. Other research has also shown that during transitional periods, such as moving from one country to another, more memories are generated (Schrauf & Rubin, 1998, 2001). In these studies, enhanced autobiographical recall mirrors periods of identity change, further suggesting that autobiographical memory supports the development of identity.

Throughout the lifespan, what people remember about themselves appears to influence their self-concept; "autobiographical memory and the self are very closely related, even, according to some theorists, *intrinsically related* so that autobiographical memory is a part of the self" (Conway & Pleydell-Pearce, 2000, p. 264). Further evidence for the association between autobiographical memory and the self-concept comes from studies which have examined participants who have deficits in these domains. In an interview study examining older adults with dementia, results suggested that role identities (such as professional and family roles) had deteriorated significantly over the course of the illness and that this was impacting on wellbeing (Cohen-Mansfield, Golander & Arnheim, 2000). These findings were later corroborated by Jetten, Haslam, Pugliese, Tonks and Haslam (2010). In this study, Jetten and colleagues compared an age-matched community group with two groups of dementia sufferers; those who were receiving standard care (mild dementia) and those who were receiving specialist care (severe dementia). As expected, both autobiographical memory ability and cognitive ability declined with increasing severity of dementia. More importantly, though, the results showed that personal identity strength mediated the relationship between poor autobiographical memory ability and low satisfaction with life. So, these findings suggest

a clear link between self-related memories and a strong self-concept. Furthermore, wellbeing is compromised if this information is not available to the individual.

Autobiographical memory deficits also impact the self-concept in circumstances other than age-related disease, such as in those who have epilepsy. Transient epileptic amnesia is a subjective memory complaint sometimes observed in people with epilepsy, which results in temporary autobiographical memory impairment. In a single-case study with age-matched controls, Illman, Rathbone, Kemp and Moulin (2011) demonstrated that E.B., a patient with transient epileptic amnesia, performed similarly to controls when generating self-images ("I am" statements), but supported these self-images with semantic knowledge rather than episodic memories. That is, the self-images were justified using E.B.'s general contextual memories about himself rather than specific memories of personally experienced events with associated spatiotemporal details. So, E.B. was able to demonstrate a sense of self, but this appeared to be largely governed by semantic memory rather than by more specific episodic memories. Perhaps this compensatory process is possible because people with transient epileptic amnesia do not experience general cognitive impairment (unlike those with dementia) and so still have other forms of self-related information available to them (Butler et al., 2007). To account for these and similar findings, the self memory system model (Conway & Pleydell-Pearce, 2000) was updated to include two separate sub-systems: the episodic memory system, which contains sensory, perceptual, cognitive and affective details, and the long-term self, which is comprised of an implicit sense of self based on semantic knowledge (Conway, Singer & Tagini, 2004). This suggests that people with a degree of memory decline can retain a sense of self in some circumstances, as semantic knowledge can potentially compensate for episodic memory. However, episodic memory remains the first choice for identity construction in those without memory deficits.

Nostalgia is also implicated in identity construction, particularly in helping to construct a coherent group identity (Sedikides, Wildschut, Routledge, Arndt & Zhou,

2009). Specifically, research has shown that when participants are asked to recall collective nostalgic memories (i.e. nostalgic events they had experienced together with in-group members), they subsequently report increased identification with the in-group (Wildschut et al., 2013). Furthermore, these findings are not simply driven by positive feelings towards others in the group which are likely to come from recall of collective nostalgic activities, and are also not produced by recall of collective ordinary events. In sum, then, collective nostalgic memories are uniquely able to help people to foster a strong group identity.

Self-esteem. Although people tend to perceive memory as analogous to a videotape (where details such as colour and sound are perfectly preserved), memory is not always this accurate, but can be distorted and manipulated in order to serve a self-enhancement function. People are strongly motivated to self-enhance (Sedikides, 1993), and in this sense, autobiographical memory can be very adaptive. Research has found that people more commonly possess theories of stability pertaining to attitudes, but theories of change pertaining to personality and ability (Ross, 1987, as cited in Ross, 1989). In general, people have little reason to believe that their attitudes will change, but there are potential benefits to perceiving change (i.e. improvement) in personality and ability over time. So, people are likely to be motivated to find supporting evidence for this change in ability. Autobiographical memory may be one such source.

Ross and Wilson's (2000) temporal self-appraisal theory predicts that individuals construct their pasts in order to maintain the impression that the self is improving over time. According to the theory, one way that people might do this is to derogate a distant former self, which has the advantage of giving the impression of improvement without misrepresenting current abilities. Indeed, evidence has shown both cross-sectionally (McFarland, Ross & Giltrow, 1992) and longitudinally (Wilson & Ross, 2001; Woodruff & Birren, 1972) that biased recollections of the self in the past support illusory progression over time. Furthermore, Wilson and Ross showed that this tendency did not generalise to

ratings of others; that is, participants reported greater improvement in themselves than others over time. In addition, past-self derogation was greater when participants perceived the attribute to be important and when they perceived the past self to be temporally distant (i.e. "Think all the way back to the beginning of this term. What were you like way back then?") rather than temporally close (i.e. "Take a moment to think of a point in time in the recent past, the beginning of this term"). In sum, participants were less inclined to criticise a perceived recent self. This illustrates another way that memory can serve a self-enhancement function; through subjective temporal distancing. In three studies, Ross and Wilson (2002) found that participants felt subjectively closer to past selves who had been socially successful than unsuccessful at school, but this was only significant in participants with high self-esteem. Next, they found that participants with high self-esteem rated negatively valenced events (receiving a poor grade) as subjectively more distant than positively valenced events (receiving a good grade). Participants with low self-esteem rated the subjective distance of events as similar regardless of whether they were positive or negative. Finally, Ross and Wilson showed that the distancing bias only occurred when participants recalled self-related events, and not those which concerned others. This suggests that there is a motivated self-enhancement component to the temporal distancing bias in autobiographical memory; if it was simply a general phenomenon, we would also expect it to apply to judgements of temporal distance for others' events. From these findings, it remained a possibility that memory biases may actually be a consequence (rather than causal factor) of high self-esteem, in that people with high self-esteem may be motivated to retain this level by finding evidence (e.g. subjectively recent successes) to justify their high self-esteem. However, Wilson (2000) addressed this causality issue and showed that when people were experimentally induced to feel close to past successes and distant from past failures, they reported improved self-esteem.

Furthermore, participants reported feeling temporally closer to past successes when they were asked to generate reasons why they were responsible for the success (i.e. internal attributions) than when they were asked to generate reasons why other people or external factors were responsible for the success (i.e. external attributions; Haddock, 2004). Importantly, participants were only asked to make the internal or external attributions after they had recalled their past success, which ensured that participants did not choose which events to recall and describe based on whether they believed themselves or others to be responsible. The events generated in each condition also did not differ in rated positivity. So, it appears that people take particular pride in past successes (by recalling them as temporally closer) when they believe they are of their own making. In addition, people are able to actively construct memories of the same valence in different ways to best serve their positive self-regard.

Nostalgia also serves a self-esteem function. However, the mechanisms that promote self-esteem in nostalgia do not appear to be the same as those observed in ordinary autobiographical memory (i.e. past self derogation or temporal distance bias). For instance, nostalgic participants often feel very positively about the past, but contrast these positive past circumstances with a less idealised and more challenging, realistic present (Davis, 1979, Gabriel, 1993; Sedikides, Wildschut, Arndt & Routledge, 2006). This is evidenced in nostalgic narratives which have been subjected to content and factor analysis and demonstrate a significant component of loss (Holak & Havlena, 1998). Despite these feelings of loss within nostalgic narratives, there are still convincing findings to demonstrate that nostalgia promotes self-esteem in the present. Wildschut et al. (2006) found that participants listed positive self-regard as one of the most desirable outcomes of nostalgia. Subsequently, they verified that participants who were prompted to write about a nostalgic event (a validated method of inducing nostalgia) rated their self-esteem immediately afterwards as significantly higher than a control group who were asked to write about an ordinary past event. Vess et al. (2012) further examined the potential of

nostalgia in the promotion of self-esteem. They found that participants who had recalled and reflected on a nostalgic event were able to classify positive attribute statements as self-descriptive faster than participants who had imagined a positive future event. This suggested that positive self-attributes were more accessible to participants who were feeling nostalgic than those who were not feeling nostalgic. In a second study, participants received false feedback about a task they had completed which suggested that they were either above or below average compared to other students. Half of those who were given negative feedback were then asked to recall and reflect on a nostalgic event, and the other half recalled and reflected on a recent ordinary event. Subsequently, those who were feeling nostalgic were less likely to exhibit self-serving attributions relating to the task they had just completed (i.e. they were more willing to admit that their 'failure' in the task reflected on their abilities) than those who recalled an ordinary event. This suggests that nostalgic participants did not require attributional biases to explain their performance; nostalgia was able to act as a protective resource against self-esteem threat. In contrast to other forms of autobiographical memory, these findings suggest that nostalgia promotes self-esteem without the need for temporal biasing or past-self derogation; instead, the benefits of recalling positive and meaningful self-related memories are brought directly into the present.

Self-continuity. Another postulated self-related function of autobiographical memory and nostalgia is in providing a sense of self-continuity over time. Neisser (1988) described five sources of self-knowledge, including the extended self. This was based on the self in the past (i.e. memory) and in the future (i.e. anticipation of future events and behaviour). The extended self is a good conceptualisation of how memory can serve a self-continuity function, giving people "the knowledge and experiential sense of being the same person over time regardless of changes in one's environment, in social relationships, and across ontological development" (Bluck & Alea, 2008, p. 55). Bluck, Alea, Habermas and Rubin (2005) conducted an exploratory factor analysis of their 28-item talking about life

experiences (TALE) questionnaire to establish whether a three-factor taxonomy (self, social and directive) was the most appropriate way of conceptualising memory functions. In general, their results supported this existing framework. Their solution included a factor which related to self-continuity as a function of autobiographical memory, and their results suggested that memory was used occasionally for this purpose. However, it must be noted that the self-report nature of the data may have been somewhat responsible for these findings; it may be the case that autobiographical memory more frequently serves an implicit self-continuity function, but that participants were simply not aware of this. In addition, the authors were surprised that this self-related factor was so narrow, and did not include other functions such as self-concept clarity or self-esteem. Again, it is plausible that participants were simply not aware that memory supports identity, or that they experience memory biases which help to promote self-esteem. Indeed, it is preferable that people are not aware that their memory can be biased in this way. Despite this, there is a good body of evidence (discussed above; e.g. Rathbone et al., 2008; Ross & Wilson, 2002; Wilson & Ross, 2001) to suggest that memory can serve wider self-functions than solely self-continuity.

Research has suggested that older adults prefer to see evidence of personal consistency (in attitudes, cognitions and social partners) so that they can develop a coherent life narrative, whereas younger adults prefer to see evidence of development and change (Brown, Asher & Cialdini, 2005). Would these preferences extend to a stronger self-continuity function in autobiographical memory for older than younger adults? McLean (2008) began to address this question by comparing younger and older adults in their use of autobiographical reasoning, defined as "the mechanism through which narrative identity, or the life story, develops" (p. 254). Participants were asked to report three self-defining memories which were then coded by a team of judges. The results showed that the younger group tended to speak about themselves in terms of change, whereas the older group tended to recall more coherent and stable life narratives.

Although these findings suggest that memory may serve a greater self-continuity function in older than younger adults, this study did not directly assess the functions of memory, but rather the memories that participants spontaneously generate. Indeed, other research has yielded incompatible findings; Bluck and Alea (2008) found that age mediated the link between self-concept clarity and the self-continuity function of autobiographical memory. Younger adults, who were still developing a coherent sense of self, were more likely to use autobiographical memory in its self-continuity function than older adults.

It is clear that not all types of autobiographical memory foster feelings of self-continuity; indeed, some memories may serve to reinforce discontinuity. However, research has suggested that nostalgia in particular is associated with self-continuity. Davis (1979) proposed in his discontinuity hypothesis that nostalgia is induced as a coping mechanism when threats to identity continuity are perceived. These threats might include major changes to life circumstances, such as relocation or redundancy. The discontinuity hypothesis has received some empirical support (Sedikides, Wildschut, Gaertner, Routledge & Arndt, 2008; Sedikides et al., 2013). For instance, research has found evidence of a positive relationship between disruptive life events and nostalgia (Sedikides, Wildschut, Arndt & Routledge, 2008, as cited in Sedikides et al., 2008). This suggests that nostalgia may be triggered in the service of promoting self-continuity during periods of change. Furthermore, when participants were induced to feel nostalgic, they were more likely to report perceptions of self-continuity. However, this relationship was only significant in participants who also scored highly on a measure of satisfaction with life. The authors speculated that this was because if current satisfaction with life was low, then recalling idealised, nostalgic events would not promote feelings of self-continuity but actually emphasise perceived differences between the past and present. So, these findings suggest that nostalgia does serve a self-continuity function, but only in certain circumstances. That is, the nostalgia – self-continuity relationship is moderated by satisfaction with life.

Relatedly, Iyer and Jetten (2011) explored the relationship between nostalgia, self-continuity and wellbeing. In three studies, they demonstrated that the relationship between nostalgia and wellbeing was moderated by perceived identity continuity. Nostalgia does not always produce adaptive outcomes, but is dependent on context; specifically, Iyer and Jetten's findings suggested that documented wellbeing outcomes of nostalgia are only produced when perceived identity continuity is high. When identity continuity was low (i.e., when participants believed that there was discontinuity between the current self and life circumstances and those contained in the nostalgic recollection), nostalgia had a detrimental effect. In this sense, their findings suggested that nostalgia and (dis)continuity may operate independently, whereas previous research has assumed that the two are intrinsically linked. However, there are some problems with drawing broad conclusions on the basis of Iyer and Jetten's findings. First, the interactions between nostalgia and perceived continuity were produced only on very particular items (e.g. excitement) and not on more general measures of wellbeing. Second, participants' nostalgic recollections were constrained in these studies to domain-specific topics, such as university transition. Therefore, these findings do not preclude previously-documented general benefits of freely-produced nostalgia (i.e. where the participant chooses the object of their nostalgia). For instance, if a person has experienced unwanted discontinuity such as being made redundant, they may be unlikely to choose to be nostalgic about their previous job as this would emphasise discontinuity and might produce the detrimental effects reported in this study. Instead, they may be likely to experience nostalgia for another aspect of their past, thereby avoiding problems with loss and discontinuity and yielding the previously-reported beneficial effects. This possibility remains to be empirically tested. In sum, though, research has suggested that discontinuity acts as a trigger for nostalgia, and nostalgia in turn acts as a repair mechanism against threats to identity continuity.

Social

Research suggests that memory regularly serves social functions (Bluck et al., 2005). Alea and Bluck (2003) argued for the division of social functions into three subordinate categories: intimacy (sharing memories as a way of developing or maintaining relationship intimacy), teach/inform (teaching others and giving advice), and empathy (eliciting or providing reassurance and empathy). In fact, Bluck and colleagues' (2005) factor analysis of the TALE questionnaire produced only two distinct social factors, which were nurturing existing relationships, characterised by items such as, "When I want to strengthen a friendship by sharing old memories with friends", and developing new relationships, characterised by items such as, "When I hope to also learn more about that other person's life". The factor analysis also suggested that memory is used more frequently in a social function (particularly in nurturing new relationships) than in self-related or directive functions, and other research has corroborated this finding. For instance, Walker, Skowronski, Gibbons, Vogl and Ritchie (2009) examined five potential reasons why people rehearse their memories (involuntary rehearsals, to maintain memory details, to re-experience emotion, as a form of social communication, and to understand the event) and their results also showed that rehearsals occurred most frequently when participants were telling others about the memory.

In line with findings relating to the key developmental tasks throughout the lifespan (e.g. Erikson, 1980), Alea and Bluck (2003) predicted that young adults would use autobiographical memory to develop intimacy because they are likely to be focused on finding a partner. In middle age, autobiographical memory might take on a more directive role in guiding future action and teaching others. In later life, the developmental challenges might involve adaptation to retirement, and loss of close others and physical functions. Therefore, autobiographical memory might be used to elicit empathy from others and to maintain self-continuity. These predictions were not empirically tested by

Alea and Bluck, although they do parallel the predictions of the socioemotional selectivity theory. In an experience sampling study, Pasaputhi and Carstensen (2003) examined the nature of mutual reminiscing (the exchange of autobiographical stories with others) across the lifespan. Their findings suggested that mutual reminiscence occurred during 20% of all social occasions (i.e., relatively frequently). Although the frequency of mutual reminiscence varied considerably between participants, it did not change with age. In addition, older adults were no more likely than younger adults to spontaneously share positive (compared to negative) memories in everyday life. However, the results did illustrate that with increasing age, participants reported more positive and less negative affect when reminiscing with a social partner. Furthermore, their results suggested that the relationship between positive affect at encoding and during recall was stronger for older than younger adults, suggesting that older adults are better able to recapture the pleasant feelings associated with a positive event. So, Pasaputhi and Carstensen's findings suggested that mutual reminiscence may be more valuable for older than younger adults, although they did not examine the specific functions that it serves.

The main issue with each of the pieces of research described so far (Alea & Bluck, 2003; Bluck et al., 2005; Pasaputhi & Carstensen, 2003; Walker et al., 2009) is that they only attempt to account for those occasions when autobiographical memories are communicated to others, and not those which are rehearsed or recalled alone. Although these findings are consistent and plausible, it is important to note that they may reflect that the data were derived from a self-report methodology; that is, memory may serve other social functions more frequently, but participants could potentially have been unaware or unable to articulate this information. For instance, autobiographical memories can still serve social functions even in circumstances when they are not directly shared with others in a storytelling capacity. Indeed, the sharing of memories is neither necessary nor sufficient to produce feelings of nostalgia, but nostalgia still serves numerous social functions. Because the act of waxing nostalgic is not necessarily

associated with the act of communicating with others, this may suggest that nostalgia serves social functions through a different mechanism than autobiographical memory.

Nostalgic memories are deeply social, containing mental representations of past relationships and social events (Hepper et al., 2012; Holak & Havlena, 1992, 1998; Robertson et al., 2011; Wildschut et al., 2006). Through recall of these nostalgic memories, the benefits of connectedness with others are brought into the present. Therefore, nostalgia can be characterised as a repository of social connectedness (Wildschut et al., 2010). During a preliminary investigation into the nature of nostalgia, Wildschut et al. (2006) asked participants to write a detailed description of the circumstances in which they felt nostalgic. These descriptions were then classified by coders into nine categories of triggers. The most frequently reported was negative affect, and one sub-category in particular: loneliness. Subsequent correlational and experimental findings confirmed that when people feel lonely, they report greater nostalgia (Wildschut et al., 2006; Zhou, Sedikides, Wildschut & Gao, 2008). So, does this mean that nostalgia acts as a repair mechanism in these circumstances? Evidence from multiple studies suggests that this is indeed the case. Inducing feelings of nostalgia by asking participants to reflect on a nostalgic (versus ordinary) event makes people feel "loved" and "protected", promotes a more secure attachment style, facilitates greater interpersonal competence and reduces feelings of loneliness (Wildschut et al., 2006; Zhou et al., 2008). It appears that "nostalgia can serve to redress deficiencies in belongingness" (Wildschut et al., 2006, p. 985). More specific research into the role of nostalgia in attachment security has revealed that nostalgia is particularly useful in regulating loneliness in those who are low in avoidance (Wildschut et al., 2010). So, nostalgia appears to have beneficial social functions in that it can make people feel more connected to others without the need for communicating directly with others. This is in contrast to other forms of autobiographical memory, which appear primarily to serve a direct social function when people communicate through storytelling and disclosure. Crucially, research has suggested that it

is through nostalgia's ability to promote social connectedness that several other present- and future-oriented outcomes of nostalgia are produced (i.e., optimism, self-continuity, meaning in life and positive outgroup attitudes; Cheung et al., 2013; Routledge et al., 2011; Sedikides et al., 2013; Turner, Wildschut, Sedikides & Gheorghiu, 2013). In sum, a key function of nostalgia is its capacity to produce feelings of social connectedness even without direct social contact; nostalgia helps people to feel that others are close, and this in turn promotes other beneficial outcomes.

Directive

The directive functions of autobiographical memory have received the least empirical attention (Pillemer, 2003). Perhaps this is for good reason; Hyman and Faries (1992), for instance, failed to find evidence to support a directive function. However, other research has been more conclusive. Bluck et al.'s (2005) TALE factor analysis produced a problem solving factor which included items that suggested memory could be used to guide future action (e.g. in the service of making life choices, facing challenges, learning from past mistakes and pursuing future goals). There is also some evidence to show that recall of specific and relevant autobiographical memories could impact favourably on public speaking and charitable giving behaviours (Kuwubara & Pillemer, 2010; Pezdek & Salim, 2011). For instance, recall of a past instance of public speaking success facilitated participants to perform better at a public speaking task than control participants, who were asked to recall a different event from childhood (Pezdek & Salim, 2011).

The specific properties of nostalgia make it particularly well-suited to serve a directive function, and evidence has supported this view. Although nostalgia involves reflection on the past, it has a wide-ranging influence on individuals' orientations towards the future by promoting feelings of optimism, inspiration and psychological growth. In

this way, nostalgia shapes perceptions of the future and can even direct future action. Baldwin and Landau (2013) demonstrated that participants who recalled and described a nostalgic (compared to ordinary) memory reported greater psychological growth in terms of growth-oriented self-perceptions (e.g. "I am the kind of person who embraces familiar people, events, and places") and behavioural intentions (e.g. I would like to explore someplace that I have never been before"). Consistent with these findings, Iyer and Jetten (2011) demonstrated longitudinally and experimentally that nostalgia promoted feelings of excitement and willingness to meet new people and engage in new activities at university, and reduced perceived barriers to academic success. Crucially, this was only the case in participants who perceived that there was continuity between the past (which formed the target of their nostalgia) and the present. This might imply that when nostalgia is combined with feelings of continuity, participants were able to harness their nostalgic memories as a motivational resource to guide positive future action; if life was good in the past, it could be good again in the future. Indeed, both nostalgic recall and music-evoked nostalgia increased feelings of optimism towards the future (Cheung et al., 2013). Furthermore, experimental evidence has shown that when participants recalled and described a nostalgic memory which related to their in-group, they were subsequently more willing to engage in group-supporting behaviours than those who had recalled an ordinary group event (Wildschut et al., 2013). These results were not mediated by the levels of positive affect in participants' nostalgic narratives, which suggested that nostalgia was having an impact on behaviour which was over and above what could be produced by positive group-related autobiographical memory. In sum, evidence has suggested that the integrative and positive nature of nostalgia means that it can serve a strong directive function for those who engage in it.

Nostalgia and Aging

The research reviewed so far suggests that the functions of autobiographical memory can potentially change over aging. However, no empirical research has so far been published which examines whether the functions of nostalgia change over the lifespan, although research into the properties of nostalgia suggests that it may be important in meeting the priorities of older adults. First, nostalgia can serve emotion regulation functions by promoting positive affect (Baldwin & Landau, 2013; Hepper et al., 2012; Stephan et al., 2012; Verplanken, 2012; Wildschut et al., 2006, 2010). Although this increase in positive affect is often in combination with negative affect (Barrett et al., 2010; Wildschut et al., 2006), this is not necessarily a barrier to the use of nostalgia in emotion regulation due to older adults' propensity for and tolerance of mixed affective states (e.g. Carstensen et al., 2000). Second, nostalgic memory is highly social and helps people to feel that others are close (e.g. Hepper et al., 2012; Robertson et al., 2011; Wildschut et al., 2006, 2010). Third, nostalgia helps people to integrate their past and their present experiences and to feel that life is meaningful (e.g. Sedikides et al., 2008, 2013; Routledge et al., 2008). Fourth, nostalgia helps to protect against existential threat and death anxiety (Juhl, Routledge, Arndt, Sedikides and Wildschut, 2010), which acquire particular significance in older adulthood as time becomes limited. In all, prior research suggests that nostalgia could have an important role in older people.

Nostalgia Proneness across the Lifespan

In general, there is an assumption that people become more nostalgic as they get older (e.g. Davis, 1979). In this section, I will review evidence which addresses the question of whether nostalgia is more or less prevalent at different stages in the lifespan.

Increased nostalgia proneness in younger adults. There is some evidence to suggest that younger adults may be more nostalgia prone than older adults, contrary to

stereotypes. Schindler and Holbrook (2003) suggest that age might be a factor in nostalgia proneness through the impact of hormones on propensity to feel emotion, which would imply that adolescents are the most prone towards nostalgia. Arguably, this is an excessively simplistic account of emotional experience in young adults; while some evidence has suggested that affect intensity declines with age (e.g. Diener, Sandvik & Larsen, 1985; Lawton, Kleban, Rajagopal & Dean, 1992), other more recent evidence has suggested that emotional intensity does not change across the lifespan (Carstensen et al., 2000). Despite this, some empirical findings have suggested that nostalgia proneness may indeed be greater in younger adults. In research comparing three measures of nostalgia proneness, Holbrook's nostalgia index (e.g. "Compared to the classics, today's music is mostly trash"; 1993), McKechnie's antiquarianism scale (e.g. "I like to read about the history of places"; 1977) and Taylor and Konrad's experience scale (e.g. I would prefer to visit an historical site than merely read about it; 1980), only the latter was significantly related to age. Specifically, there was a negative relationship, suggesting that younger participants were more nostalgia-prone than older participants (Schindler & Holbrook, 2003). However, closer inspection of these scales demonstrate that the items are mostly assessing a preference for past items and an interest in history rather than a rose-tinted longing for a personally experienced past. In this sense, these items are more accurately measuring historical nostalgia rather than personal nostalgia (Stern, 1992). This is a broader construct of more relevance to consumer psychologists who are interested in the value of the past in marketing products (e.g. Havlena & Holak, 1991). Although this study demonstrates that there is some justification for questioning the assumption that older people are most nostalgia-prone, the balance of evidence is weighted towards accepting this assumption.

Increased nostalgia proneness in older adults. Nostalgia may be prevalent in older adults as part of the life review process and in response to the particular psychosocial challenges they face. Davis (1979) claimed that "in the case of the elderly

their nostalgia, rather than being a transient or episodic response to a problematic life situation, tends to be assimilated into a larger and more continuous process of reminiscence and assessment" (p. 69). This is where older adults recall and appraise details of their lives in order to form a coherent life story narrative and adapt to their changing roles as they age (e.g. Butler, 1963; Coleman, 1991). Although reminiscence and life review do not necessarily contain nostalgic affect, it is one possible outcome (Cavanaugh, 1989). Therefore, we might expect greater nostalgia proneness in the later stages of the lifespan. However, this is based on the assumption that only older adults engage in the life review process, and therefore that nostalgia is potentially more prevalent in this population. There is in fact some dispute about whether life review only occurs in older adults, or whether it is prevalent and useful at all developmental stages. McAdams (2001), for instance, would argue that people begin to construct coherent life story narratives from adolescence, not just in the later stages of life. Furthermore, Bluck and Alea (2008) found that it was actually younger adults who more frequently harnessed their autobiographical memories as a source of perceived continuity and self-concept clarity. Indeed, some researchers have questioned whether older adults even engage in past focus as a means of adaptation and emotional regulation. Carstensen et al.'s socioemotional selectivity theory (1999) predicts that older adults prioritise emotion regulation over knowledge-related goals as they perceive that time is limited, but are more likely to allocate resources towards the present, rather than any future or past orientation. In sum, nostalgia is one likely outcome of reminiscence and life review. However, most evidence suggests that life review is a continuous process, which is not just limited to older adults. Therefore, we cannot strongly conclude on the basis of this evidence that nostalgia is more likely at one than another developmental stage.

Next, I review evidence relating to nostalgia's potential role in alleviating psychosocial threat in older adults; Davis argued that "there is much about the social regulation of aging and the social condition of the aged in our society that plausibly could

account for whatever excessive nostalgia they may indulge in" (1979, p. 66). For instance, Davis proposed that nostalgia might be triggered by existential anxieties about the imminence of death, and recent research has upheld this prediction. Participants report increased nostalgia in response to meaning threats and mortality salience (Juhl et al., 2010; Routledge et al., 2011). Given that older adults are increasingly faced with the prospect of death, this implies that they may recruit nostalgia more regularly in order to combat feelings of death anxiety and existential threat. Furthermore, older adults are likely to have experienced more transitions and discontinuities than younger people, and are also likely to have a larger volume of autobiographical memories which have the potential to produce nostalgia (and in turn promote feelings of self-continuity; e.g. Sedikides et al., 2008).

Other associated research pertaining to emotional experience and regulation in older people also supports the expectation that older adults will be more nostalgia-prone. First, Cavanaugh (1989) described evidence of a stronger link between memory and affect in older adults than in younger adults, which might mean that older adults are more prone to nostalgia because memory recall is more likely to produce an affective response. Second, Carstensen et al. (2000) reported findings from an experience sampling study showing that older adults were more likely than younger adults to experience *poignancy*, operationalised by the authors as concurrent positive and negative affect. This experience of simultaneous positive and negative affect is also a feature of nostalgia (e.g. Wildschut et al., 2006). Therefore, this finding further hints at a greater prevalence of nostalgia in older adults. In sum, evidence has begun to suggest that older adults might be more likely to experience nostalgia than younger adults. However, further replication and examination of nostalgia's association with life review would be useful.

A curvilinear association between age and nostalgia. Most recently, researchers have considered the possibility that nostalgia proneness may evince a curvilinear relationship with age. Hepper, Robertson, Wildschut, Sedikides and Routledge

(2013) predicted that nostalgia proneness would fluctuate in line with the typical transitions and discontinuities experienced across the lifespan, such as adjusting to life at university or to retirement. This is consistent with the conceptualisation of nostalgia as a response to major changes in life circumstances (Davis, 1979; Sedikides et al., 2008, 2013), as well as its postulated role as a socioemotional response to limited time. Nostalgia might have an important role to play in both younger and older adults; in addition to greater nostalgia proneness in later life, Hepper, Robertson and colleagues also predicted a peak in nostalgia proneness in younger adults. Only in middle adulthood (a period typically characterised by greater stability) did they predict a slight dip in nostalgia. Indeed, their data supported these predictions; nostalgia proneness was especially high in participants who were aged under 30 and over 75. However, these findings did not inform about the mechanisms which drove this curvilinear age trend, nor did the cross-sectional design allow elimination of the possibility that different people tended to be most nostalgia prone at younger and older ends of the lifespan. Nevertheless, these findings synthesised the opposing viewpoints described above and suggested that nostalgia proneness may peak at various stages of the lifespan.

Summary

This literature review has introduced autobiographical memory and nostalgia and discussed the functions that they serve from a lifespan perspective. Although autobiographical memory and nostalgia serve some of the same functions, research suggests that they do so via different mechanisms. Indeed, nostalgia can be distinguished from both positive memory and reminiscence; nostalgia contains a unique combination of cognition and affect and a unique pattern of construal. Furthermore, research has suggested that nostalgia has an active ingredient which makes it especially powerful in promoting its beneficial outcomes. Some key questions remain. What is the nature of

nostalgia in older adulthood? Does nostalgia, in terms of its properties, functions and relation to wellbeing, change across the lifespan? What is the role of a perception of limited time in nostalgia? Are there individual differences in those who stand to benefit most from nostalgia across the lifespan? I aim to answer these questions in the chapters that follow.

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Chapter 2: Nostalgic Memories in Older Adults

Nostalgia is "a sentimental longing or wistful affection for the past" (*The New Oxford Dictionary of English,* 1998, p. 1266) which occurs in response to meaningful autobiographical memories (Hepper, Ritchie, Sedikides & Wildschut, 2012; Holak & Havlena, 1998; Wildschut, Sedikides, Arndt & Routledge, 2006). Typically, nostalgic recollections feature interactions between the self and close others during momentous life events and are characterised by feelings of warmth, affection and sentimentality (Hepper et al., 2012; Wildschut et al., 2006). Nostalgia is prevalent and universal, occurring frequently in both the young and the old (Hepper et al., 2012; Hepper, Robertson, Wildschut, Sedikides & Routledge, 2013; Wildschut et al., 2006) and across many different cultures (Hepper, Wildschut et al., 2013). In addition to being a pleasant and positive experience, nostalgia serves a range of adaptive functions which are beneficial to the self and others.

Nostalgia as a Self and Social Resource

Nostalgia acts as a positive resource for the self in the present and in the future. First, nostalgia entails recall of predominantly positive and meaningful memories (Hepper et al., 2012; Holak & Havlena, 1998; Wildschut et al., 2006), and consistent with this, promotes feelings of positive affect (Baldwin & Landau, 2013; Hepper et al., 2012; Stephan, Sedikides & Wildschut, 2012; Verplanken, 2012; Wildschut et al., 2006; Wildschut, Sedikides, Routledge, Arndt & Cordaro, 2010). Second, nostalgia enhances positive self-regard and acts as a buffer for the self, reducing the need for defensive responses to self-esteem threat (Vess, Arndt, Routledge, Sedikides & Wildschut, 2012; Wildschut et al., 2006). Third, nostalgia promotes a sense of self-continuity between the past and present (Sedikides, Wildschut, Gaertner, Routledge & Arndt, 2008; Sedikides et

al., 2013) and also protects against mortality salience, boredom and existential threat by fostering a sense of meaning in life (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010; Routledge, Arndt, Sedikides & Wildschut, 2008; Routledge et al., 2011; Routledge, Wildschut, Sedikides, Juhl & Arndt, 2012; Van Tilburg, Igou & Sedikides, 2013). Fourth, although nostalgia involves reflection on the past, it also acts as a resource for the future by promoting feelings of optimism and psychological growth (Baldwin & Landau, 2013; Cheung et al., 2013). Fifth, and perhaps most important, nostalgia serves social functions. Nostalgic memories are deeply social, containing mental representations of past relationships and social events (Hepper et al., 2012; Holak & Havlena, 1992, 1998; Robertson, Wildschut & Sedikides, 2011; Wildschut et al., 2006). Through recall of these nostalgic memories, the benefits of connectedness with others are brought into the present; in this way, nostalgia can be characterised as a repository of social connectedness (Wildschut et al., 2010). Nostalgia (compared to recall of ordinary autobiographical memories) makes people feel "loved" and "protected", facilitates greater interpersonal competence and promotes a more secure attachment style (Wildschut et al., 2006). Research also suggests that nostalgia can repair or even protect against loneliness by increasing perceptions of social support, particularly in those who are low in attachment-related avoidance (Wildschut et al., 2010; Zhou, Sedikides, Wildschut & Gao, 2008). Crucially, it is through nostalgia's ability to promote social connectedness that several other present- and future-oriented outcomes of nostalgia, such as optimism, self-continuity, meaning in life and positive outgroup attitudes, are produced (Cheung et al., 2013; Routledge et al., 2011; Sedikides et al., 2013; Turner, Wildschut, Sedikides & Gheorghiu, 2013). In sum, nostalgia helps people to feel that others are close, and this in turn promotes other beneficial outcomes.

Nostalgia in Older Adulthood

Nostalgia proneness. Laypeople tend to assume that people become more nostalgic as they progress through life (e.g., Davis, 1979). However, there has been little empirical examination of this assumption. Schindler and Holbrook (2003) found that historical nostalgia proneness was negatively related to age in a sample of adults aged between 16 and 92. However, historical nostalgia entails a preference for past items and an interest in history (e.g. "I would prefer to visit an historical site than merely read about it") rather than a rose-tinted longing for a personally experienced past (Stern, 1992). Therefore, these findings can only inform the debate relating to historical, rather than personal, nostalgia across the lifespan.

More recently, Hepper, Robertson et al. (2013) assessed levels of personal nostalgia in adults aged 18 to 91 years and found that nostalgia proneness peaked in younger (below age 30) and older (above age 75) adulthood. Consistent with Davis's discontinuity hypothesis (1979), these findings suggest that nostalgia may be especially significant and prevalent for those who are undergoing life transitions, which could include people at either end of the age spectrum. Given that much research has already focused exclusively on the content and functions of nostalgia in younger adults (Iyer & Jetten, 2011; Juhl et al., 2010; Routledge et al., 2008, 2012; Stephan et al., 2012; Turner, Wildschut, & Sedikides, 2012; Turner et al., 2013; Verplanken, 2012; Vess et al., 2012; Wildschut et al., 2006; Zhou et al., 2008), it is important to form a fuller understanding of nostalgia at the opposite end of the age spectrum.

The Present Research

The aim of this study is to examine the social content of older adults' nostalgic recollections in order to understand more about the nature of nostalgia in older adulthood. Most research to date which has examined the content and functions of

nostalgia has done so only in younger student samples, which has limited the extent to which these findings can be generalised to the entire population. My aim, then, is to address the existing shortfall by comparing the social content of nostalgic and ordinary autobiographical memory in older adults to establish whether nostalgia is uniquely socially-oriented in older adults. I focus primarily on the social content of nostalgia because of its relevance to the predictions of the socioemotional selectivity theory that older adults may maintain wellbeing in the face of limited horizons by prioritising close relationships over other social goals (Carstensen, Isaacowitz & Charles, 1999). If nostalgia is highly social in older adults, it may be one way that older adults can savour their meaningful close relationships. Overall, this study represents a preliminary exploration of the nature of nostalgia in older adulthood which, taken together with prior research in younger adults (e.g. Stephan et al., 2012; Wildschut et al., 2006) will provide a context for subsequent research on nostalgia across the lifespan.

I compare the content of narratives describing nostalgic and ordinary events in older adults using a novel combination of manual coding methods and LIWC (Linguistic Inquiry and Word Count; Pennebaker, Chung, Ireland, Gonzalez & Booth, 2007), a word-level text analysis program. The program aims to access psychologically meaningful constructs using language markers and works by classifying and counting words into categories using a validated internal dictionary (Pennebaker & Francis, 1996). Prior large-scale language analyses have demonstrated that older (versus younger) adults tend to use language which denotes greater social focus and lesser self-focus across emotional topics as well as discussion of more everyday topics (Pennebaker & Stone, 2003). This general increase in social language in older adults may mask differences between nostalgic and ordinary event recollections. More likely, though, (and consistent with Routledge et al., 2011) is that the nostalgic recollections of older adults are deeply imbued with sociality. Given that the lay understanding of nostalgia does not change in older adulthood (Hepper et al., 2012), it is unlikely that the *content* of older adults' nostalgic (versus ordinary)

recollections would differ from those of younger adults. I seek to confirm whether this is the case in the current research by examining the language that participants use to describe their memories.

Language analysis. Language analysis is an effective tool which can provide great insight into psychological processes, but this methodology is often bypassed in favour of more direct self-report methodologies. Despite this, the detailed examination of linguistic style has much to offer as an unobtrusive data collection strategy in circumstances where participants are unable or unwilling to articulate their true states (e.g. Newman, Pennebaker, Berry & Richards, 2003; Rude, Gortner & Pennebaker, 2004). This method does not require direct questioning of the participant; rather, it enables examination of content but also the patterns of function words such as pronouns, prepositions and articles, which are the building blocks of language. Although function words comprise less than 0.04% of the vocabulary of the average English speaker, they are used at disproportionately high rates in normal speech and writing (Campbell & Pennebaker, 2003; Chung & Pennebaker, 2007; Rochon, Saffran, Berndt & Schwartz, 2000). People rarely attend to others' patterns of function word use, nor do they attempt to control or even attend to their own function word use (Chung & Pennebaker, 2007). Yet, these words can convey compelling and psychologically-relevant information which is missing in more readily-observable speech and writing content, such as expressions of positive or negative emotion (Rude et al., 2004). Content alone (i.e., the subject matter of the written or spoken material) is not a reliable predictor of psychological outcomes because it is strongly influenced by context, but combined with word-level analysis of function words it can be harnessed as a powerful implicit measure of internal states (Pennebaker & King, 1999). Indeed, experimental research has validated the LIWC2007 dictionary as a means of detecting the emotional content of texts written by participants following mood induction manipulations (Kahn, Tobin, Massey & Anderson, 2007). In the past, LIWC has been used successfully in a broad array of research areas, from predicting marital health

(Simmons, Gordon & Chambless, 2005) and distinguishing personality types (Pennebaker & King, 1999) to comparing the self-presentation styles of recovering anorexics and pro-anorexics (Lyons, Mehl & Pennebaker, 2006) and examining social behaviour and coping strategies after traumatic events (Cohn, Mehl & Pennebaker, 2004; Gortner & Pennebaker, 2003; Stone & Pennebaker, 2002).

In the current research, I apply the LIWC methodology to the study of nostalgia in older adults. In doing so, I expand upon prior research with younger adults which has used LIWC to examine the construal patterns of nostalgic, positive and ordinary event reflections (Stephan et al., 2012), the levels of positive affect in collective nostalgia (Wildschut, Bruder, Robertson, Van Tilburg & Sedikides, 2013), expressions of optimism in nostalgia (Cheung et al., 2013), and levels of agentic and communal content in the nostalgic memories of narcissists (Hart et al., 2011).

LIWC provides multiple indexes of explicit social content (i.e., subject matter), including the frequency that close others, such as family and friends (e.g. *daughter*, *aunt*, *buddy*, and *neighbour*) are mentioned in the narratives. In addition, LIWC's great strength is that it provides indexes of implicit social content (i.e., function words) through patterns of pronoun use. Specifically, use of first person singular pronouns such as *I*, *me*, *my* and *mine* denote greater self focus and lesser social integration (for a review, see Chung & Pennebaker, 2007). High levels of first person singular pronoun use have been linked to less favourable health outcomes, negative affect, depression and risk of suicide, potentially because choice of these pronouns over other, more social, pronouns indicates isolation or disengagement (Rude et al., 2004; Scherwitz, Berton & Leventhal, 1978; Stirman & Pennebaker, 2001). Conversely, use of first person plural pronouns such as *we*, *us* and *our* are indicative of greater social integration and focus on others (Pennebaker & Stone, 2003; Stone & Pennebaker, 2002) and tend to be negatively correlated with use of first person singular pronouns (Pennebaker & King, 1999). Finally, LIWC computes a social processes dimension which attempts to capture all implicit and explicit social content by counting

mentions of close others (i.e. family and friends), potentially lesser-known others (i.e. humans; e.g. *adult*, *baby*, and *boy*), social pronoun use (i.e. all non-first person singular pronouns) and verbs which suggest human interaction (e.g. *talking* and *sharing*).

While the LIWC methodology provides an objective means of examining implicit linguistic structure and function words which a reader (or, indeed, a trained coder) may ignore, word-level coding cannot account for the meaning or context of the entire narrative because it codes each word independently of all the others. To address this potential weakness, I also apply a coding scheme to the narratives using manual coders to identify narrative-level social content, for instance by judging the extent to which the participant has expressed feelings of companionship.

Method

Participants

Forty participants (21 female, 19 male) aged between 50 and 83 years (M_{age} = 60.05, SD_{age} = 7.82) took part in the study. One participant was excluded from the final sample because she did not recall and describe a nostalgic event. In total, the data from 39 participants are presented below.

Procedure

In a fully counterbalanced design, participants recalled and described a nostalgic and an ordinary event. Instructions read as follows:

> Please bring to mind a nostalgic/ordinary event in your life.
> Specifically, try to think of a past event that makes you feel most nostalgic/is ordinary. Please write down four keywords relevant to this nostalgic/ordinary event (i.e. words that describe this experience).
> Using the space provided below, for the next few minutes we would

> like you to write about this nostalgic/ordinary event. Immerse yourself into this experience. Describe the experience and how it makes you feel. Be as thorough as possible in describing how you are feeling.

In order to reduce any potential effects of recalling the first event on the second event description, participants completed a filler task which consisted of solving a set of ordinary word anagrams between the two event descriptions. Once the main tasks were completed, participants completed a short demographics questionnaire. Finally, participants were thanked for their time and fully debriefed.

Analysis

In total, participants generated 78 nostalgic and ordinary narratives with a mean length of 101.44 words (SD_{length} = 42.61). These narratives were examined using LIWC2007 and a coding scheme.

LIWC2007 works according to an internal dictionary of approximately 4500 words, and counts the percentage of words in each category to produce an output on 80 dimensions. Each narrative receives a percentage score for each of the language dimensions. This indicates the percentage of words within the narrative which fall into each particular category. Analysis is conducted at word-level with hierarchical coding, meaning that words can be included in multiple categories. For example, the word *we* would be placed in 4 word categories; first person plural, personal pronouns, total pronouns and social processes. The LIWC2007 dictionary was able to classify 88.07% of words on average within the narratives in the present study (*SD* = 4.98%). This was judged to be a sufficient level to continue analysis; on average LIWC2007 captures approximately 86% of words (Pennebaker et al., 2007).

A detailed coding scheme was also applied in order to assess characteristics of the narratives which could not be accessed using LIWC (i.e., those requiring contextual understanding of the description, rather than word-level analysis). These included the level of nostalgia contained within each narrative, expressions of companionship and the amount of social interaction described in each narrative (see Appendix A for the original coding scheme). Coders were blind to the experimental condition (nostalgic versus ordinary) of the narratives. In a pilot study (N = 20), I established acceptable inter-rater reliabilities of between r = .62, p = .004 and r = .87, p < .001 (mean r = .77) for items in the coding scheme. This confirms that coders who have been trained to use the scheme can effectively and reliably assess the dimensions of interest.

Results

Social Content

First, I examined the six socially-relevant output variables generated by LIWC: social processes (a total index including words relating to close others, social pronouns, and verbs suggestive of human interaction), friends (e.g., *buddy*, *friend*, *neighbour*), family (e.g., *daughter*, *husband*, *aunt*), humans (references to people but not specifically close others, e.g. *adult*, *baby*, *boy*), first person singular pronouns (e.g. *I*, *me*, *mine*) and first person plural pronouns (e.g. *we*, *us*, *our*). Next, I examined coded levels of social interaction and companionship within the narratives. Table 1 presents examples of high- and low-scoring narratives for each of the coding scheme items.

LIWC. Analysis of the overall content relating to social processes revealed significant differences between the narratives. Specifically, nostalgic narratives contained more frequent references to social processes than ordinary narratives. Means and standard deviations are presented in Table 2. Next, I examined three specific subsets of social words; namely those referring to family, friends and humans. These analyses

revealed that family-related words appeared significantly more frequently in nostalgic than ordinary narratives. However, there were no differences between the narratives in use of friends-related or humans-related words.

Next, I examined pronoun use. On average, ordinary narratives contained a higher frequency of first person singular pronouns than nostalgic narratives, suggesting that participants displayed greater self-focus when they recalled ordinary events. Conversely, first person plural pronouns were more frequent in nostalgic than ordinary narratives, suggesting that participants were more socially-focused when they recalled nostalgic events. Consistent with previous research (Pennebaker & King, 1999), supplementary analyses revealed that frequency of first person singular and plural pronoun use was negatively correlated in both ordinary and nostalgic narratives (Table 3).

Coded. Examination of the coded levels of social interaction within the narratives revealed that on average, nostalgic narratives contained more frequent references to social interaction than ordinary narratives. Finally, I examined coded levels of companionship expressed in the narratives. Once again, analyses revealed that nostalgic narratives contained more expressions of companionship than ordinary narratives.

Correlations between the LIWC and coded dimensions. In order to understand more fully the similarities and differences between coding methods on the outcome measures, I next examined the correlations between the LIWC- and manual-coded dimensions. Table 3 presents the mean of the correlation coefficients for each pair of language dimensions within ordinary and nostalgic narratives. Notably, I observed that coded levels of vividness (i.e., "lively description, frequent use of adjectives, extensive use of imagery") were significantly related to word count. That is, longer narratives also tended to be more vividly-described[1]. In addition (and as expected), coded levels of social

[1] However, supplementary analyses of this and all coded dimensions confirmed that controlling for word count did not change the findings.

interaction and companionship were related to LIWC's global measure of social processes and family-related words. The frequency of friends-related words was also associated with coded levels of companionship. These findings confirm that the more content-level dimensions of LIWC did match ratings of judges using the coding scheme. Perhaps unsurprisingly, given that they potentially relate to lesser-known or unknown others, the frequency of words describing other humans (e.g. adult, baby, boy) was not associated with feelings of companionship or descriptions of social interaction. Finally, patterns of pronoun use were not correlated with coded social interaction or companionship.

Narrative Characteristics

Finally, I examined general characteristics of the narratives in order to form a more complete picture of the differences between nostalgic and ordinary memories in older adults. Analyses of the narrative word counts revealed that participants wrote significantly more about nostalgic than ordinary events. In addition, these nostalgic events were coded as more vividly-described than ordinary events. Two items in the coding scheme addressed the extent to which the participants expressed nostalgic feelings in their narratives (narrative nostalgia), and the extent to which the narratives made the coder feel nostalgic (coder nostalgia). Analyses revealed significant differences on both indexes of nostalgia; nostalgic narratives contained greater expressions of nostalgic feelings and conferred greater nostalgia on the coder than ordinary narratives. A supplementary correlational analysis revealed that ratings of narrative and coder nostalgia were highly correlated in both ordinary and nostalgic narratives (Table 3). This suggests some degree of vicarious nostalgia; greater written expressions of nostalgia produced greater feelings of identifiable nostalgia in those who read them. Further, because coders were blind to the condition of the narrative (nostalgic versus ordinary) they were asked to indicate their judgement of which type of event the participant was

describing. This allowed me to assess whether the narrative types were easily distinguishable. Results suggested that this was the case; 100% of the nostalgic narratives and 92.31% of the ordinary narratives were correctly classified. Overall, this demonstrated a 96.15% accuracy rate in classification of the narratives.

Discussion

The Social Orientation of Nostalgic Memories

Examination of the nostalgic and ordinary narratives demonstrated that nostalgia is socially-oriented in older adults, containing more social language, references to close others and descriptions of social situations than ordinary narratives. Specifically, nostalgic narratives contained more frequent words relating to social processes and family, more frequent first person plural pronouns, greater levels of social interaction and stronger expressions of companionship than ordinary narratives. Furthermore, nostalgic narratives contained less frequent use of first person singular pronouns, suggesting less self-focus and more focus on others (e.g. Chung & Pennebaker, 2007). These findings further highlight the strong social orientation of nostalgic recollections, and extend previous findings (e.g. Holak & Havlena, 1992, 1998; Robertson et al., 2011; Wildschut et al., 2006) by demonstrating that in older adults, nostalgic recollections are more socially-oriented than ordinary autobiographical event recollections.

The findings are also informative at a methodological level in terms of generating specific understanding of how LIWC can assess sociality. That is, it is accepted within the language literature that examining the patterns of singular and plural pronoun use in a text can give insight into the social orientation and integration of the author (Chung & Pennebaker, 2007; Pennebaker & Stone, 2003; Stone & Pennebaker, 2002; Rude et al., 2004; Stirman & Pennebaker, 2001). Although this method has face validity, how would it relate to coded social content from another source? Consistent with expectations, I found

associations between the ratings awarded by judges and the LIWC-generated codings which aimed to access content, such as family and friends-related words. This is reassuring, because one of the major cited weaknesses of the word-level approach employed by the LIWC software is that it codes each word independently, hence is unable to account for content or meaning (Chung & Pennebaker, 2007). The results suggest that LIWC was able to capture and report the social content of the narratives accurately in the current study. Perhaps this was due to the context in which participants produced their narratives; although they were free to complete the study in a setting and at a time convenient to them, the consent form and study materials made salient the fact that this was a scientific study. In more spontaneous, informal language production, LIWC's disregard for context and linguistic devices such as sarcasm, irony and colloquialisms would likely be a greater potential problem.

Conversely, although the findings relating to pronoun use and coded social content evinced the same conceptual pattern (i.e., both sets of results suggested that nostalgic narratives were more socially-oriented), the LIWC coded pronouns and manually coded social language dimensions were not correlated within the narratives. Perhaps this is not surprising, given that previous work has suggested that function words convey meaning to which readers cannot or do not attend (Chung & Pennebaker; Newman et al., 2003; Rude et al., 2004). However, what this finding does suggest is that each coding method was able to access different indicators of social content within the narratives in order to reach the same overall conclusion. Ultimately, this highlights the value of combining LIWC coding with judges and a coding scheme in order to corroborate and strengthen language-based findings.

Narrative Identification and a Potential Emotion Contagion Effect

The findings suggested that coders of the narratives displayed high levels of accuracy in their identification of nostalgic versus ordinary memories. Not only were they able to classify the memory correctly in approximately 96% of cases, they also reported higher levels of their own nostalgia in response to the nostalgic narratives. Taken together, these findings indicate that nostalgia is easily identifiable (likely through its unique combination of sociality, cognition and emotion; Hepper et al., 2012; Sedikides, Wildschut & Baden, 2004) and communicable to others. This second finding certainly warrants further investigation, as it implies that nostalgia may be characterised as a transferrable affective experience. Undoubtedly, these findings point even further to the social nature of nostalgia. But what might be the limits of this potential affect transfer effect? The findings in the present study point towards feelings of nostalgia being shared through written texts. Might the same effects be observed during oral sharing of memories; further, how might this process operate? The literature suggests that affect transfer could occur in one of two ways: through emotional contagion or social appraisal. During emotional contagion, one's emotional state directly influences another person's without their conscious awareness (e.g. Hatfield, Cacioppo & Rapson, 1994). Applied to the current research, this would mean that the nostalgia conveyed through the narratives was sufficient to produce feelings of nostalgia in the coder. During affect transfer based on social appraisal, one's emotional state influences another person's by causing them to reappraise their environment (e.g. Manstead & Fischer, 2001). Applied to the current research, this might imply that the nostalgic events described in the narratives triggered the coders to engage in appraisal of their current life circumstances compared to past, idealised life circumstances, resulting in feelings of nostalgia. A further possible explanation might be that reading about the participants' nostalgic memories triggered similar nostalgic recollections in the coder. This is certainly plausible, given the

commonalities which have been observed in the nostalgic experience (Holak & Havlena, 1998; Wildschut et al., 2006; Hepper et al., 2012; Hepper, Wildschut et al., 2013). Undoubtedly, it would be adaptive for nostalgia to be an easily-transferred emotion, given its positive affective signature and capacity for producing positive outcomes (e.g., Wildschut et al., 2006). Future research could examine the potential of this preliminary finding further.

General Characteristics of the Narratives

The findings revealed that ordinary and nostalgic narratives did not just differ in their levels of social content, but also in more fundamental ways which might represent differences in how the memories were recalled and appraised (Stephan et al., 2012). First, nostalgic narratives were on average approximately 13 words longer than ordinary narratives. Although this difference in narrative length has not been observed in prior research (Wildschut et al., 2013), it did not pose a problem in the current research because LIWC works on a percentage basis. This meant that the output was not based solely on raw frequency scores of each language dimension, but on these frequency scores as a function of the total narrative word count. The manual coders were also instructed to work on this basis; that is, they coded for global expressions of nostalgia and social content. Indeed, supplementary analyses on the coded language dimensions revealed that controlling for word count did not change the findings; the greater levels of vividness, narrative nostalgia, coder nostalgia, social interaction and companionship in nostalgic than ordinary narratives could not be explained simply by the length of the narratives.

More interesting, though, is that the nostalgic narratives were coded as more vividly-recalled than the ordinary narratives, and that word count and vivid recall were positively correlated in both nostalgic and ordinary narratives. Perhaps this reflects that participants felt they had more to disclose in the nostalgia condition because they recalled

particular details of their nostalgic memories more vividly. Alternatively, perhaps participants chose well-rehearsed nostalgic memories, and this subsequently enhanced the vividness of their recall and their descriptions of the event details. Finally, perhaps participants were simply more motivated to write longer descriptions of their nostalgic memories as they were likely more inherently interesting to them, given their nostalgic status. However, it is important to note that previous research has assured that ordinary autobiographical memory is not affectively flat or negative; rather its affective signature is predominantly positive (Wildschut et al., 2010, 2013). Thus, the comparative levels of rehearsal of ordinary versus nostalgic memories may be a fruitful direction for future research. Are people inclined to rehearse nostalgic memories more frequently to themselves and as part of social sharing and storytelling (e.g. Alea & Bluck, 2003; Bluck, Alea, Habermas & Rubin, 2005; Walker, Skowronski, Gibbons, Vogl & Ritchie, 2009)?

Methodological Strengths and Limitations

One potential weakness of the current study was in the sample composition, which had a relatively low mean age of 60 years (albeit with participants aged up to 83 years). Given that past research has demonstrated the impact that small differences in age sampling can have on research in older adults (Baltes, 1998; Carstensen, Pasaputhi, Mayr & Nesselroade, 2000), it may be beneficial for future research to confirm that these findings are replicable in a larger sample of the oldest-old. Furthermore, the current sample did not include a comparison group of younger adults. That is, the current findings replicate and extend prior findings in younger adults (e.g. Holak & Havlena, 1992, 1998; Robertson et al., 2011; Wildschut et al., 2006) by demonstrating that relative to ordinary autobiographical memories, nostalgia is highly social in older adults. However, it may also have been interesting to examine potential age differences in the content of nostalgic versus ordinary memories by including an additional group of younger participants. This

could be informative in demonstrating whether the relative difference in sociality of nostalgic and ordinary memory was consistent across the lifespan, or whether, for instance, nostalgia is *particularly* social in older adults. Although examination of this question was beyond the scope of the current, preliminary study, future research could seek to explore this issue further.

The current study also had several significant strengths. First and foremost, it provided a novel perspective on older adults' nostalgia by examining language use as an implicit measure of the content of nostalgic memories. A great strength of this methodology is that it eliminates the need for self-report and reduces problems caused by participants who are unwilling or unable to articulate their internal emotional states; "language use can serve as a proxy for personality and developmental processes that bypass the usual concerns of self-reports" (Pennebaker & Stone, 2003, p. 299). Furthermore, the present study highlighted the advantages of combining computerised LIWC analysis with judges using a detailed coding scheme. LIWC analysis is an efficient, objective and unbiased method for examining content and linguistic style. However, in some circumstances it is prone to miscoding of words because it cannot interpret overall context or meaning (Chung & Pennebaker, 2007). Indeed, this was why the use of the coding scheme in conjunction with the LIWC analysis was a significant strength. Judges using the coding scheme were able to make global ratings of the content and meaning of the narratives while accounting for context and linguistic devices such as colloquial language, sarcasm and homonyms. In all, this combination of coding methods resulted in a well-rounded assessment of the explicit meaning and subject matter of the narratives (from the coders) and the implicit content of the narratives (from the LIWC coding).

Concluding Comments

Nostalgic memory has a strong social orientation in older adults and serves a whole range of adaptive functions for the self and others through its capacity to bring others psychologically closer. Waxing nostalgic may even diffuse these benefits to others. Far from being a form of grief, disease, psychosis or depression (Castelnuovo-Tedesco, 1980; Hofer, 1688/1934; Kaplan, 1987), older adults' nostalgic recollections have great potential in meeting social and emotional goals in later life.

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Table 1. *High- and Low-Scoring Narrative Examples for the Coded Language Dimensions.*

Dimension	Item	High scoring example	Low scoring example
Social interaction	Degree of social interaction recalled (*0* = minimal, i.e. none/very little, lacking detail, *3* = very much, i.e. detailed anecdotes)	I enjoy with fond memories the Sunday lunch times when I would meet up with my father and our close friends in the village pub prior to having Sunday lunch at Mum's. We enjoyed a few beers while righting the wrongs of the world and extolling or criticizing the virtues of the West Indies cricket team. Part of the tradition was to buy a bottle of Man's brown ale for Mum to have with her lunch. Those were great days and I remember them with great happiness. Oh how sad that those days are gone.	About 10 years ago, I decided to climb Hay Stacks again on my own. I met nobody on the way up or down or on the summit. It was a still day. The mirrored tarns reflected the surrounding rocks and the view of Buttermere and the North Western fells was superb. I sat and gazed for a long time, taking in the beauty and peacefulness of my surroundings. It brought back memories of another, different life and it made me sad as I knew I was never likely to see that view of the top of Hay Stacks again.

Dimension	Item	High scoring example	Low scoring example
Companionship	Degree of companionship expressed in description as a whole, e.g. appreciation at not being alone, the sharing of things, a sense of belonging, joy at the togetherness in itself (*0* = none, *3* = very much, i.e. strongly expressed)	A day spent with my son on his return from two years abroad – a coastal walk on a warm summer day in a beautiful landscape – Devon. I was happy to be having a pleasant time with my son – family relationships with him had not always been free of aggravation. I was pleased that neither of us needed to show any antagonism or arrogance. I felt no fear of being totally open and honest with him. We discussed many subjects in this manner. We were unhurried and sat above a marvellous seacliff in wonderful conditions which we were both able to share before his departure once again to his family and home in Australia.	I recently went to hospital as an inpatient for the first time in my life. It was an experience that put me outside of my comfort zone. I had to put myself in the hands of complete strangers and had little control over what happened.

Dimension	Item	High scoring example	Low scoring example
Vividness	How vivid is the description? (*0* = minimal, i.e. plain narrative, minimal imagery, minimal use of metaphors, *3* = very, i.e. lively description, frequent use of adjectives, extensive use of imagery)	Every Christmas Eve my very English father kept his promise to my very Welsh mother as he drove our family of five to Swansea. My favourite Aunt and Uncle greeted our sleepy family with hugs and kisses and welcomed us into their cosy kitchen warmed by a raging aga. The next day the house filled with merry chaos of up to forty feasting relatives. Afterwards aunts clattered and chattered in the kitchen, uncles with brandy exchanged stories whilst 12 giggling cousins chased and skidded around the polished tiled floor in the hall. As dusk fell the whole ensemble crowded into the huge lounge in front of a glowing fire. All fell silent as a faint tinkling of bells could be heard. Twelve wide-eyed cousins watched as Santa stomped; boots, sack and presents into the room. The experience was magical, treasured and never forgotten.	I recall a shopping trip to Wembley with my parents. We went by car. I was allowed to choose several things to wear in C&As including a red pinafore and checked blouse. I felt really happy with my new things. We went and had lunch and I had a prawn cocktail which I thought was great.

Dimension	Item	High scoring example	Low scoring example
Narrative nostalgia	To what extent did the author feel nostalgic? (*0* = not at all, *3* = very much)	I was married 60 years ago; our wedding day was very nostalgic, so simple but a very happy occasion. The reception was in my parents' little front room. Money was very short in those days, but we had saved enough to have a honeymoon in a small hotel in Buckinghamshire. Not many people could afford cars in those days, so we had to travel by train to get there. On returning home which was with my parents in Margate we had just one penny left between us, well until our next pay day. My husband made a hole in this penny, and has carried it on his key ring ever since. It is now so thin and shiny, but it has so many nostalgic memories and people love hearing the story.	I looked out of the window, surveyed the back garden and decided reluctantly that as the weather was dry, the grass green but long, that I should mow the lawn. I collected the mower from the garage and set to work. I felt resentful of having to do this chore as I really just wanted to sit in the nice warm conservatory reading my book. I cut the grass, dead headed flowers, watered some dry pots, cleaned the mower and the re-arranged my pots of red dahlias so they would be in full view of the kitchen window. I admired the neater lawn and beautiful flowers and felt pleased with the result but disappointed that now the sun was less hot, the day shorter and soon time for dinner and I still hadn't started my book.

Dimension	Item	High scoring example	Low scoring example
Coder nostalgia	To what extent did the narrative make you feel nostalgic? (*0* = not at all, *3* = very much)	A lovely warm glowing and happy feeling when thinking about a weekend about 20 years ago. We had a large marquee in the garden, and on Saturday night had lots of people from our firm for a games night. Great fun, good food, and everyone friendly. Next afternoon, did tea for parents (gold wedding), lots of family and friends mainly older people, after tea they decided to do 'Olde Tyme Dancing' and stayed very late. Children did a little show for them, and everyone laughed, reminisced and went home late but happy.	Going to the supermarket to buy food for a birthday party. The weather was windy and it was also raining and it was difficult to find a car parking space in the supermarket car park without getting wet. This outing should have been straightforward but it was spoilt by the weather. I was worried about the supermarket goods getting wet as I took them back to the car.

Table 2. *Means (Standard Deviations) for the LIWC and Coded Language Dimensions.*

Language dimension	Nostalgic	Ordinary	*t* (38)	Cohen's *d*
LIWC social content				
Social processes	9.46 (4.51)	5.28 (4.35)	4.27***	0.94
Family	1.92 (1.90)	0.57 (1.16)	4.33***	0.86
Friends	0.34 (0.63)	0.29 (0.68)	0.30	0.08
Humans	0.94 (1.16)	0.55 (0.94)	1.58	0.37
First person singular	5.20 (4.17)	7.22 (3.76)	-2.97**	0.51
First person plural	2.40 (2.65)	0.85 (1.73)	4.17***	0.69
Coded social content				
Social interaction	1.33 (1.18)	0.64 (1.04)	3.32**	0.62
Companionship	1.59 (1.09)	0.51 (0.85)	5.15***	1.10
Narrative characteristics				
Word count	107.90 (48.56)	94.97 (35.15)	2.27*	0.31
Vividness	1.90 (1.02)	0.74 (0.91)	6.93***	1.19
Narrative nostalgia	2.54 (0.76)	0.41 (0.82)	13.59***	2.68
Coder nostalgia	1.64 (1.14)	0.23 (0.58)	7.43***	1.56

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3. *Zero-order Correlations among the LIWC and Coded Language Dimensions.*

	1	2	3	4	5	6	7	8	9	10	11	12
LIWC dimensions												
1. Word count	--											
2. Social processes	.24	--										
3. Family	.12	.58***	--									
4. Friends	-.14	.32*	-.04	--								
5. Humans	.18	.38*	.16	.12	--							
6. First person singular	-.14	-.32*	-.01	-.09	-.03	--						
7. First person plural	.10	.59***	.22	.15	.04	-.37*	--					
Coded dimensions												
8. Vividness	.45**	.20	.18	.22	.04	-.29	.07	--				
9. Narrative nostalgia	.25	.10	.26	.15	.07	-.11	-.07	.53***	--			
10. Coder nostalgia	.30†	.06	.12	.13	.13	-.09	-.07	.40*	.66***	--		
11. Social interaction	.35*	.43**	.37*	.12	.17	-.04	.02	.35*	.29	.06	--	
12. Companionship	.19	.54***	.53***	.33*	.14	-.17	.22	.31†	.27	.15	.62***	--

Note. † $p < .07$, * $p < .05$; ** $p < .01$; ***$p < .001$. Each cell represents the mean Pearson's *r* correlation coefficient across ordinary and nostalgic narratives ($N = 39$).

Chapter 3: Nostalgia across the Lifespan

This chapter will present a study which examines how nostalgia relates to a multi-faceted measure of psychological wellbeing in younger and older adults. In Chapter 2, I examined the nature of nostalgia in older adults, with particular attention towards levels of sociality expressed in nostalgic memories. Now, I expand my perspective to consider how nostalgia might convey feelings of wellbeing in those who engage it in regularly. Many studies have examined the positive short-term functions that nostalgia can serve when induced experimentally (e.g. psychological growth, optimism, positive affect, social connectedness and meaning; Baldwin & Landau, 2013; Cheung et al., 2013; Routledge, Wildschut, Sedikides, Juhl & Arndt, 2012; Wildschut, Sedikides, Arndt & Routledge, 2006), but fewer have examined how individual variations in the frequency of nostalgia (i.e., nostalgia proneness) might relate to positive outcomes (e.g. nostalgia proneness as a buffer against existential threat; Juhl, Routledge, Arndt, Sedikides & Wildschut, 2010). To my knowledge, no research has examined nostalgia proneness in the context of global measures of longer-term wellbeing. I consider this issue in the current chapter using a lifespan sample.

Distinguishing between State and Trait Nostalgia

A broad distinction can be drawn between the two categories of research investigating nostalgia in recent years; those studies which have examined the powerful (but short-term) effects of nostalgia when it is induced experimentally, and those studies which have examined the correlates of nostalgia proneness in everyday life. Prior research has demonstrated that levels of nostalgia proneness in everyday life are relatively stable and show meaningful individual differences (Batcho, 1995; Wildschut et al., 2006), which are associated with personality variables, particularly the need to belong (Seehusen et al., 2013). Some research has also suggested the presence of gender

differences in nostalgia proneness (e.g. Best & Nelson, 1985; Kusumi, Matsuda & Sugimori, 2010), although these findings have variously suggested males and females to be the most nostalgia prone. Indeed, the majority of research has demonstrated no gender differences in nostalgia proneness (Batcho, 1995; Routledge et al., 2011, 2012; Wildschut et al., 2006; Zhou, Sedikides, Wildschut & Gao, 2008).

Even amongst individuals who may not naturally engage in nostalgic reflection regularly, the experience of nostalgia can be induced using a validated memory recall task (e.g. Hepper, Ritchie, Sedikides & Wildschut, 2012; Routledge, Arndt, Sedikides & Wildschut, 2008; Wildschut et al., 2006). The great methodological strength of studies which have examined experimentally-manipulated nostalgia is that they allow causal inferences, but their weakness is that they ignore individual differences in baseline levels of nostalgia. That is, they do not account for how intensely and frequently nostalgic participants tend to feel in everyday life. For these reasons, it is useful for research to examine the causal outcomes of state-level nostalgia but also the correlates of trait-level nostalgia, because it is more ecologically valid. In the current chapter, I examine how nostalgia proneness relates to wellbeing. In the following chapter, I then extend my focus to examine state nostalgia and its relation to wellbeing.

Wellbeing in Older Age

The stereotype of an older person who is lonely and unhappy is a prevalent one. However, the majority of research suggests that poor adjustment in older age is the exception rather than the rule (Scheibe & Carstensen, 2010). Indeed, evidence suggests that older adults remain socially integrated, happy and fulfilled well into older adulthood. I shall review this evidence now.

Psychological wellbeing is a multidimensional construct measured by the levels of positive social relations (warm, satisfying and trusting relationships, the ability to feel empathy, affection and intimacy), personal growth (openness to new experiences,

continued development reflecting self-awareness), purpose in life (the presence of goals and direction, the belief that there is meaning in life), self-acceptance (positive attitudes towards the self, acknowledgement of good and bad personal qualities, positivity about the past), autonomy (independence, the ability to resist social pressure, evaluation of the self by personal standards), and environmental mastery (a sense of competence and control over the environment) a person experiences. Theoretically, these dimensions together reflect the extent to which a person is fulfilled and functioning positively. Ryff (1989a) found that most dimensions of wellbeing remain stable (self-acceptance and positive relations) or even increase (autonomy and environmental mastery) across the lifespan. In addition, the expectations that people hold for their ideal selves on all dimensions of eudaimonic (optimal) functioning decline significantly between young, middle and older adulthood (Ryff, 1991). Accordingly, the self-discrepancies that older adults experience are less than those experienced by younger and middle-aged adults because there is less of a disparity between their current and ideal selves. This adjustment in expectations may be an example of a self-directed secondary control strategy favoured by older adults which helps them to manage losses and to cope with age-related challenges over which they have little control (Heckhausen, 1997; Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996). In sum, older adults function as well or even better than younger adults on most dimensions of psychological wellbeing. They also appear to have more realistic goals than younger adults, which mean they can match more closely their own expectations of optimal functioning.

Multiple studies have also reported a more favourable balance between positive and negative affect in older adults (Barrick, Hutchinson & Deckers, 1989; Carstensen, Pasaputhi, Mayr & Nesselroade, 2000; Charles, Reynolds & Gatz, 2001; Mroczek & Kolarz, 1998; Ryff, 1989a). This balance is sometimes characterised by a lifespan increase in positive affect (Mroczek & Kolarz, 1998), and sometimes by reductions in negative affect combined with stability in positive affect (Barrick et al., 1989; Carstensen et al., 2000;

Charles et al., 2001). These variations may reflect differences in the types of positive affect measured (e.g. excitement versus contentment; Carstensen et al., 2000), but overall these studies paint a picture of a person who tends to experience greater happiness relative to sadness in later life.

When older adults *do* experience negative affect, it is more often in combination with positive affect in the form of poignancy, which tends to be experienced when a meaningful ending is anticipated (Carstensen et al., 2000, 2011; Ersner-Hershfield, Mikels, Sullivan & Carstensen, 2008). Indeed, the socioemotional selectivity theory (Carstensen, Isaacowitz & Charles, 1999) posits that these complex emotional experiences are adaptive and enable older adults to elicit meaning and to savour what they have; "boundaries on time imposed by human mortality elicit complex emotional reactions in later life that are better characterised by poignancy than happiness. People realise not only what they have but also that what they have cannot last forever" (Carstensen et al., 2000, p. 653). In line with the co-activation model of health (Larsen, Hemenover, Norris & Cacioppo, 2003) mixed affect can even attenuate levels of health decline during older adulthood (Ersner-Hershfield, Scheibe, Sims & Carstensen, 2013).

Research findings relating to social integration are also encouraging and suggest that older adults tend to experience less loneliness than younger people (Larson, 1978; Revenson & Johnson, 1984). Taken together, these levels of adaptation as measured by levels of eudaimonic functioning, subjective wellbeing and social integration are impressive, given that older people often face very real psychosocial threats such as vastly reduced social network size (Lang & Carstensen, 1994; Victor, Scrambler, Bowling & Bond, 2005). Indeed, this apparent incongruity between circumstances and wellbeing in older age has come to be referred to as the paradox of aging (Kunzmann, Little & Smith, 2000).

Socioemotional Selectivity as a Means of Promoting Wellbeing in Older Age

The socioemotional selectivity theory provides one possible explanation for the maintenance or even enhancement of wellbeing in older age (Carstensen et al., 1999). This theory predicts that people who perceive their time as limited (including, but not solely, older people) will prioritise goals with immediate benefits such as having meaningful relationships over information-related, future-oriented goals such as learning new skills. Evidence to support the socioemotional selectivity theory comes from studies which have examined changes in social preferences of people with limited or expansive time (Fredrickson & Carstensen, 1990; Fung, Carstensen & Lutz, 1999; Fung, Lai & Ng, 2001), and the emotional or informational dimensions on which social partners are classified (Carstensen & Fredrickson, 1998). People with limited time tend to classify potential social partners on emotional rather than informational dimensions, and prefer to spend time with close others. While younger adults (or those with expansive time perception) may delay satisfaction in order to meet future goals, older people (or those with limited time perception) are less focused on the future and more focused on in-the-moment satisfaction and time spent with meaningful others. Prioritising goals which maximise current satisfaction may help to ensure continued wellbeing and adaptation even in the face of age-related challenges.

Indeed, research findings have provided insight into how older adults might achieve wellbeing through this shift in priorities towards meaningful relationships and emotion regulation. Consistent with the predictions of socioemotional selectivity theory, Urry and Gross (2010) argued that older adults adapt by capitalising on emotion regulation resource gains (e.g. a close social network) to compensate for resource losses (e.g. changes in cognitive abilities). In this way, older adults are able to regulate their emotional experiences effectively well into older age. Research also suggests that older adults are motivated to dedicate greater resources to emotion regulation than younger adults (Knight et al., 2007) and accordingly possess enhanced abilities in emotion

regulation (Gross et al., 1997). These enhanced abilities have been demonstrated using diverse methodologies, including self-report, experience-sampling, eye-tracking, memory recall and binocular rivalry tasks. For instance, experience-sampling data has shown that older adults show greater stability in positive emotion states over time, but instability in negative emotion states (Carstensen et al., 2000). This suggests that they are able to regulate their emotional experiences, thereby maintaining positive affect and limiting negative affect. Older (but not younger) adults also evidence attentional bias towards happy faces following a negative mood induction, which might reflect attempts at mood regulation (Isaacowitz, Toner, Goren & Wilson, 2008). Furthermore, older (but not younger) adults inhibit angry faces in favour of happy faces in binocular rivalry tasks (Bannerman, Regener & Sahraie, 2011), and show a bias towards recall and recognition of positive and neutral images to the detriment of negative images (Charles, Mather & Carstensen, 2003). Taken together, these findings support the presence of a positivity bias and efficient emotion regulation in older adulthood.

Evidence relating to social relationships also provides insight into how older adults might achieve wellbeing through a shift in priorities towards meaningful relationships. Cacioppo et al. (2008) found that happiness increases with age (consistent with other findings described above), but also that these levels of happiness were associated with the presence of satisfying social relationships and levels of intimacy. Importantly, though, levels of happiness were not associated with social network size, demonstrating that happiness for older adults is determined by the quality, not quantity of social relationships. In the context of a diminishing social network, older people are able to compensate by savouring fewer close relationships (Lang & Carstensen, 1994), thus fulfilling their social needs and avoiding loneliness (Larson, 1978; Revenson & Johnson, 1984). Another way in which older people could fulfil their social needs is via indirect strategies, so categorised by Gardner, Pickett and Knowles (2005). These strategies comprise using symbolic reminders of social bonds (e.g. looking at photographs or

recalling socially oriented memories) rather than direct social contact to meet belongingness needs. Thus, nostalgia could be characterised as an indirect social strategy, harnessed in the service of the need to belong (Wildschut, Sedikides, Routledge, Arndt & Cordaro, 2010). In the current study, I examine nostalgia as a likely candidate for promotion of socioemotional goals in adulthood.

Nostalgia as a Functional Response to Challenges in Older Age

I propose that nostalgia might be one way to fulfil social and emotional goals and to promote wellbeing in older adults. Memory is already acknowledged as instrumental in adaptive aging (e.g. through the processes of life review and narrative construction; Butler, 1963; McAdams, 2001; Pasaputhi & Carstensen, 2003) and nostalgia in particular serves functions which are highly-relevant to successful adaptation to older adulthood and its accompanying perceptions of limited time. First, nostalgia has the potential to serve emotion regulation functions; state nostalgia promotes positive affect (Baldwin & Landau, 2013; Hepper et al., 2012; Stephan, Sedikides & Wildschut, 2012; Verplanken, 2012; Wildschut et al., 2006, 2010) although often in combination with negative affect (Barrett et al., 2010; Wildschut et al., 2006). In view of older adults' propensity for and tolerance of mixed affective states such as the feeling of poignancy (e.g. Carstensen et al., 2000), this is not necessarily a barrier to the use of nostalgia in the service of emotion regulation for older adults. Second, nostalgic memory is highly social and helps people to feel that others are close (e.g. Hepper et al., 2012; Wildschut et al., 2006, 2010). Third, nostalgia helps people to integrate their past and their present experiences and to feel that life is meaningful (e.g. Sedikides, Wildschut, Gaertner, Routledge & Arndt, 2008; Sedikides et al., 2013; Routledge et al., 2008).

In sum, considering nostalgia's mixed affective signature (Barrett et al., 2010; Robertson, Wildschut & Sedikides, 2011; Wildschut et al., 2006), combined with its status as an effective means of promoting relevant positive outcomes such as social

connectedness (e.g. Wildschut et al., 2010) and meaning (e.g. Routledge et al., 2008), I believe that nostalgia will be adaptive for older adults.

The Present Research

In the present study, I examine the association between nostalgia and psychological wellbeing in a lifespan sample of adults. I operationalise nostalgia as the degree to which participants engage in past-oriented longing. The dictionary definition of nostalgia, "a sentimental longing or wistful affection for the past" (*The New Oxford Dictionary of English*, 1998, p. 1266) suggests that longing is an important component of nostalgia. Furthermore, Hepper et al. (2012) established using diverse methods that longing was a central feature of a prototypical definition of nostalgia, and that asking participants to reflect on an event from their past which was characterised by feelings of longing subsequently increased their feelings of nostalgia. Feelings of longing form an integral part of the nostalgic experience.

Overall, I expect to find that age is more strongly and positively associated with wellbeing in highly nostalgia prone individuals than in those who are less prone to nostalgia. This is because I believe that lifespan increases in wellbeing may be partially contingent on nostalgia, because it is one adaptive way of fulfilling the prioritised emotion regulation and affiliation goals of older people. However, I expect that there may be some subtle variations in how nostalgia is related to the distinct dimensions of wellbeing across the lifespan. This is because first, past studies have found age-related changes in some dimensions of wellbeing (i.e. personal growth, purpose in life, autonomy and environmental mastery) but not others (i.e. positive social relations and self-acceptance; Ryff, 1989a), and second, prior evidence suggests that nostalgia is a more relevant contributor to some types of wellbeing than others. First, nostalgia promotes social connectedness (e.g. Wildschut et al., 2010), which should contribute to the positive social relations domain of psychological wellbeing; second, nostalgia promotes psychological

growth (Baldwin & Landau, 2013) which should relate to the personal growth domain; third, nostalgia promotes a sense of meaning (e.g. Routledge et al., 2008), which is a facet of the purpose in life domain; and fourth, nostalgia promotes positive self-regard (e.g. Vess, Arndt, Routledge, Sedikides & Wildschut, 2012), which should relate to the self-acceptance domain.

In line with previous findings (Ryff, 1989a), I expect that participants who are not prone to nostalgia will report stable levels of positive social relations and self-acceptance across the lifespan, but highly nostalgia prone participants will report enhanced positive relations with others and self-acceptance over the lifespan. Furthermore, prior research has suggested that personal growth and purpose in life decline in older adulthood (Ryff, 1989a). This is consistent with the socioemotional selectivity theory which predicts that future-oriented goal pursuit is not be prioritised when time is limited (Carstensen et al., 1999). However, older adults still perceive continued growth as an important contributor to wellbeing (Ryff, 1989b). I expect that nostalgia proneness will attenuate the normal age-related decline in personal growth and purpose in life.

Method

Participants

Two hundred and sixty-seven participants (138 female, 129 male) took part in the study. Participants were aged between 20 and 80 years (M_{age} = 50.79, SD_{age} = 17.51) and were resident in the United States. The data were collected as part of a larger cross-cultural study on the psychology of aging in Germany and the United States (Scheibe, Blanchard-Fields, Wiest & Freund, 2011).

Procedure

Participants who had agreed to take part in the study were sent a set of questionnaires before the main testing session in order to collect information on demographics and wellbeing. Psychological wellbeing was measured using the Ryff Wellbeing Inventory (Ryff, 1989a). The Ryff Wellbeing Inventory is a 54-item scale which measures wellbeing in terms of meaning, self-realisation and optimal functioning. Six subscales assessed positive social relations (e.g. "I know that I can trust my friends, and they know they can trust me"; α = .82), personal growth (e.g. "I think it is important to have new experiences that challenge how you think about yourself and the world"; α = .75), purpose in life (e.g. "I enjoy making plans for the future and working to make them a reality"; α = .80), self-acceptance (e.g. "When I look at the story of my life, I am pleased with how things have turned out"; α = .85), autonomy (e.g. "I have confidence in my opinions, even if they are contrary to the general consensus"; α = .72), and environmental mastery (e.g. "I have been able to build a home and a lifestyle for myself that is much to my liking"; α = .82). Responses were recorded on a 6-point scale (1 = *strongly disagree*, 6 = *strongly agree*). There were moderate to high correlations between subscales; coefficients ranged from *r* = .27 (autonomy and positive social relations) to *r* = .75 (self-acceptance and environmental mastery), mean *r* = .51. The subscales of the Ryff Wellbeing Inventory were also combined to form a composite measure of psychological wellbeing (α = .86; Keyes, Shmotkin & Ryff, 2002).

In the laboratory session, participants were asked to write a brief description of an important personal longing, defined as a "desire, dream, or wish for persons, objects, experiences, events, or conditions of life or the world that are intense, enduring or recurring, and very unlikely or not easily attainable at present". Next, participants completed a 7-item scale (α = .76) which assessed nature of their longing and the degree to which it was past-oriented, "My longing is related to people, things, experiences, or events in my past"; "I am longing to have something back from my past either now or in

the future"; "Through my longing I can compensate a bit for something missing in my real life"; "Experiencing my longing somewhat helps me get over something I have lost"; "Experiencing my longing to some degree compensates for something I cannot have in reality"; "In my longing I can live out something, which I have to do without in my life at present"; and "Through my longing I keep alive my memories of something in my past". Responses were recorded on a 6-point scale (0 = *strongly disagree*, 5 = *strongly agree*). These items were selected from the Life Longings Questionnaire (Scheibe, Freund & Baltes, 2007) to provide a face-valid assessment of nostalgia.

Analysis

I conducted multiple regression models predicting wellbeing from nostalgia, age (both mean centred) and gender (contrast coded). Specifically, I entered age, age^2 (to test for curvilinear effects), gender, nostalgia and the two-way interactions between nostalgia and each of the other three predictors. Although I had no specific hypotheses relating to gender in this study, I controlled for gender in the model as previous research has suggested that it is related to the positive social relations and personal growth dimensions of wellbeing (Ryff, 1989a). First, I examined each of the individual subscales of the Ryff Wellbeing Inventory (positive social relations, personal growth, purpose in life, self-acceptance, autonomy, and environmental mastery). Second, I examined wellbeing as a composite of all six subscales to identify how nostalgia and age related to psychological wellbeing in general. Relevant beta values are presented in Table 4.

Results

Positive Social Relations

The multiple regression analyses revealed that nostalgia marginally predicted positive social relations, and gender significantly predicted positive social relations.

Specifically, males (compared to females) and participants who were high (compared to low) in nostalgia tended to score lower on the measure of positive social relations. As predicted, the marginal main effect of nostalgia was qualified by a significant interaction with age.

The interaction between age and nostalgia on positive social relations is graphed in Figure 1 (panel a). To examine this further, I conducted simple slopes analyses (Aiken & West, 1991) to discover whether the relationship between age and positive social relations was significant for participants high (M + 1SD) and low (M - 1SD) in nostalgia. In highly nostalgic participants, age significantly predicted positive social relations, β = .26, t = 2.76, p = .006. However, in participants who were less nostalgic, this relationship was not significant, β = -.06, t = -0.72, p = .475. Increases in positive social relations across the lifespan were contingent on nostalgia. Partitioning the interaction the alternative way, I examined the simple slopes for the youngest (age 20) and oldest (age 80) adults in the sample. There was a marginally significant negative relationship between nostalgia and positive social relationships in younger adults (β = -.34, t = -1.87, p = .062), which became non-significant in older adults (β = .21, t = 1.00, p = .319). The relationship between nostalgia and positive social relations improved slightly across the lifespan, although it did not reach statistical significance.

Personal Growth

Age, age[2], gender and nostalgia did not predict personal growth, but analyses did reveal marginally significant interactions between age and nostalgia and between gender and nostalgia[2].

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[2] In order to break down the marginal interaction between gender and nostalgia, I conducted simple slopes analyses. First, I examined the relationship between gender and personal growth in high and then low nostalgia participants. In high nostalgia participants, gender was a marginally significant predictor of personal growth, β = -.16, t = -1.86, p = .064. However, in low nostalgia participants, there was no relationship between gender and personal growth, β = .08, t = 0.86, p

I conducted simple slopes analyses to examine the marginal interaction between age and nostalgia on personal growth, which is graphed in Figure 1 (panel b). The results showed that in highly nostalgic participants, personal growth remained stable across the lifespan, β = .02, *t* = 0.23, *p* = .822. However, in low nostalgia participants, increasing age was related to a decline in personal growth, β = -.22, *t* = -2.62, *p* = .009. This suggests that nostalgia might be protecting against declines in personal growth in older adulthood. Partitioning the interaction the alternative way, I examined the relationship between nostalgia and personal growth in the youngest and oldest adults in the sample. Although the relationship between nostalgia and personal growth appeared slightly improved between younger (β = -.15, *t* = -0.82, *p* = .415) and older adults (β = .28, *t* = 1.28, *p* = .202), it did not reach statistical significance in either group.

Purpose in Life

Nostalgia (but not age, age[2] or gender) negatively predicted purpose in life. Furthermore, the two-way interaction between age and nostalgia was significant.

I conducted simple slopes analyses to examine the interaction between age and nostalgia on purpose in life (Figure 1, panel c). First, I evaluated the relationship between age and purpose in life in participants who were high and low on nostalgia. In highly nostalgic participants, purpose in life remained stable across the lifespan, β = .13, *t* = 1.43, *p* = .155. However, in relatively low nostalgic participants, increasing age was related to a decline in purpose in life, β = -.19, *t* = -2.27, *p* = .024. This suggests that nostalgia might be protecting against a decline in purpose in life across the lifespan (as in personal growth). Next, I partitioned the interaction in the alternative direction to examine whether

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= .391. On average, being female with high nostalgia was associated with greater perceptions of personal growth. Next, I partitioned the interaction the alternative way and examined the relationship between nostalgia and personal growth in females and then males. These simple slopes did not reach significance; nostalgia did not significantly predict personal growth in females, β = .06, *t* = 0.54, *p* = .588, or in males, β = -.18, *t* = -1.51, *p* = .131.

nostalgia predicted purpose in life in younger and then older participants. The simple slopes analyses did not reach significance in either younger (β = -.29, *t* = -1.60, *p* = .111) or older adults (β = .28, *t* = 1.31, *p* = .191), although they did suggest that the relationship between nostalgia and purpose in life becomes slightly more positive across the lifespan, consistent with the patterns observed for positive social relations and personal growth.

Self-acceptance

Nostalgia and age^2 (but not age or gender) predicted self-acceptance. Specifically, participants who were highly nostalgic tended to score lower on self-acceptance. In addition, self-acceptance was high in young adults, decreased in middle adulthood and then increased once more in older adults. However, no significant interactions between the predictors were observed.

Autonomy

Age, age^2, gender and nostalgia did not significantly predict autonomy. Furthermore, there were no significant interactions between the predictors, suggesting that levels of autonomy did not differ according to age, gender or nostalgia.

Environmental Mastery

Nostalgia and age (but not age^2 or gender) significantly predicted environmental mastery. Specifically, participants who reported a high level of nostalgia tended to score lower on environmental mastery. In addition, participants reported higher levels of environmental mastery with increasing age. However, these main effects were not qualified by any interactions between the predictors.

Composite Measure of Psychological wellbeing

Analyses revealed that nostalgia (but not age, age^2 or gender) predicted overall psychological wellbeing; specifically, wellbeing was lowest in those who were high in nostalgia. However, this negative relationship was also qualified by a significant interaction between age and nostalgia on psychological wellbeing.

Next, I conducted simple slopes analyses to explore this interaction further. The pattern of results was most similar to that found for positive social relations. In participants who were high in nostalgia, there was a significant positive relationship between age and wellbeing, $\beta = .23$, $t = 2.42$, $p = .016$. However, this relationship was not significant for participants who were relatively low in nostalgia, $\beta = -.05$, $t = -0.61$, $p = .541$. This suggests that improvements in wellbeing across the lifespan are contingent on nostalgia. Partitioning the interaction the alternative way, I examined the relationship between nostalgia and positive social relations for the youngest and then oldest adults in the sample. These analyses revealed a marginally negative relationship between nostalgia and wellbeing in younger adults ($\beta = -.35$, $t = -1.87$, $p = .062$), and no relationship in older adults ($\beta = .14$, $t = 0.67$, $p = .506$). The relationship between nostalgia and wellbeing improved over the lifespan, though it did not reach statistical significance.

Finally, I aimed to establish whether the interaction pattern between age and nostalgia on wellbeing should be interpreted as subscale-specific or whether it was generalisable across domains of wellbeing. To do this, I examined the data in the context of a repeated measures analysis of variance (ANOVA) where the six subscales of the Ryff Wellbeing Inventory were entered as a within-subjects factor and age, age^2, gender and nostalgia (and their interaction terms) were entered as between-subjects factors. The ANOVA revealed that the interaction between age and nostalgia remained significant, F (1, 253) = 4.69, $p = .031$, $\eta\rho^2 = .018$, but crucially, this was not moderated by subscale, F (5, 1265) = 1.32, $p = .254$, $\eta\rho^2 = .005$. This implies that the interaction between age and

nostalgia is best interpreted as a generalised pattern which relates to multiple domains of wellbeing.

Discussion

The findings of this study demonstrated that nostalgia has a role to play in psychological wellbeing across the lifespan. Specifically, positive social relations increased across the lifespan, but only for those who were prone to nostalgia. In addition, personal growth and purpose in life were maintained in older adulthood, but only for those who were prone to nostalgia. Although the Age × Nostalgia interaction on the self-acceptance, autonomy and environmental mastery domains did not individually reach significance, analyses suggested that the interaction pattern should be interpreted as generalisable across domains of psychological wellbeing. Overall, then, lifespan gains in psychological wellbeing were contingent on nostalgia.

Summary of Findings

Positive social relations. Overall, positive social relations remained stable across the lifespan, replicating prior findings (Ryff, 1989a, 1991)[3]. Importantly, though, this stability was moderated by nostalgia proneness. Supporting my hypotheses, enhanced ratings of positive social relations across the lifespan were contingent on high nostalgia proneness. Meanwhile, there was stability in ratings of positive social relations in participants who were low in nostalgia proneness. This suggests that nostalgia may be a useful strategy in order to support and promote feelings of social connectedness towards older adulthood, consistent with the socioemotional selectivity theory (Carstensen et al., 1999). However, it is important to note that the cross sectional nature of the current data do not allow causal inferences to be made. Therefore, it may be that older adults who

[3] Also replicating prior findings (Ryff, 1989a, 1991), females tended to rate their positive social relations more favourably than males overall.

experience positive social relations are more prone to nostalgia because it reinforces their feelings of social connectedness, rather than nostalgia addressing a particular need in older adults.

Purpose in life and personal growth. I had hypothesised that there would be a general decline in personal growth and purpose in life across the lifespan, which would reflect how older adults become more present-oriented and less future-oriented as they perceive their time to be limited, in line with the socioemotional selectivity theory (Carstensen et al., 1999). This was the case, although these age-related declines in personal growth and purpose in life did not reach statistical significance (and, importantly, they were moderated by nostalgia proneness)[4]. As predicted, age was negatively associated with purpose in life in low nostalgia prone participants, but maintained in highly nostalgic participants. Purpose in life encompasses future-oriented goals and direction, but also the feeling that there is meaning to life (Ryff, 1989a), and these findings reflect that nostalgia helps to maintain meaning in the face of limited time horizons, which is a prominent concern for older adults as mortality salience and even death anxiety become a threat (Juhl et al., 2010; Routledge et al., 2008, 2011, 2012).

A similar (but marginal) interaction pattern emerged for personal growth as for purpose in life, suggesting that nostalgia enables people to maintain the impression that they have developed and improved during their lifetime. This is consistent with research that suggests that nostalgia is characterised most often by redemption (as opposed to contamination) sequences (Wildschut et al., 2006). That is, nostalgic memories often entail recall of events which begin as challenging or difficult circumstances, but these circumstances are overcome to produce a positive outcome in the end. These findings also

[4] Furthermore, gender differences have sometimes (Ryff, 1989a), but not always (Ryff, 1991) been observed in levels of personal growth. Where differences have been observed, it is females who have scored highest on personal growth. In the current research, no main effects of gender on personal growth emerged, although I did observe a marginal interaction between gender and nostalgia, whereby being female with high nostalgia was related to highest scores on personal growth. So, the current findings are compatible with previous findings, although do not directly replicate them.

fit well with Davis' early conceptualisations of nostalgia's "capacity to locate in memory an earlier version of self with which to measure to advantage some current condition of the self. Typically the effect is that of leading the nostalgizer to infer … some such self-appraisal as 'look how far I've come'" (Davis, 1979, p. 45). More than this, though, these findings point towards nostalgia's potential to support continued development through purposefulness and a commitment to growth during older adulthood. For instance, participants endorsed items including, "I think it is important to have new experiences that challenge how you think about yourself and the world" (personal growth) and, "I am an active person in carrying out the plans I set for myself" (purpose in life). Given that prior evidence suggests that older adults tend to exhibit fewer purposeful behaviours directed towards personal development, for instance less of a desire to spend time with novel social partners who may have informational potential (Fredrickson & Carstensen, 1990), even though they still value growth and development as an important contributor to wellbeing (Ryff, 1989b), the current findings imply that nostalgia could be a highly useful strategy for older adults. Nostalgia may serve a protective function in older adults, whereby older age is no longer associated with declines in adaptive functioning in the domains of personal growth and purpose in life.

In sum, the findings reflect two broad patterns in the relationship between nostalgia, age and wellbeing; lifespan maintenance of personal growth and purpose in life and increases in positive social relations are contingent on nostalgia. However, despite the slight variations in the emphasis of these interaction patterns, it is worth noting that the analyses suggested that the pattern did not differ significantly across the subscales. Thus, the findings are best interpreted as relevant to more generalised eudaimonic functioning, rather than simply the individual domains of positive social relations, personal growth and purpose in life. The findings suggest that nostalgia is one way of fulfilling prioritised goals relating to emotion regulation, affiliation and the search for meaning in older adults. These results further reinforce previous findings that later life is

not necessarily unpleasant or lonely (e.g. Scheibe & Carstensen, 2010), contrary to popular stereotypes.

Self-acceptance, autonomy and environmental mastery. Contrary to Ryff's (1989a) findings, my results suggested that levels of self-acceptance do vary across the lifespan. Specifically, they appeared to be high in early adulthood, slightly decreased in middle adulthood, and then raised once again in late adulthood. Prior research has shown the smallest discrepancies between ideal and current levels of self-acceptance in older adults (Ryff, 1991), and the current findings are a further indicator of the promising picture in older adulthood. Indeed older adults themselves identify acceptance of change as an important contributor to wellbeing and effective coping during times of transition (Ryff, 1989b), so it is encouraging that I observed an increase in self-acceptance between middle and older adulthood. Although I did not replicate Ryff's (1989a, 1991) curvilinear increase in autonomy, I did observe the expected linear increase in environmental mastery across the lifespan.

Implications for Younger Adults

So far, I have discussed the findings in light of the positive implications for nostalgia, especially in older age. However, I cannot fail to acknowledge the less optimistic implications that the current findings have for younger adults. Specifically, analyses revealed a negative main effect of nostalgia on psychological wellbeing, as well as a marginally negative simple slope on psychological wellbeing in younger adults (see Figure 1). What, then, does this suggest about the role of nostalgia during younger adulthood?

Recent research has painted *state* nostalgia in an almost exclusively positive light (e.g. Baldwin & Landau, 2013; Cheung et al., 2013; Routledge et al., 2012; Wildschut et al., 2006), and many of these results were obtained in samples of younger, university-age adults. Yet, the current findings give us cause to consider whether nostalgia *proneness* is such a positive trait for younger adults to possess. While I do not mean to call these robust

prior findings into question, the current study does suggest that we should be cautious in applying knowledge about experimentally-induced state nostalgia to more everyday experiences of nostalgia. State nostalgia can be very beneficial in younger adults when used to address a specific need (e.g., preventing loneliness or protecting against self-esteem threat; Vess et al., 2012; Wildschut et al., 2006; Zhou et al., 2008), but the current findings suggest that nostalgia as a part of everyday life may be less adaptive for younger adults. That is, perhaps the optimal level of nostalgia which is not in response to a specific need is lower for younger than older adults. This may be because younger adults are better placed to make use of primary control strategies, defined as "bringing the environment into line with one's wishes" through direct action (Heckhausen & Schulz, 1995, p. 285), which are the first choice for self-regulation (Heckhausen, 1997; Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996). Given that primary control strategies are the most functional, perhaps an over-reliance on internal, secondary control strategies (such as nostalgia) is less adaptive when primary control strategies remain available. Indeed, prior research has suggested that younger adults who are highly resilient are able to recruit nostalgia strategically (i.e. only when necessary and in response to a specific need) in exactly this way; these individuals report feeling nostalgic only when they felt lonely and not otherwise (Zhou et al., 2008). However, other younger individuals who are less resilient may be over-reliant on nostalgia and thus not use it so selectively and strategically.

In contrast, the findings suggest that nostalgia may be a more consistently beneficial experience for adults at the older end of the age spectrum. Older adults may experience adaptive everyday nostalgia as one possible outcome of an on-going process of life review and reminiscence (Cavanaugh, 1989); "In the case of the elderly their nostalgia, rather than being a transient or episodic response to a problematic life situation, tends to be assimilated into a larger and more continuous process of reminiscence and assessment" (Davis, 1979, p. 69). In sum, turning to the past as a means of emotion regulation is

adaptive for older adults, but may prevent younger adults from making the kind of active changes to their environment which are required for continued growth, adaptation and wellbeing.

Limitations and Future Directions

This study was conducted using a large sample with a wide age range. However, future research could begin to explore the causal direction of the current findings, because the correlational nature of the study did not allow temporal or causal inferences. I believe that nostalgia serves wellbeing functions in older adults. However, my findings in this study do not preclude the alternative causal relationship, that high wellbeing in older adults produces nostalgia proneness. In the succeeding chapter, I aim for a conceptual replication of these findings using an experimental design in order to examine this alternative explanation.

In the current study, I did not directly measure nostalgia proneness, but instead assessed past-oriented longing. Although this is a central feature of nostalgia (Hepper et al., 2012), I do not claim that they are identical constructs. Instead, I believe that past-oriented longing is a narrower construct which contributes to the broader experience of nostalgia; while nostalgia and past-oriented longing share many common characteristics, they are not identical. The current study also sampled only one important longing from each participant to estimate the degree to which they longed for the past, and from this their concomitant levels of nostalgia proneness. Although this type of methodology has been used with success in prior research and produced results which parallel those obtained by experience sampling methods (Pasaputhi & Carstensen, 2003), it remains noteworthy that the current study did not assess longing for the past in everyday life. Therefore, it would be useful to replicate these findings using a direct measure of everyday nostalgia proneness to eliminate any alternative explanations for the findings. For instance, perhaps the surprising negative associations between nostalgia and wellbeing

were produced because longing for the past is a less positively-toned facet of nostalgia, which suggests dissatisfaction with current life circumstances. In sum, a more rounded measure of nostalgia may have shown a different picture of the relationship between age, nostalgia and wellbeing. I aim to address this question in Chapter 5 by assessing nostalgia proneness in a different way.

Finally, I have used the socioemotional selectivity theory (Carstensen et al., 1999) as a framework to begin to understand the changing role that nostalgia might play across the lifespan. However, a key tenet of this theory is that it is limited time, rather than chronological age *per se*, which is responsible for the emotional, motivational and behavioural changes observed in older adults. In older adults, chronological age and limited time perception are strongly confounded, which makes it difficult to infer which mechanism might be operating at any given time. In order to test the validity of the socioemotional selectivity framework in understanding nostalgia, I would need to assess the functions that nostalgia can serve in younger adults who also perceive that they have limited time remaining. Does nostalgia also better serve wellbeing functions in younger adults who have limited, versus expansive, time perception? I examine this possibility in the succeeding chapter.

Concluding Comments

In this chapter, I have shown that psychological gains across the lifespan are contingent on nostalgia. Older adults who are prone to nostalgic reverie benefit most in terms of psychological wellbeing, particularly positive social relations, personal growth and purpose in life.

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Table 4. *Domains of Psychological Wellbeing and the Wellbeing Composite as a Function of Nostalgia, Age and Gender*.

Wellbeing dimension	Nostalgia	Age	Age^2	Gender	Nostalgia × Age	Nostalgia × Age^2	Nostalgia × Gender	Model R^2
Wellbeing domains								
Positive relations	-.17†	.10	.05	-.17**	.15*	.04	-.04	.08**
Personal growth	-.06	-.10	.03	-.04	.12†	.05	-.12†	.04
Purpose in life	-.24**	-.03	.08	-.07	.16*	.10	-.04	.07*
Self-acceptance	-.19*	.11	.13*	.01	.05	.01	-.04	.07*
Autonomy	-.10	.02	-.03	.10	.10	-.02	-.06	.03
Environmental mastery	-.18*	.26***	.06	-.06	.05	.01	.02	.11***
Wellbeing composite	-.21*	.09	.08	-.06	.13*	.04	-.06	.07*

Note. † $p < .07$, * $p < .05$, ** $p < .01$, *** $p < .001$. Values are standardised beta coefficients.

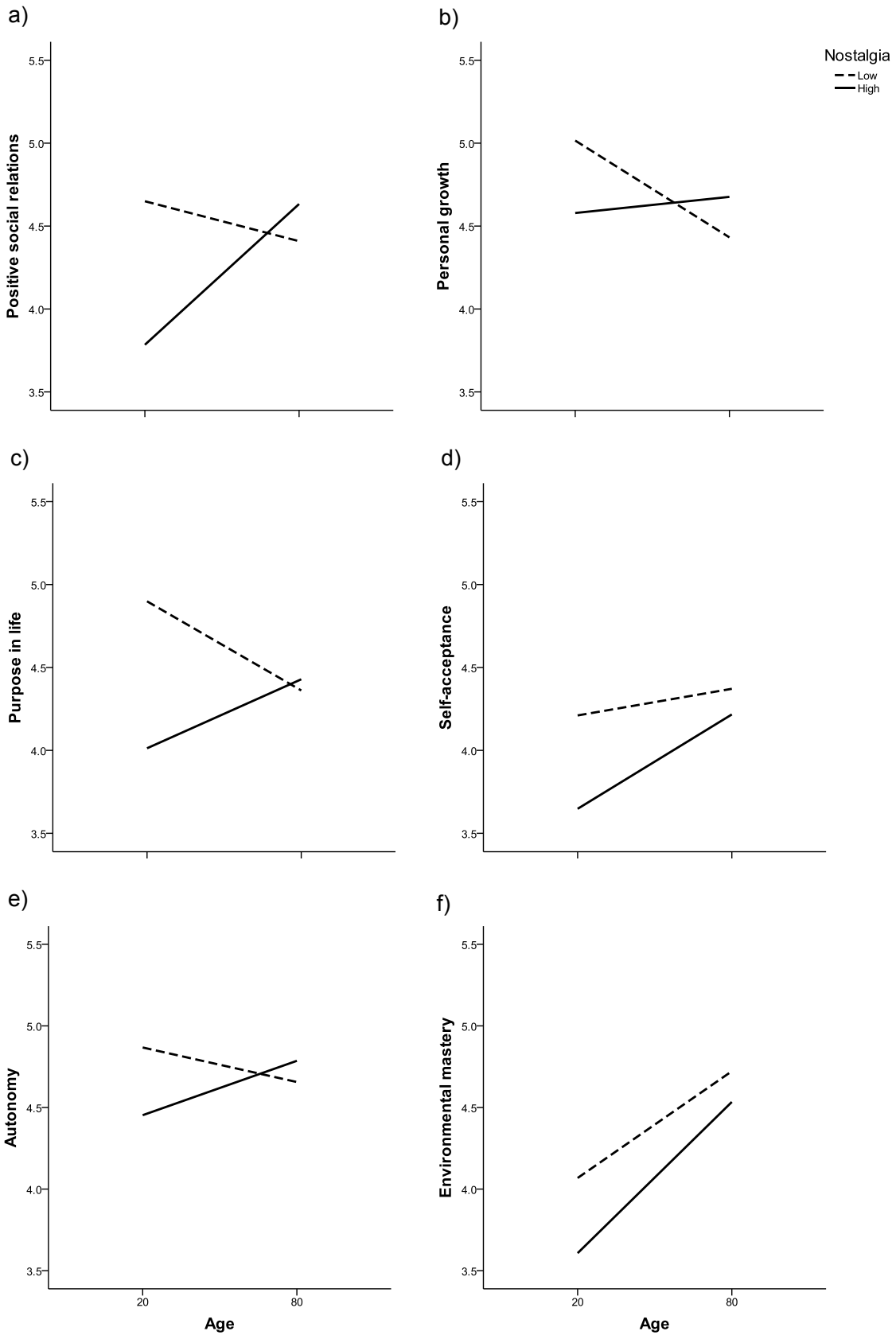

Figure 1. Interactions between nostalgia and age on the six domains of psychological wellbeing.

Chapter 4: Nostalgia and Limited Time Perspective

In this chapter, I examine the suitability of the socioemotional selectivity theory as a framework for understanding age differences in psychological wellbeing. Previously, I showed that age and nostalgia (operationalised as past-oriented longing) interact to predict psychological wellbeing. Wellbeing increased across the lifespan, but only for those individuals who were high in nostalgia. I now extend my perspective to examine how a perception of limited time which is unrelated to age predicts wellbeing outcomes in those who recall nostalgic or ordinary memories.

Preferences, Behaviour and Memory Reflecting Socioemotional Selectivity

The socioemotional selectivity theory (Carstensen, Isaacowitz & Charles, 1999) proposes that people who perceive their time as limited through old age, ill-health or societal and lifestyle changes will have different social goals to those who perceive their time as expansive. People with a limited time perspective are inclined to prioritise emotional goals, which have more immediate benefits, over informational goals, which tend to serve future needs. Across the lifespan, the affective potential of an interaction with a social partner becomes increasingly important relative to the likelihood of future contact or what could be learnt from a social partner (Carstensen & Fredrickson, 1998; Fredrickson & Carstensen, 1990). In other words, older adults place greater emphasis on whether a potential social interaction will be emotionally rewarding, and are less influenced by what they could learn from the interaction, or whether the social partner might be a useful contact for the future. Evidence has shown this prioritisation at play through differences in social preferences between older and younger adults; while younger adults prefer to spend time with novel social partners, who have informational potential and from whom the younger person may learn something interesting, older adults prefer to spend time with close known others, with whom the social exchange is

likely to be predictable, meaningful and rewarding (Fredrickson & Carstensen, 1990; Fung, Carstensen & Lutz, 1999; Fung, Lai & Ng, 2001).

In addition, evidence suggests that the behaviour of older adults *during* interactions with these selected social partners also reflects their change in goals towards emotional satisfaction and meaning. For instance, during storytelling with children, older adults selectively minimise expressions of negative emotion (e.g. anger that an accident had occurred) and instead emphasise alternative expressions of positive emotion (e.g. relief that no one was hurt) which are still plausible within the overall story (Pasaputhi, Henry & Carstensen, 2002). This bias away from expressions of negative affect is not observed in younger adult storytellers. Furthermore, older adults are less likely to display negative affect and more likely to display affection during marital conflict, even when age differences in the severity of conflict are statistically controlled (Carstensen, Gottman & Levenson, 1995). This suggests that, regardless of the seriousness of the problem being discussed, older adults were more motivated to maximise pleasantness and minimise unpleasantness during their social interactions.

Finally, socioemotional selectivity is not just observed in social partner selection or behaviour during social interactions, but also in the emotions experienced in social situations. Acknowledging the significance of autobiographical memory in older adulthood, Pasaputhi and Carstensen (2003) examined the experience of mutual reminiscence across the lifespan using experience sampling and questionnaire methods. Mutual reminiscence was defined as occasions when participants exchanged autobiographical stories about their personal pasts with their social partners (i.e. just talking, or just listening to others' stories did not comprise mutual reminiscence). Thus, the social sharing of memories was the key focus of this research. The findings suggested that while older adults were no more likely than younger adults to spontaneously share positive (compared to negative) memories, they did report greater positive and less negative affect across the lifespan during mutual reminiscing. Furthermore, the

relationship between positive affect during the initial event and during recall was stronger for older than younger adults, suggesting that older adults were better able to relive the pleasant feelings associated with a positive event; "because older adults have different motives for engaging in social reminiscing, the emotional experience of reminiscing may be more positive for older adults than for younger adults" (Pasaputhi & Carstensen, 2003, p. 430). In sum, memory appears to be a likely advocate of socioemotional selectivity processes. That is, the recall and sharing of autobiographical memories is one way that older adults are able to maximise their overall positive emotional experience.

While the predictions of the socioemotional selectivity theory are most often applied to older adults, in whom age and limited time are confounded, the socioemotional selectivity theory is also relevant to those in other stages of life who may perceive that their time is limited for reasons other than proximity to death. I now review evidence which illustrates that perceptions of time remaining, rather than time since birth, is the key element in changing social goals across the lifespan.

Socioemotional selectivity in younger adults. A key tenet of the socioemotional selectivity theory is that the feeling of limited time, rather than chronological age, is the mechanism responsible for producing the emotional, motivational and behavioural changes observed in older adults. As Wohlwill argued, chronological age is not in itself an explanatory variable, but is "at best a shorthand for the set of variables acting over time" (Wohlwill, 1970, p. 50). The theory identifies time perception as a key mechanism for driving age-related changes, and evidence to support this has focused on examining younger adults who, like older adults, also perceive their remaining time as constrained.

Younger adults who have been diagnosed with a serious and life-limiting illness are one salient example of a group whose time perception is determined not by their chronological age, but by their perceived time remaining in life. Research which has examined the dimensions on which HIV-positive symptomatic, asymptomatic and HIV-negative participants classify potential partners has produced results analogous to those

which have been obtained in lifespan samples. That is, participants whose time was most limited (i.e. HIV-positive and experiencing symptoms) were least likely to classify a potential social partner on informational dimensions, and most likely to classify them according to affective potential (Carstensen & Fredrickson, 1998). In sum, this study suggested that younger people (with a mean age of 36 years) who had a constrained time perspective thought like older adults in the emotion-based judgements they made about potential social partners.

However, it is important to note that the aforementioned research investigating the influence of HIV status in younger adults (Carstensen & Fredrickson, 1998) is still examining time perception constrained by the end of life. A more stringent test would be to observe whether younger adults' goals change when they perceive limited time for reasons other than illness and the end of life. That is, do the predictions of the socioemotional selectivity theory extend to other perceived endings such as geographical moves or societal changes, which are also likely to produce a sense of limited time? Evidence suggests that they do. Under normal circumstances (i.e. when asked to imagine half an hour of free time with no pressing commitments), younger adults are most likely to choose a novel social partner (a recent acquaintance or the author of a book they had read) over a familiar social partner (a family member). When these same younger adults are asked to imagine an impending geographical move, they are subsequently more likely to choose a familiar social partner (Fredrickson & Carstensen, 1990; Fung et al., 1999). This suggests that their sense of limited time altered their social priorities. In the two months before the transition from British to Chinese political rule in Hong Kong, Fung et al. (1999) repeated their aforementioned social preferences study in younger and older adults. During this period when the transition was highly salient in Hong Kong, producing "a sense of anticipated endings in an entire population" (Carstensen et al., 1999, p.175), the differences in social preferences between older and younger participants were eliminated. Furthermore, Fung et al. (1999) repeated the study one final time a year after

the handover of power in Hong Kong was complete. Given that the "macrolevel time limitation" (p. 601) imposed by the handover had now passed, Fung and colleagues predicted that the normal age-related preferences of novelty in younger adults and familiarity in older adults would be observed once again. Indeed, their findings were consistent with this prediction. This set of studies provided a powerful and naturalistic demonstration of the changes in social goals which occur when time is perceived as limited in everyday life for reasons other than old age or illness. In sum, evidence has suggested that the perception of limited time is a key mechanism in the age-related changes observed in emotional experience, motivation and behaviours.

The Present Research

In the current study, I aim to provide a conceptual replication of the lifespan study presented in Chapter 3, and to isolate and test limited time perspective as the mechanism which drives nostalgia-contingent age differences in wellbeing. To do this, I manipulate perceived time until graduation in a sample of undergraduate students, induce state nostalgia, and assess psychological wellbeing. In line with prior research (Demiray & Bluck, 2013), I hypothesise that a perception of limited time will be a threat to wellbeing, but that this threat will be buffered in participants who recall nostalgic events. Therefore, I expect that wellbeing will decrease in the face of limited time in those who recall ordinary events, but remain stable (or even increase) in those who recall nostalgic events. Consistent with my findings in Chapter 3, I expect that this effect will generalise across the domains of psychological wellbeing.

Method

Participants

Participants were 93 first year undergraduate students at the University of

Southampton (71 female, 19 male, 3 undisclosed gender) aged between 18 and 33 years (M_{age} = 19.32, SD_{age} = 2.40). All participants completed paper questionnaires during a practical session as part of their undergraduate course.

Procedure

Participants were randomly assigned to the conditions of a 2 (time perspective: limited, control) × 2 (memory recall: nostalgic, ordinary) between-subjects design. In the time-limited condition, participants were told:

> When students reach the second semester of the academic year, they often notice how rapidly time is passing. It is at this stage that most students realise that their time at university is very limited and that their student lifestyle will not last forever. Many students begin to think about graduation and what they will do after their degree. They often find that their remaining time at university passes very quickly.

Participants in the time-limited condition were then instructed to spend a few minutes imagining their graduation from university, and to write a list of five ways in which they expected their lives to change once they left university. In the control condition, participants proceeded immediately to the nostalgia manipulation. Participants recalled and described a nostalgic or ordinary event from their lives and summarised this event with four keywords. Specifically, participants were asked to "bring to mind a nostalgic (ordinary) event in your life. Specifically, try to think of a past event that makes you feel most nostalgic (that is ordinary)", then, "immerse yourself into this experience. Describe the experience and how it makes you feel." This nostalgia induction was first introduced by Wildschut, Sedikides, Arndt and Routledge (2006) and has since been validated in research conducted in the United Kingdom (e.g. Hepper, Ritchie, Sedikides & Wildschut, 2012) , Ireland (Van Tilburg, Igou & Sedikides, 2013), the United States (e.g. Routledge, Wildschut, Sedikides, Juhl & Arndt, 2012), and China (e.g. Zhou, Sedikides, Wildschut &

Gao, 2008). Next, participants completed the six subscales of the Ryff wellbeing inventory (Ryff, 1989a): positive social relations (e.g. "I know that I can trust my friends, and they know they can trust me"; α = .63), personal growth (e.g. "I think it is important to have new experiences that challenge how you think about yourself and the world"; α = .73), purpose in life (e.g. "I enjoy making plans for the future and working to make them a reality"; α = .76), self-acceptance (e.g. "When I look at the story of my life, I am pleased with how things have turned out"; α = .80), autonomy (e.g. "I have confidence in my opinions, even if they are contrary to the general consensus"; α = .80), and environmental mastery (e.g. "I have been able to build a home and a lifestyle for myself that is much to my liking"; α = .81). Participants rated each item on a 6-point scale (1 = *strongly disagree,* 6 = *strongly agree*). There were moderate correlations between subscales; *r*s ranged from .21 (autonomy and environmental mastery) to .67 (personal growth and purpose in life), mean *r* = .43, apart from between positive social relations and autonomy, which were not correlated, *r* = .05.

Manipulation Checks

Time perspective. Relevant means and analyses of variance (ANOVAs) are presented in Table 5. Participants completed one item to assess time perspective: "My remaining time at university is" (1 = *limited*, 7 = *expansive*). As intended, participants reported a more limited time perspective in the time-limited condition (*M* = 2.63, *SD* = 1.22) than the control condition (*M* = 4.91, *SD* = 1.54). Regardless of condition, female participants (*M* = 3.61, *SD* = 1.77) tended to report a more limited time perspective than males (*M* = 4.32, *SD* = 1.77). As intended, the main effect of the time perspective manipulation was not qualified by an interaction with the nostalgia manipulation.

Nostalgia. Participants completed two items to assess state nostalgia (Wildschut et al., 2006): "Right now, I am having nostalgic feelings," and "I feel nostalgic at the moment" (1 = *strongly disagree*, 7 = *strongly agree*; α = .96). As intended, participants in the

nostalgic recall condition (M = 5.12, SD = 1.15) reported stronger feelings of nostalgia than participants in the ordinary recall condition (M = 4.13, SD = 1.69). Once again, the main effect of the nostalgia manipulation was not qualified by an interaction with the time perspective manipulation.

Results

To test the hypothesis that nostalgia would better promote wellbeing when time was perceived as limited, I ran six 2 (time perspective: limited, control) × 2 (memory recall: nostalgic, ordinary) × 2 (gender) ANOVAs with each of the individual subscales of the Ryff Wellbeing Inventory (positive social relations, personal growth, purpose in life, self-acceptance, autonomy, environmental mastery) as dependent variables. Next, I examined wellbeing as a composite of all six subscales to identify the role of nostalgia and limited time perspective in psychological wellbeing more generally. The Time Perspective × Memory Recall interaction was significant for personal growth, purpose in life, self-acceptance and environmental mastery, as well as the composite of psychological wellbeing. These F-tests, the main effects of time perspective, memory recall and gender, and relevant means are presented in Table 5. All interactions involving gender were non-significant and are not presented, Fs (1, 82) < 3.26, ps > .074, η_ρ^2 < .04.

Positive Social Relations

There was a significant main effect of gender on positive social relations. Specifically, females (M = 4.75, SD = 0.64) reported enhanced positive relations compared to males (M = 4.29, SD = 0.78). However, the main effects of time perspective and memory recall, and their two- and three-way interactions with gender were not significant.

Personal Growth

There was a significant interaction between time perspective and memory recall

on personal growth; all other main effects and interactions were non-significant. In order to break down this Time Perspective × Memory Recall interaction, I conducted simple effects tests. These revealed that while limited time (compared to control) marginally reduced personal growth in those who recalled an ordinary memory, F (1, 82) = 3.93, p = .051, this reduction was buffered in those who recalled a nostalgic memory, F (1, 82) = 0.87, p = .355. This suggests that nostalgia protects personal growth against the threat of limited time.

Partitioning the interaction in the alternative direction revealed that when time was limited, nostalgia promoted personal growth over ordinary memory recall, F (1, 82) = 7.06, p = .009. However, in the control condition (when time was perceived to be more expansive), personal growth did not differ between those who recalled nostalgic or ordinary events, F (1, 82) = 0.13, p = .723. Nostalgia promotes feelings of personal growth, but only when time is limited.

Purpose in Life

The ANOVA revealed a significant interaction between time perspective and memory recall on purpose in life; all other main effects and interactions were non-significant. Simple effects tests revealed that while limited time significantly reduced purpose in life in those who recalled an ordinary memory F (1, 82) = 5.76, p = .019, the reverse was true in those who recalled a nostalgic memory, F (1, 82) = 5.88, p = .018. Nostalgia protects against the threat of limited time by promoting purpose in life.

Partitioning the interaction in the alternative direction revealed that when time was limited, nostalgia promoted purpose in life over recall of ordinary events, F (1, 82) = 11.45, p = .001. However, in the control condition, there was no difference in purpose in life after recall of a nostalgic or ordinary event, F (1, 82) = 2.84, p = .119. Nostalgia promotes purpose in life, but only when time is limited.

Self-acceptance

There was a significant interaction between time perspective and memory recall on self-acceptance. All other main effects and interactions were non-significant. Simple effects tests of the interaction revealed that limited time slightly but non-significantly reduced self-acceptance in those who recalled an ordinary memory, F (1, 82) = 1.32, p = .255. However, participants who recalled a nostalgic event reported marginally greater self-acceptance in the time-limited than the control condition, F (1, 82) = 3.51, p = .065. Nostalgia protects self-acceptance against the threat of limited time.

Partitioning the interaction in the alternative direction revealed that nostalgia slightly increased self-acceptance compared to recall of an ordinary memory in the time-limited condition (although this did not reach conventional levels of significance), F (1, 82) = 2.88, p = .094. However, there was no difference in self-acceptance after recall of a nostalgic or ordinary event in the control condition, F (1, 82) = 1.95, p = .167.

Autonomy

The ANOVA revealed a significant main effect of gender on autonomy. Specifically, males (M = 4.35, SD = 0.59) reported greater autonomy than females (M = 3.91, SD = 0.75). However, all other main effects and interactions were non-significant.

Environmental Mastery

The ANOVA on environmental mastery produced a significant interaction between time perspective and memory recall; all other main effects and interactions were non-significant. Simple effects tests of the interaction revealed that in those who recalled an ordinary memory, limited time slightly but non-significantly reduced environmental mastery, F (1, 82) = 0.83, p = .365. However, in those who recalled a nostalgic memory, environmental mastery was significantly higher when time was limited, F (1, 82) = 4.17, p = .044. Nostalgia promotes environmental mastery in the face of limited time.

Partitioning the interaction in the alternative direction revealed that when time was limited, participants reported slightly but non-significantly higher levels of environmental mastery following recall of nostalgic than ordinary events, F (1, 82) = 0.47, p = .494. However, in the control condition, recall of an ordinary event promoted significantly higher environmental mastery than recall of a nostalgic event, F (1, 82) = 4.98, p = .028.

Composite Measure of Psychological Wellbeing

The ANOVA on the composite measure of psychological wellbeing revealed a significant interaction between time perspective and memory recall only. Simple effects tests revealed that while limited time significantly reduced wellbeing in those who recalled an ordinary memory, F (1, 82) = 4.13, p = .045, this reduction was buffered in those who recalled a nostalgic memory, F (1, 82) = 2.42, p = .124. Nostalgia protects psychological wellbeing against the threat of limited time.

Partitioning the interaction in the alternative direction revealed that nostalgia increased total reported wellbeing compared to recall of an ordinary memory within the time-limited condition, F (1, 82) = 4.57, p = .035. However, within the control condition, psychological wellbeing did not differ between those who recalled nostalgic and ordinary events, F (1, 82) = 2.16, p = .146. Nostalgia promotes psychological wellbeing, but only when time is limited.

Finally, I aimed to establish whether the interaction pattern between time perspective and memory recall on wellbeing should be interpreted as subscale-specific or generalisable across domains of psychological wellbeing. To do this, I examined the data in the context of a repeated measures ANOVA where the six subscales of the Ryff Wellbeing Inventory were entered as within-subjects factors and time perspective, memory recall and gender were entered as between-subjects factors. The ANOVA revealed that the interaction between time perspective and memory recall was not moderated by subscale, F (5, 410) = 1.87, p = .098, $\eta\rho^2$ = .022. This implies that the

interaction between time perspective and memory recall is best interpreted as a generalised pattern which impacts multiple domains of wellbeing.

Discussion

Overall, my hypotheses were supported in this study; as predicted, recall of nostalgic (versus ordinary) memories moderated the impact of limited time on wellbeing. Specifically, the interaction between time perspective and memory recall was significant for personal growth, purpose in life, self-acceptance, environmental mastery and the composite measure of psychological wellbeing. The results suggested that the prospect of limited time was a threat which reduced wellbeing, but recall of nostalgic memories acted as a buffer (overall psychological wellbeing, personal growth) or even an enhancer (purpose in life, self-acceptance and environmental mastery) of wellbeing in the face of these limited time horizons. Importantly, despite slight variations in the interaction patterns between subscales, repeated measures analyses suggested that the Time Perspective × Memory Recall interactions were best interpreted as having a generalised effect on psychological wellbeing. Finally, some (but not all) prior noted gender differences were replicated in this study.[5]

Nostalgia during Limited Time

The current findings provide support for the socioemotional selectivity theory (Carstensen et al., 1999) as an appropriate framework for understanding age-related changes in the functions of nostalgia. In the previous chapter, I showed that lifespan gains in positive social relations (and overall psychological wellbeing) and stability in personal

[5] Replicating prior published findings (Ryff, 1989a; 1991) as well as the results in Chapter 3, females scored higher on positive social relations overall. The current results also suggested that males demonstrate greater autonomy on average than females. This finding does not replicate others, although some variation has been noted in prior research in the dimensions on which gender differences are observed (Ryff, 1989a; 1991). I did not observe gender differences on personal growth, even though these have sometimes been reported (Ryff, 1989a).

growth and purpose in life were contingent on nostalgia. In response to Wohlwill's (1970) astute observation that it is not informative to attribute a phenomenon simply to age differences, I next isolated limited time as one possible mechanism to explain age-related changes in the wellbeing functions of nostalgia. When time becomes limited, nostalgia promoted purpose in life, self-acceptance and environmental mastery, and buffered personal growth and overall psychological wellbeing. This suggests that nostalgia may serve to help people make the most of their remaining time when they perceive it to be limited. Contrary to widely-held conceptions of aging and limited time (e.g. Carstensen et al., 1999) these findings suggest that when faced with limited time, people may still look forward (i.e., by displaying greater purpose in life) rather than being solely focused on in-the-moment satisfaction. This is consistent with longitudinal and cross sectional findings which have demonstrated that people use a greater proportion of future tense verbs with increasing age (Pennebaker & Stone, 2003). The current findings also suggest that nostalgia may be especially helpful in promoting a sense of control, efficacy, purposefulness, and meaning in these circumstances, in line with previous research relating to the benefits of nostalgia (Baldwin & Landau, 2013; Cheung et al., 2013; Routledge et al., 2012). Furthermore, the findings suggest that nostalgia promotes self-acceptance and maintains personal growth when time is limited. Prior research has shown that older adults emphasise continued personal growth and self-acceptance as an effective means of coping with transitions (Ryff, 1989b), and it appears that nostalgia also has potential in guiding younger people through the approaching life transitions which are implied by a sense of limited time. In sum, the current data support previous theorising (Davis, 1979) in suggesting that nostalgia can maintain or even enhance wellbeing throughout these transitions.

Given the central role that close relationships play in the socioemotional selectivity theory, it was surprising that this study did not conceptually replicate the previous chapter's observed interaction between age and nostalgia on positive social relations.

That is, in the current chapter I did not find that time perspective and memory recall interacted to predict positive social relations. One possible explanation for this lack of replication between the lifespan study (Chapter 3) and the current time perspective study is likely to be that the salient concerns of those with limited time remaining in life (e.g. death anxiety) would differ from the concerns of those who believe that their time remaining at university is constrained. In this circumstance, perhaps nostalgia is not the most adaptive strategy for promotion of positive social relations because students who perceive that they have limited time until they graduate are not necessarily facing the same unavoidable social losses as older adults. Therefore, in line with Heckhausen and Schulz's control theory (Heckhausen, 1997; Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996), perhaps younger adults are better placed to use primary control strategies to manage threats to positive social relations which are posed by limited time. These primary control strategies, which involve adapting the external environment to fit an individual's needs (e.g. making arrangements to see a friend), have functional primacy and are therefore most adaptive when available. In other words, perhaps nostalgia, as a secondary (i.e. cognitive) control strategy, is best used to address a specific threat when more active compensatory behaviours are not an option. Consistent with the previous chapter, the findings also suggested that nostalgia was less beneficial in younger adults who were not faced with a specific threat (i.e. limited time). Specifically, in those who perceived that they had expansive time remaining at university, environmental mastery was lower for those who recalled a nostalgic memory than for those who recalled an ordinary memory. This suggests that younger adults who turned to nostalgia felt less in control of their current environment. This is a further indicator that nostalgia might undermine feelings of efficacy in younger adults who might be better placed to engage in active, primary control strategies which involve exerting control over their environment. In sum, my findings suggest that nostalgia is not maladaptive for younger people *per se*, but that it may be more useful when used in response to a specific need, such as limited

time.

A key difference between time perception constrained by the end of life, and by perceived social endings such as graduation (in the current study), geographical moves (Fredrickson & Carstensen, 1990) or political changes (Fung et al., 1999) is that the individual is likely to foresee consistency in other domains of life following a social ending. After graduation, for instance, a student may anticipate some major lifestyle changes such as beginning a new job, but other consistencies such as continuing to live with friends. While the current findings suggest that limited time is an important component of older age in determining the functions of nostalgia, it is also important to note that older age involves more than just a perception of limited time. In Wohlwill's (1970) terms, I have identified one of "the set of variables acting over time" (p. 50) which together drive age-related differences; others might include changes to physical and subjective health (e.g. Pinquart, 2001) and reductions in the size of social networks (e.g. Lang & Carstensen, 1994; Victor, Scrambler, Bowling & Bond, 2005) during older adulthood. Thus, it is impossible to experimentally induce all the changes and transitions which occur throughout the lifespan in younger adults and this may account for some of the variations in the individual wellbeing domains which reached significance in Chapter 3 and in the current study. Overall, though, the generalised pattern on psychological wellbeing was consistent; nostalgia has a role in protecting wellbeing from the threat of limited time, whether this comes from older age or the prospect of a lifestyle change.

Strengths, Limitations and Future Directions

The current study addressed some of the key limitations of the study presented in Chapter 3. First, the experimental design allowed me to establish the causal direction of the relationship between nostalgia and wellbeing. That is, in the current study I manipulated nostalgia (and limited time) and then measured wellbeing, whereas in the previous study I examined the correlations between nostalgia (and age) and wellbeing. I

can now be confident that nostalgia promotes wellbeing when time is limited. Second, I directly manipulated nostalgia in this study, rather than assessing longing for the past. Although longing is a key component of nostalgia (Hepper et al, 2012), I now have more specific knowledge relating to the wellbeing implications of nostalgia, rather than the more limited construct of past-oriented longing. Third, by isolating limited time in younger adults, I was able to overcome the difficulties of the confound between chronological age and limited time which has been observed in prior research. It is difficult to separate age and limited time in older adulthood, because as chronological age increases towards life expectancy, so does the perception of limited time due to mortality salience. In the current study, I successfully manipulated time perception independent of age, which allowed me to identify limited time as a key mechanism in the wellbeing benefits of nostalgia. The findings of Chapter 3 suggested that nostalgia was not adaptive in younger adults, and was associated with slightly lower wellbeing. However, the current study qualifies these findings and suggests that nostalgia can be beneficial to some domains of wellbeing in younger adults when it is used to address a specific threat, such as limited time.

A potential limitation of the current study was that it did not examine individual differences in participants' orientations towards others, although these may have a role in determining whether nostalgia is an appropriate strategy for promoting wellbeing. Specifically, Lavigne, Vallerand and Crevier-Braud (2011) proposed that there are two varieties of belongingness orientations: a need to belong driven by growth (e.g. the desire to be around people because of genuine interest and enjoyment in time spent with them) and a need to belong driven by deficit-reduction (e.g. the desire to be around others because of a search for acceptance from others and the need to fill a void). These belongingness orientations may determine whether nostalgia is beneficial for different people. According to Gardner, Pickett and Knowles (2005), symbolic reminders of social bonds such as looking at photographs or recalling meaningful social memories are indirect

social strategies, called into service as a form of 'social snacking' when direct social strategies (i.e. spending time with others) are not available to meet belongingness needs. Nostalgia, with its capacity to produce mental representations of valued relationships at any time (Wildschut, Sedikides, Routledge, Arndt & Cordaro, 2010), could be characterised as a form of indirect social strategy deployed in the service of the need to belong. Indeed, evidence has supported nostalgia's efficacy as a source of 'social snacking'; state nostalgia can reduce feelings of loneliness (Zhou et al., 2008). However, this raises the issue of what precisely might be nostalgia's role in those who are high in a growth-oriented need to belong. Nostalgia, with its reliance on mental representations of past relationships rather than actual in-the-moment companionship, may be less able to meet the needs of these highly growth oriented individuals. Indeed, it might actually serve to highlight the relative inaccessibility of past social partners in these individuals. Thus, a pertinent question is whether the relationship between nostalgia and wellbeing is contingent on a pre-existing growth or deficit-reduction orientation in the quest for belongingness. I explore this possibility in the next chapter.

Concluding Comments

In this chapter, I have shown that nostalgia is able to mitigate the threat of limited time on wellbeing. In these circumstances, nostalgia promotes a sense of personal growth, purpose, self-acceptance and efficacy, as well as increasing overall psychological wellbeing. These findings suggest that nostalgia can be adaptive across the lifespan for those who are facing the threat of limited time horizons, and may help people of all ages to make the most of the time they have left.

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Table 5. *Manipulation Checks, Wellbeing Domains and the Wellbeing Composite as a Function of Time Perspective and Memory Recall.*

	Control		Time-Limited		F (1, 82)			F (1, 82)	η_ρ^2
Dependent variable	Ordinary	Nostalgic	Ordinary	Nostalgic	Memory recall	Time perspective	Gender	Time Perspective × Memory Recall	
Manipulation checks									
Time remaining	4.74 (1.68)	5.08 (1.41)	2.78 (1.31)	2.48 (1.12)	0.18	47.31***	7.51**	1.09	.01
State nostalgia	3.76 (1.83)	5.27 (1.16)	4.50 (1.48)	4.96 (1.14)	10.55**	0.11	1.05	2.29	.03
Wellbeing domains									
Positive relations	4.81 (0.55)	4.69 (0.56)	4.51 (0.81)	4.63 (0.78)	0.01	0.45	6.43*	0.46	.01
Personal growth	4.72 (0.71)	4.63 (0.49)	4.42 (0.52)	4.84 (0.49)	2.15	0.37	0.55	4.02*	.05
Purpose in life	4.46 (0.71)	4.20 (0.63)	4.11 (0.74)	4.58 (0.58)	1.04	0.06	2.25	11.59**	.12
Self-acceptance	4.49 (0.71)	3.97 (0.67)	4.21 (0.67)	4.42 (0.88)	0.00	0.43	0.16	4.69*	.05
Autonomy	4.22 (0.76)	4.02 (0.77)	3.87 (0.65)	3.92 (0.76)	0.15	1.92	5.92*	0.14	.00
Environmental mastery	4.46 (0.78)	3.91 (0.66)	4.17 (0.58)	4.20 (0.83)	1.54	0.88	2.05	4.57*	.05
Wellbeing composite	4.53 (0.54)	4.24 (0.39)	4.22 (0.44)	4.43 (0.51)	0.08	0.03	0.53	6.29*	.07

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Values in parentheses are standard deviations.

Chapter 5: The Role of Belongingness Orientations in Psychological Wellbeing

In this chapter, I begin to examine the role that belongingness orientations play in nostalgia and psychological wellbeing. Prior evidence has demonstrated that a key function of nostalgia is its capacity to promote positive social outcomes; for instance, recalling nostalgic memories makes people feel "loved" and "protected", facilitates greater interpersonal competence, promotes a more secure attachment style, and protects against loneliness (Wildschut, Sedikides, Arndt & Routledge, 2006; Wildschut, Sedikides, Routledge, Arndt & Cordaro, 2010; Zhou, Sedikides, Wildschut & Gao, 2008). In addition, recent evidence has suggested that nostalgia's capacity to fulfil social needs drives other beneficial outcomes of nostalgia, such as optimism, self-continuity, meaning in life and improved outgroup attitudes (Cheung et al., 2013; Routledge et al., 2011; Sedikides et al., 2013; Turner, Wildschut, Sedikides & Gheorghiu, 2013). Nostalgia is deeply implicated in social processes and contributes to feelings of belongingness and concomitant levels of wellbeing, but might nostalgia operate differentially in those who have a pre-existing growth or deficit-reduction belongingness orientation? In order to address this question, I assess whether a growth or a deficit-reduction oriented need to belong interacts with nostalgia and age to prospectively predict psychological wellbeing.

The Need to Belong

Fulfilling the need to belong. The need to belong and to be accepted by others is widely accepted as a fundamental human motive (e.g. Baumeister & Leary, 1995; Deci & Ryan, 2000; McClelland, 1985) which, when fulfilled, has a positive impact on wellbeing and self-esteem. For instance, the sociometer theory of self-esteem (Leary, Tambor, Terdal & Downs, 1995) proposes that an individual's level of self-esteem is determined by

the extent to which their need to belong is fulfilled through inclusion or exclusion by others. Individual differences in relatedness also predict wellbeing, indicated by high levels of positive affect and vitality, and low levels of negative affect and adverse health symptoms (Reis, Sheldon, Gable, Roscoe & Ryan, 2000). Furthermore, Reis and colleagues observed that the relationship between levels of social connectedness and wellbeing exists not only between participants, but also within participants; that is, daily fluctuations in the extent to which relatedness needs are fulfilled predict daily variations in wellbeing. In other words, 'good days' were the ones where participants reported that their relatedness needs were fulfilled through positive, rewarding and meaningful interactions with others. Consistent with the predictions of both self-determination theory (Deci & Ryan, 1991) and socioemotional selectivity theory (Carstensen, Isaacowitz & Charles, 1999), Kasser and Ryan (1999) demonstrated that the quality of older adults' relationships with family and friends predicted positive wellbeing and life satisfaction, although the frequency of interactions with others did not predict these positive outcomes. For older adults, then, wellbeing is driven more strongly by the presence of close and meaningful relationships, rather than social network size. In sum, fulfilment of the need to belong is a key determinant of wellbeing for both younger and older adults. However, the presence of meaningful relationships may acquire particular significance in older adulthood, as people shift their focus from future-oriented goals to goals relating to social and emotional meaning (Carstensen et al., 1999).

Failure to fulfil the need to belong. When the need to belong is not fulfilled, people can experience numerous practical, psychological and physical health problems (Baumeister & Leary, 1995). For instance, social isolation and rejection by others leads to elevated levels of emotional distress characterised by anxiety or depression (Leary, 1990), and predicts both poorer health and increased mortality risk (e.g. House, Landis & Umberson, 1988; Uchino, Cacioppo & Kiecolt-Glaser, 1996). Furthermore, the self-determination theory proposes that if the three key relatedness, competence and

autonomy needs are not met, people may begin to engage in pursuit of compensatory goals which fulfil less fundamental needs, such as the pursuit of wealth. Ultimately, though, these behaviours have a detrimental side-effect because they are likely to interfere with primary goal attainment (Deci & Ryan, 2000). In sum, the need to belong is fundamental in determining wellbeing and optimal functioning.

Belongingness orientations. In addition to individual differences in the strength of the need to belong (e.g. Leary, Kelly, Cottrell & Schreindorfer, 2013), people may also demonstrate individual differences in the orientation of their belongingness needs. Recent research has begun to elaborate understanding of the need to belong by identifying two distinct belongingness orientations and examining their adaptive and maladaptive correlates (Lavigne, Vallerand & Crevier-Braud, 2011). The first of the two orientations identified by Lavigne and colleagues was a need to belong driven by growth. This dimension was characterised as a desire to be around others because of genuine interest and enjoyment in time spent with them. It is important to note at this point that the growth oriented need to belong is distinct from personal growth, a dimension of psychological wellbeing. Thus, although the two constructs are similarly named, they should not be viewed as analogous. The second orientation was a need to belong driven by deficit-reduction. This dimension was characterised as a desire to be around others because of a search for acceptance and the need to fill a void. As might be expected, Lavigne et al. (2011) demonstrated that the growth orientation was most adaptive and was associated with reduced anxiety and loneliness, as well as greater resilience, personal growth and self-acceptance. On the contrary, the deficit-reduction orientation was associated with greater social anxiety and loneliness as well as lower self-esteem, personal growth and self-acceptance. In addition, a deficit-reduction orientation predicted lower acceptance by others in a team-working task. Paradoxically, then, deficit-reduction was associated with the very outcome that people holding this orientation would be seeking to avoid, namely social rejection. In sum, while a growth orientation is associated with

positive outcomes, a deficit-reduction orientation is maladaptive and appears to undermine wellbeing and produce negative interpersonal outcomes. The stark contrast between growth-related and deficit-related outcomes highlights the importance of acknowledging specific belongingness orientations rather than simply examining the broader trait of the need to belong.

Nostalgia and Belongingness Orientations

To date, no research has examined the role of belongingness orientations in the context of a lifespan nostalgia study. How might a growth or deficit-reduction orientation contribute to the relative adaptiveness of nostalgia across the lifespan? In Chapters 3 and 4, I showed that with increasing age (or limited time), highly nostalgia prone participants (or those who recalled a nostalgic event) demonstrated stability or even increases in psychological wellbeing. However, those who were low in nostalgia (or recalled an ordinary event) demonstrated stability or even declines in psychological wellbeing with increasing age (or limited time). A growth or deficit-reduction orientation may further moderate age-related differences in wellbeing by determining whether nostalgia is an appropriate strategy for different people to use.

In a lifespan context, research has suggested that older people are able to compensate for reductions in their social network size by savouring fewer close relationships (Lang & Carstensen, 1994), thus fulfilling their social needs and avoiding loneliness (Larson, 1978; Revenson & Johnson, 1984). Nostalgia is one indirect social strategy (Gardner, Pickett & Knowles, 2005) that older adults could use to savour their close relationships in the face of threats to their social connectedness, because it relies on mental representations of past relationships rather than actual in-the-moment companionship (e.g. Wildschut et al., 2010). However, what might be nostalgia's role in those who are high in a growth-oriented need to belong, and in whom this orientation endures into older age? Nostalgia may not be a successful strategy for these highly growth

oriented individuals, because their orientation means that they are likely to have a need for novel and direct social contact. Nostalgia cannot provide this, and so may actually serve to highlight the relative inaccessibility of past social partners in these individuals. Thus, a pertinent question is whether the relationship between nostalgia, age and wellbeing is contingent on a pre-existing growth or deficit-reduction orientation in the quest for belongingness. I examine this possibility in the current chapter.

The Present Research

In the current study, I explore the role that belongingness orientations play in the relationship between nostalgia, age and wellbeing. What light can they shed on wellbeing across the lifespan? I recruited participants from the LISS (Longitudinal Internet Studies for the Social sciences) panel in collaboration with CentERdata (who are based at Tilburg University, The Netherlands). The LISS panel is a true probability sample of 5000 Dutch households, comprising 8000 individuals. Participants complete monthly surveys on a variety of topics, including politics, income, education and personality. In addition to the core study, CentERdata give other researchers the opportunity to collect data through the panel. I proposed a study measuring nostalgia proneness, belongingness orientations and wellbeing across multiple time points. This allowed me to prospectively predict wellbeing from nostalgia proneness, age and belongingness orientation, thereby allaying some of the causality concerns generated by conducting correlational research. The proposal was accepted and the data were collected between November 2012 and January 2013.

Method

Participants

I recruited participants across two waves from the LISS panel in the Netherlands. At Time 1, participants were 1210 panel members (635 females, 575 males) aged between

16 and 92 years (M_{age} = 50.70, SD_{age} = 17.48). At Time 2, 1081 of the original sample (89.34%) completed the measures. Those who subsequently completed Time 2 (in addition to Time 1) tended to be older (M_{age} = 51.88, SD_{age} = 17.08) than those who did not complete Time 2 (M_{age} = 40.81, SD_{age} = 17.73), t (1208) = 6.93, p < .001, and were marginally more likely to be male (524 of the original 575; 91.13%) than female (557 of the original 635; 87.72%), χ^2 (1) = 3.69, p = .055. Overall, though, the sample compositions at Time 1 and 2 not differ significantly by age, t (2289) = 1.63, p = .103, or by gender, χ^2 (1) = 0.21, p = .649.

Procedure

Time 1. In November 2012, participants were presented with the questionnaire as part of their monthly LISS panel participation. First, participants completed the 7-item Southampton Nostalgia Scale (α = .95; Routledge, Arndt, Sedikides, & Wildschut, 2008), which is designed to measure nostalgia proneness by assessing the frequency with which participants experience nostalgia as well as the significance of nostalgia in participants' lives. Items include, "How valuable is nostalgia for you?" (1 = *not at all*, 7 = *very much*) and, "Specifically, how often do you bring to mind nostalgic experiences?" (1 = *once or twice a year*, 7 = *at least once a day*). Next, participants completed the two 5-item growth (α = .85) and deficit-reduction (α = .83) subscales of the Belongingness Orientation Scale (Lavigne et al., 2011) which assess need to belong oriented towards actualisation and repair, respectively. Items include, "My interpersonal relationships are important to me because I consider that the people I meet are fascinating" (growth) and, "My interpersonal relationships are important to me because they fill a void in my life" (deficit-reduction). Responses were recorded on a 5-point scale (1 = *absolutely not true*, 5 = *absolutely true*).

Time 2. In January 2013 (two months later), participants were presented with the second part of the study. Participants completed the Ryff Wellbeing Inventory (Ryff, 1989a), a 54-item scale which measures wellbeing in terms of meaning, self-realisation

and optimal functioning. Six subscales assessed positive social relations (e.g. "I know that I can trust my friends, and they know they can trust me"; α = .81), personal growth (e.g. "I think it is important to have new experiences that challenge how you think about yourself and the world"; α = .82), purpose in life (e.g. "I enjoy making plans for the future and working to make them a reality"; α = .80), self-acceptance (e.g. "When I look at the story of my life, I am pleased with how things have turned out"; α = .84), autonomy (e.g. "I have confidence in my opinions, even if they are contrary to the general consensus"; α = .79), and environmental mastery (e.g. "I have been able to build a home and a lifestyle for myself that is much to my liking"; α = .81). Responses were recorded on a 6-point scale (1 = *strongly disagree*, 6 = *strongly agree*). There were moderate to high correlations between subscales; coefficients ranged from r = .26 (personal growth and autonomy) to r = .64 (personal growth and purpose in life), mean r = .46. These six subscales were also combined to form a composite measure of psychological wellbeing (α = .83; Keyes, Shmotkin & Ryff, 2002).

Analysis

I conducted multiple regression models predicting wellbeing from nostalgia, growth, deficit-reduction, age (all mean centred) and gender (contrast coded). Specifically, I entered nostalgia, growth, deficit-reduction, age, age^2 (to test for curvilinear effects) and gender. Although I had no specific hypotheses relating to gender in this study, I controlled for gender as previous research has suggested that it is related to the positive social relations and personal growth dimensions of wellbeing (Ryff, 1989a). Next, I entered the two-way interactions between nostalgia and growth, nostalgia and deficit-reduction, nostalgia and age, growth and age, and deficit-reduction and age. In Chapters 3 and 4, no interaction terms involving gender or age^2 were significant. Therefore, in the interests of parsimony, I did not include interaction terms involving gender or age^2 in the

model. Finally, I entered the two three-way interactions between nostalgia, growth and age, and nostalgia, deficit-reduction and age.

Results

Positive Social Relations

Relevant beta values are presented in Table 6. Analyses revealed that growth, deficit-reduction and gender (but not nostalgia, age or age^2) predicted positive social relations. Specifically, positive social relations were greatest in females and in those who were highly growth oriented. Consistent with expectations, positive social relations were lower in those who were oriented towards deficit-reduction. These main effects were not qualified by any two-way interactions, but they were qualified by a significant three-way interaction between nostalgia, growth and age (Figure 2, panel a). In order to examine this interaction further, I next conducted simple slopes analyses (Aiken & West, 1991).

Age predicting positive social relations. First, I examined whether the relationship between age and positive social relations was significant for participants low (M - 1SD) and high (M + 1SD) in growth, and low (M - 1SD) and high (M + 1SD) in nostalgia. In those who were low in growth, age was negatively related to positive relations for people who were low in nostalgia proneness, β = -.11, t = -2.36, p = .019, but related to lifespan stability in positive relations in those who were high in nostalgia proneness, β = .04, t = 0.59, p = .554. However, in those who were high in growth, age was positively but non-significantly related to positive relations in those who were low in nostalgia proneness, β = .12, t = 1.77, p = .077, but negatively related to positive relations in those who were high in nostalgia proneness, β = -.13, t = -2.26, p = .024. While relatively adaptive individually, the combination of a growth belongingness orientation with nostalgia proneness was related to declines in positive social relations across the lifespan.

Nostalgia predicting positive social relations. Second, I examined whether the relationship between nostalgia and positive social relations was significant for the youngest (age 16) and oldest (age 92) participants in the sample, and for participants low (*M* - 1*SD*) and high (*M* + 1*SD*) in growth. In younger adults, there was a negative but non-significant relationship between nostalgia and positive social relations when growth was low, β = -.16, *t* = -1.66, *p* = .097, but a positive relationship when growth was high, β = .21, *t* = 2.20, *p* = .028. The opposite pattern emerged in older adults; nostalgia was marginally positively related to social relations when growth was low, β = .19, *t* = 1.94, *p* = .053, but negatively related when growth was high, β = -.35, *t* = -3.10, *p* = .002.

Personal Growth

Personal growth was predicted by growth, deficit-reduction, age and age^2. Specifically, personal growth was greatest in those high in growth and low in deficit-reduction. In addition, personal growth remained relatively stable into middle adulthood, and then declined sharply in older adulthood. These main effects were not qualified by any two- or three-way interactions.

Purpose in Life

The regression analyses revealed that growth, deficit-reduction, age and age^2 (but not nostalgia or gender) predicted purpose in life. Purpose in life was greatest for those who were younger, highly growth oriented, and low in deficit-reduction, and declined more sharply into older adulthood. As for personal growth, these main effects were not qualified by any two- or three-way interactions between nostalgia, growth, deficit-reduction and age.

Self-acceptance

Self-acceptance was predicted by nostalgia, growth, deficit-reduction, age and age^2. Self-acceptance was greater for those who were low in nostalgia, high in growth and low in deficit-reduction. Self-acceptance increased with age, more sharply so in older adulthood. These main effects were not qualified by any two-way interactions, but they were qualified by a three-way interaction between nostalgia, growth and age. To examine this interaction further, I conducted simple slopes analyses (Figure 2, panel b).

Age predicting self-acceptance. In those who were low in growth, age was positively related to self-acceptance for people who were low in nostalgia proneness, β = .17, t = 3.46, p < .001, and those who were high in nostalgia proneness, β = .30, t = 4.05, p < .001. In those who were high in growth, while age remained positively related to self-acceptance in those who were low in nostalgia proneness, β = .20, t = 2.88, p = .004, it was unrelated to self-acceptance in those who were high in nostalgia proneness, β = .09, t = 1.47, p = .141. In sum, self-acceptance increased across the lifespan most strongly for those who were nostalgia prone, but only when they were low in growth. In contrast, the combination of nostalgia with a growth orientation did not predict increases in self-acceptance across the lifespan.

Nostalgia predicting self-acceptance. Partitioning the interaction an alternative way revealed that in younger adults, nostalgia was unrelated to self-acceptance for those low in growth, β = -.17, t = -1.70, p = .090, and those high in growth, β = .02, t = 0.24, p = .812. In older adults, a different pattern emerged; nostalgia was once again unrelated to self-acceptance when growth was low, β = .13, t = 1.25, p = .213, but negatively related when growth was high, β = -.23, t = -2.00, p = .045. In older adults, the combination of nostalgia with a growth orientation was related to lower self-acceptance.

Autonomy

Growth, deficit-reduction, age and gender were all significant predictors of autonomy. Specifically, autonomy was greatest in those who were older, male, and high in growth but low in deficit-reduction. However, these main effects were not qualified by any two- or three-way interactions between nostalgia, growth, deficit-reduction and age.

Environmental Mastery

Environmental mastery was significantly predicted by nostalgia, growth, deficit-reduction and age (but not age^2 or gender). Specifically, environmental mastery increased across the lifespan, and was also greatest in those who were low in nostalgia and deficit-reduction, and high in growth. These main effects were not qualified by any two-way interactions, but they were qualified by a significant three-way interaction between nostalgia, growth and age. Simple slopes analyses revealed a three-way interaction pattern consistent with those which emerged for positive social relations and self-acceptance (Figure 2, panel c).

Age predicting environmental mastery. In those who were low in growth, age was positively related to environmental mastery for people who were low in nostalgia proneness, $\beta = .14$, $t = 2.76$, $p = .006$, and those who were high in nostalgia proneness, $\beta = .24$, $t = 3.27$, $p = .001$. In high growth participants, while age remained positively related to environmental mastery in those who were low in nostalgia proneness, $\beta = .27$, $t = 3.92$, $p < .001$, it was unrelated to environmental mastery in those who were high in nostalgia proneness, $\beta = .09$, $t = 1.57$, $p = .118$. Towards older adulthood, the combination of a growth orientation with high nostalgia was the least adaptive overall.

Nostalgia predicting environmental mastery. Partitioning the interaction an alternative way revealed that in younger adults, nostalgia was negatively related to environmental mastery for those low in growth, $\beta = -.20$, $t = -2.07$, $p = .039$, but unrelated for those high in growth, $\beta = .09$, $t = 0.88$, $p = .379$. In older adults, the opposite pattern

emerged; nostalgia was unrelated to environmental mastery for those low in growth, β = -.04, *t* = 0.36, *p* = .716, but negatively related to environmental mastery for those high in growth, β = -.32, *t* = -2.76, *p* = .006. This pattern suggested that nostalgia was best combined with high growth in younger adults, but low growth in older adults.

Composite Measure of Psychological Wellbeing

Finally, I examined the mean of all six wellbeing subscales as an index of overall psychological wellbeing. Regression analyses revealed main effects of nostalgia, growth and deficit-reduction orientations on psychological wellbeing. Specifically, wellbeing was greater in those who were low in nostalgia, high in a growth orientation and low in a deficit-reduction orientation. There were no significant two-way interactions between nostalgia, growth, deficit-reduction and age. However, there was a significant three-way interaction between nostalgia, growth and age (Figure 2, panel d).

Age predicting psychological wellbeing. In those who were low in growth, age was negatively (but non-significantly) related to psychological wellbeing for those who were low in nostalgia proneness, β = -.00, *t* = -0.09, *p* = .927, and positively (but non-significantly) related to psychological wellbeing for those who were high in nostalgia proneness, β = .09, *t* = 1.28, *p* = .201. However, the reverse was true for those who were high in growth. Age was positively (but non-significantly) related to psychological wellbeing for those who were low in nostalgia proneness, β = .11, *t* = 1.56, *p* = .120, but negatively (but non-significantly) related in those who were high in nostalgia proneness, β = -.05, *t* = -0.89, *p* = .375. Although none of the individual simple slopes reached significance, the broad interaction pattern that they reflected was consistent with other indexes of wellbeing.

Nostalgia predicting psychological wellbeing. These simple slopes analyses revealed that in younger adults, nostalgia was unrelated to psychological wellbeing when growth was low, β = -.14, *t* = -1.46, *p* = .145, and when growth was high, β = .07, *t* = 0.78, *p*

= .436. In older adults, nostalgia was also unrelated to wellbeing when growth was low, β = .08, t = 0.79, p = .429, but negatively related to wellbeing when growth was high β = -.27, t = -2.45, p = .014. In older adults, the combination of a growth belongingness orientation with high nostalgia proneness was related to poorer wellbeing.

Repeated measures analyses. Finally, I aimed to establish whether the interaction pattern between nostalgia, growth and age on wellbeing should be interpreted as subscale-specific or whether it was generalisable across domains of wellbeing. To do this, I examined the data in the context of a repeated measures analysis of variance (ANOVA) where the six subscales of the Ryff Wellbeing Inventory were entered as a within-subjects factor and nostalgia, growth, deficit-reduction, age, age^2 and gender (and their interaction terms) were entered as between-subjects factors. The ANOVA revealed that the observed interaction between nostalgia, growth and age was moderated by subscale, F (5, 5320) = 3.19, p = .007, $\eta\rho^2$ = .003. This implies that the interaction between nostalgia, growth and age is best interpreted as specific to the positive social relations, self-acceptance and environmental mastery domains of psychological wellbeing.

Discussion

The Moderating Role of Growth

Overall, the current results suggested that alongside nostalgia, growth has an important role to play in determining wellbeing across the lifespan. Specifically, a growth oriented need to belong was significantly and positively related to all domains of wellbeing as a main effect, but also qualified the interaction between age and nostalgia on positive social relations, self-acceptance, environmental mastery and the composite measure of psychological wellbeing. In low growth individuals, the interaction between age and nostalgia established in Chapter 3 (and conceptually replicated in Chapter 4) was broadly replicated; trajectories of wellbeing across the lifespan were more positive for

high (compared to low) nostalgia individuals. However, this was not the case in high growth individuals; in fact, the reverse tended to be true. That is, wellbeing declined (for positive social relations) or remained stable (for environmental mastery, self-acceptance and the composite measure of psychological wellbeing) across the lifespan in those who were both nostalgia-prone and high in growth.

Approaching the interaction from another angle, the analyses revealed that in younger adults, nostalgia tended to be positively associated with wellbeing (statistically significant only for positive social relations; non-significant but consistent in direction for self-acceptance, environmental mastery and the wellbeing composite), but only in those who were high in a growth oriented need to belong. In younger adults who were less growth oriented, nostalgia tended to be negatively associated with wellbeing (statistically significant only for environmental mastery; non-significant but consistent in direction for positive social relations, self-acceptance and the wellbeing composite). In older adults, the opposite pattern emerged. Nostalgia was negatively associated with all domains of wellbeing, but only in older adults who were high in a growth oriented need to belong. In older adults who were less growth oriented, nostalgia tended to be positively related to wellbeing (marginally significant only for positive social relations; non-significant but consistent in direction for self-acceptance, environmental mastery and the wellbeing composite). In sum, these results began to suggest that nostalgia is most adaptive in conjunction with a high growth orientation in younger adults, but with a low growth orientation in older adults.

Overall, these findings suggest that nostalgia may not meet the needs of high growth individuals as they get older. It appears that nostalgia can be adaptive in younger people, perhaps when used alongside an arsenal of more active growth strategies, such as joining a club in order to learn new skills and meet new people. This was not the case in older adults. In the context of control theory (Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996), high-growth older adults are the ones who would benefit most from

primary control strategies where they are able to go out and make new friends. However, Heckhausen (1997) reported that people become less reliant on primary control strategies and more reliant on secondary control strategies (such as nostalgia) as they progress through life. This implies that older adults who are nostalgia prone and who have a growth orientation may be relying on nostalgia more than is optimal, considering their growth oriented need to belong. Specifically, Gardner et al. (2005) distinguished between direct and indirect social strategies which are deployed in the service of the need to belong. They argued that indirect strategies such as nostalgia are effective in the short-term (and indeed, research on state nostalgia has supported this view; e.g. Zhou et al., 2008). However, the current data suggest that nostalgia is associated with lower wellbeing in high growth older adults when habitually used as a form of 'social snacking'. This is because people with a high growth orientation are more likely to be satisfied by use of direct strategies such as meeting new people and engaging in actual social contact, whereas nostalgia fosters social connectedness through mental representations of social bonds. Perhaps, then, nostalgia simply serves to highlight the relative inaccessibility of past social partners in high growth older adults. Davis (1979) claimed that "the nostalgic revelry of the old serves to insulate them to some degree from the severe feelings of rejection and uselessness they would otherwise experience by virtue of their precarious position in the social structure" (p. 68). However, the current data suggest that this is not the case for those older adults who are highly growth oriented. In sum, nostalgia, with its capacity to reduce loneliness and promote feelings of social connectedness through *mental* representations of past relationships and absent friends (Wildschut et al., 2010), appears to be insufficient for high-growth older people.

Summary of Nostalgia, Deficit-reduction, Age and Gender Findings

Nostalgia. In Chapter 3, the results suggested that nostalgia was associated with lower wellbeing. This was a surprising finding, given that for the most part, prior

published findings relating to the outcomes of nostalgia have been unequivocally positive (e.g. Baldwin & Landau, 2013; Cheung et al., 2013; Routledge, Wildschut, Sedikides, Juhl & Arndt, 2012; Wildschut et al., 2006). In the current chapter, the results were slightly different and can potentially shed some light on these earlier findings. That is, nostalgia was unrelated to positive social relations, personal growth, purpose in life and autonomy. In addition, nostalgia showed negative relationships only with self-acceptance, environmental mastery and the composite measure of psychological wellbeing. Taken together with prior findings (Chapter 3; Hepper et al., 2013), nostalgia appeared to undermine environmental mastery most strongly and consistently. Although this has not been established as a causal relationship (i.e., low environmental mastery may in fact drive nostalgia proneness), the current study did demonstrate the relationship over a period of two months. That is, nostalgia proneness at Time 1 predicted lower environmental mastery at Time 2. Perhaps focusing on the past makes people feel less competent and able to deal with demands in the present.

Most interesting, though, was that the previously-observed negative main effects of nostalgia on wellbeing were mostly eliminated when deficit-reduction was included in the model. Supplementary analyses in the current data revealed that when this term was not included, negative main effects of nostalgia on personal growth, self-acceptance, autonomy, environmental mastery and the composite measure of psychological wellbeing were once again observed. This suggests that the deficit-reduction orientation of the need to belong may account for the finding that nostalgia proneness undermines wellbeing. This finding is consistent with Seehusen et al.'s (2013) research, which established that a deficit-reduction (but not growth) orientation of the need to belong could explain the relationship between nostalgia and neuroticism. These findings were valuable in that they helped to reconcile the 'maladaptation view' with the 'sociality view' of nostalgia. That is, a puzzling paradox has been that nostalgia is positively associated with beneficial social outcomes (e.g. reductions in loneliness; Zhou et al., 2008) as well as characterised as a

symptom of emotional instability associated with the maladaptive personality trait of neuroticism (Barrett et al., 2010; Robertson, 2010). However, Seehusen and colleagues showed that this maladaptive conceptualisation of nostalgia could be accounted for by the deficit-reduction belongingness orientation. In sum, the current findings complement this research and certainly warrant additional investigation, because they could help to further disentangle the paradoxical findings relating to whether nostalgia is indeed adaptive. Perhaps, for instance, nostalgia *per se* is not maladaptive, but its tendency to coexist with a deficit-reduction orientation (which is maladaptive; Lavigne et al., 2011) has sometimes made it appear this way. This would help to reconcile research findings relating to nostalgia proneness (e.g. Hepper et al., 2013) with those relating to state nostalgia (e.g. Wildschut et al., 2006).

Deficit-reduction. Consistent with expectations generated by prior research findings (e.g. Lavigne et al., 2011; Seehusen et al., 2013), the current research demonstrated that an orientation towards deficit-reduction was associated with lower wellbeing across all domains measured in this study. The current study also extended prior findings by assessing a wider range of psychological wellbeing domains. A deficit-reduction orientation predicted lower positive social relations, personal growth, purpose in life, self-acceptance, autonomy, environmental mastery and overall psychological wellbeing over a two month period. In sum, the current findings suggest that an orientation towards deficit reduction is associated with suboptimal functioning across multiple domains.

Age. In general, the main effects of age observed in the current chapter were theoretically congruent and consistent with prior research. Overall, the composite measure of psychological wellbeing showed no linear differences between older and younger adults, replicating my findings in Chapter 3. Because prior research has demonstrated increases with age in some domains (e.g. environmental mastery), but declines in others (e.g. purpose in life), overall stability in the composite measure

psychological wellbeing is to be expected. Furthermore, positive social relations remained stable across the lifespan, consistent with my findings in Chapter 3, as well as those of Hepper et al. (2013) and Ryff (1989a, 1991).

Other domains of wellbeing decreased with age, consistent with expectations. Both personal growth and purpose in life evidenced a curvilinear pattern, whereby they remained relatively stable into middle adulthood, and then declined more sharply into older adulthood. That the two future-oriented domains of wellbeing should decline with age is consistent with the socioemotional selectivity theory (Carstensen et al., 1999). In Chapter 3, these declines with age were observed but did not reach significance. The larger sample size in the study was a likely contributor to the significant age differences observed here on personal growth and purpose in life.

Finally, levels of self-acceptance, autonomy and environmental mastery increased with age. Replicating Hepper et al.'s (2013) findings (although contrary to Ryff, 1989a), the results suggested that levels of self-acceptance increased with age, more sharply so in older adulthood. This is a good sign for coping in older adulthood, because older adults identify acceptance of change as an important contributor to wellbeing during times of transition (Ryff, 1989b). Furthermore, there was a curvilinear increase in autonomy across the lifespan, which closely replicated the pattern reported by Ryff (1989a, 1991). Specifically, the results suggested that autonomy increased between young and middle adulthood, but then remained relatively stable later in life. Finally, I observed the expected increase with age in environmental mastery, consistent with prior research (Chapter 3; Hepper et al., 2013; Ryff, 1989a, 1991).

Gender. In the current study, there were gender differences on positive social relations and autonomy. Replicating prior findings (Chapters 3 & 4; Hepper et al., 2013; Ryff, 1989a, 1991), the results suggested that females rated their social relations more favourably than males overall. In addition, the results suggested that levels of autonomy were greater in males than females. Although this does not replicate Ryff's (1989a)

original findings on gender differences in the six domains of psychological wellbeing, it does add to other recent evidence suggesting that men tend to report greater autonomy than females (Chapter 4; Hepper et al., 2013). In sum, the gender differences which emerged in the current chapter exactly replicate those observed in the previous chapter. These findings further reinforce the well-established gender difference in positive relations, and also add credence to the idea that there may be a gender difference in autonomy, because the current results were obtained in a large, gender-balanced sample.

Strengths, Limitations and Future Directions

The current study was valuable in that it furthered our understanding of the circumstances under which nostalgia is most beneficial. While nostalgia is a pleasant and positive emotional experience for most (Hepper, Ritchie, Sedikides & Wildschut, 2012; Wildschut et al., 2006), which tends to bring many benefits (e.g. Cheung et al., 2013; Routledge et al., 2012; Zhou et al., 2008), it is useful to understand the limitations of nostalgia. The current findings have provided insight into another moderator of the beneficial correlates of nostalgia, suggesting that it is necessary to acknowledge belongingness orientations in the study of how nostalgia relates to wellbeing and optimal functioning. Ultimately, a fuller understanding of the circumstances and people in which nostalgia is associated with the most (and least) positive outcomes may allow it to be developed into a powerful psychological intervention.

Furthermore, the current study has provided novel insights into circumstances under which a growth orientation may be less adaptive. Early research concluded that fulfilment of the need to belong was fundamental to wellbeing (e.g. Baumeister & Leary, 1995). Later, Lavigne et al. (2011) added the caveat that the need to belong should be growth oriented in order to be adaptive. However, Lavigne and colleagues did not consider older adults in their research, and we now know that growth is not unequivocally

positive. When combined with nostalgia proneness in older adults, high (compared to low) growth no longer confers a strong advantage.

It is also important to acknowledge what the results do *not* say. First, the results do not imply that the experience of state nostalgia is maladaptive for older adults who are high in a growth oriented need to belong. That is, if we were to manipulate nostalgia in older adults and compare those who were high and low in growth, we would not necessarily expect state wellbeing to be lower in high growth adults. One reason for this is that it is possible to induce state nostalgia in those who are not naturally nostalgia prone. These momentary experiences of nostalgia are likely to be pleasant (Wildschut et al., 2006) and are unlikely to undermine wellbeing over the longer term. However, frequent engagement in nostalgia to the detriment of more active strategies may undermine wellbeing.

Second, the correlational design of the study means that it is not possible to infer that the combination of a growth orientation with frequent nostalgic reverie is *causing* the lower levels of wellbeing observed in older adults. However, it is clear that an association is present. The longitudinal nature of the current study does demonstrate that levels of nostalgia and growth are related to wellbeing two months later, although the presence of this relationship does not preclude the possibility that there may be a third variable that might account for the relationship, or indeed a bidirectional association between nostalgia, growth and wellbeing. For instance, low levels of wellbeing may feed back to influence levels of nostalgia. One way to assess this possibility would be to examine whether the three-way interaction predicts *change* in psychological wellbeing by measuring it at Time 1 and controlling for this in the analyses. Another potential weakness of this study design is that although the study was longitudinal, there was a relatively short time period of two months between the measurement points. Future research could investigate whether the three-way interaction still predicts wellbeing after a longer time lapse.

Finally, this research examined how nostalgia, growth and age relate to the six domains of psychological wellbeing: positive social relations, personal growth, purpose in life, self-acceptance, autonomy, and environmental mastery. These domains together reflect the extent to which a person is fulfilled and functioning positively. However, there is also an alternative tradition of wellbeing research which has examined subjective wellbeing by assessing levels of happiness and enjoyment in life (e.g. Diener & Lucas, 1999). Although researchers from each tradition have not always agreed how wellbeing should best be conceptualised (e.g. Diener, Sapyta & Suh, 1998; Ryff & Singer, 1998), both traditions do measure important aspects of wellbeing and more recent research findings have suggested that they may be more intertwined than was previously thought (Keyes et al., 2002). Therefore, it would be useful to understand the extent of the implications of the findings in the current chapter. Might nostalgia, growth and age also interact to predict other forms of wellbeing? I consider this question in the next chapter.

Concluding Comments

In this chapter, the findings have demonstrated that a growth oriented need to belong has an important role to play in the interaction between nostalgia and age on psychological wellbeing. Consistent with prior findings, wellbeing remained stable or increased into older adulthood for nostalgia prone individuals, but only when they were also low in growth. In those who were high in growth, wellbeing outcomes across the lifespan were relatively less positive for those who were nostalgia prone. In sum, these findings suggest that nostalgia may not meet the affiliative needs of high growth individuals as they get older.

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Table 6. *Domains of Psychological Wellbeing and the Wellbeing Composite as a Function of Nostalgia, Growth, Deficit-reduction, Age and Gender*.

Wellbeing dimension	Nostalgia	Growth	Deficit	Age	Age^2	Gender	Nostalgia × Deficit × Age	Nostalgia × Growth × Age	Model R^2
Wellbeing domains									
Positive relationships	-.02	.39***	-.15***	-.05	.04	-.10***	.04	-.12***	.16***
Personal growth	-.05	.43***	-.22***	-.18***	-.06*	.00	-.02	-.01	.20***
Purpose in life	-.02	.30***	-.17***	-.09**	-.08*	-.02	-.03	-.03	.10***
Self-acceptance	-.06*	.29***	-.22***	.19***	.06*	-.02	.03	-.07*	.11***
Autonomy	-.03	.21***	-.33***	.10**	-.02	.13***	-.03	-.02	.13***
Environmental mastery	-.10**	.30***	-.21***	.19***	-.01	-.03	.02	-.08*	.11***
Wellbeing composite	-.06*	.44***	-.29***	.04	-.02	-.01	.00	-.07*	.17***

Note. † $p < .07$, * $p < .05$, ** $p < .01$, *** $p < .001$. Values are standardised beta coefficients.

All two-way interactions were non-significant and are not presented, βs < .06, *t*s < 1.87, *p*s > .061.

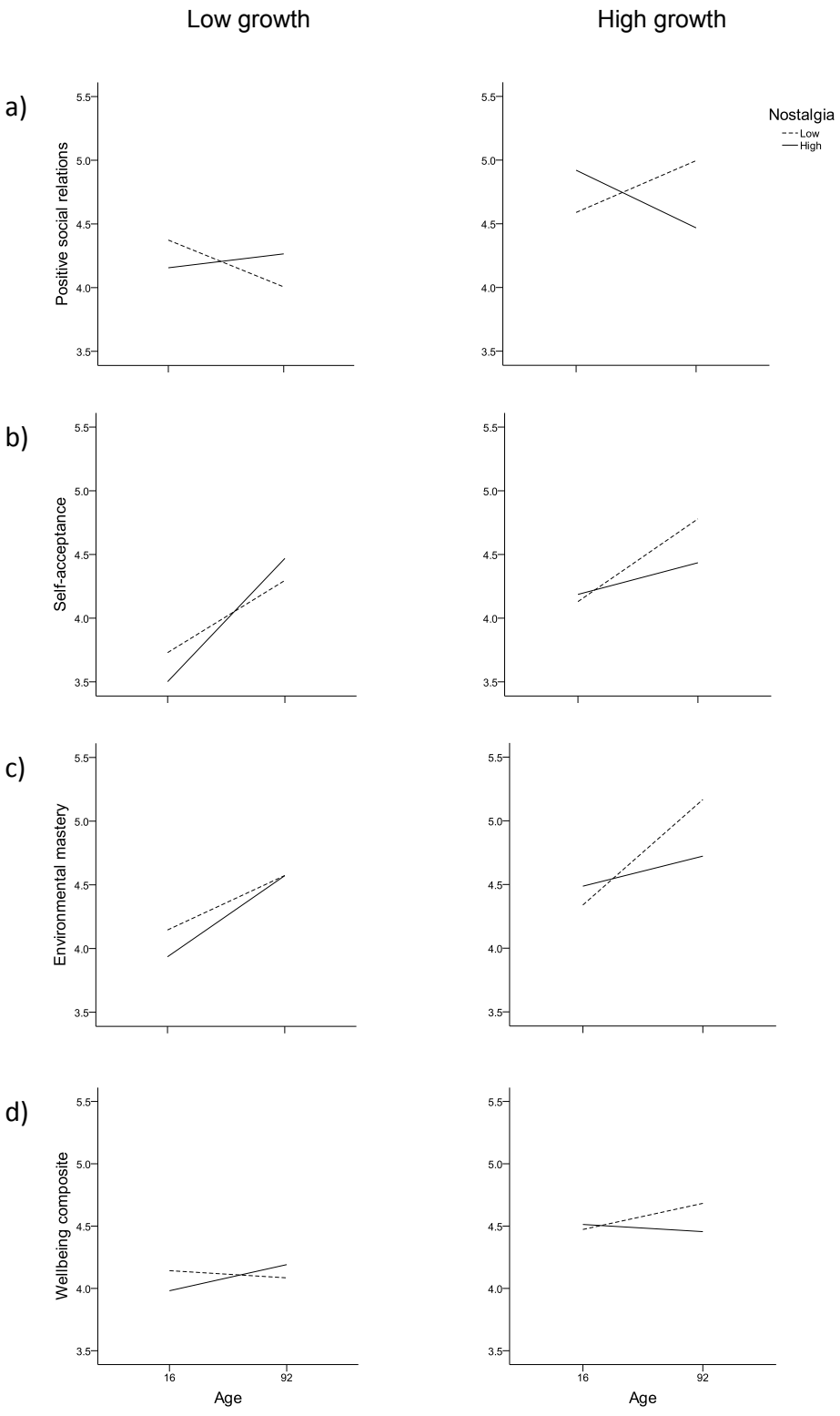

Figure 2. Interactions between nostalgia and age on positive social relations, self-acceptance, environmental mastery and the wellbeing composite in low and high growth participants.

Chapter 6: The Role of Belongingness Orientations in Subjective Wellbeing and Health

In this chapter, I extend my perspective to examine the influence of a growth-oriented need to belong on broader measures of health and wellbeing. Previously, I established that growth qualified the interaction between age and nostalgia on three distinct domains of psychological wellbeing, namely positive social relations, self-acceptance and environmental mastery, as well as overall psychological wellbeing. In those who were high in a growth oriented need to belong, psychological wellbeing across the lifespan was relatively less positive for those who were high (compared to low) in nostalgia. However, the study presented in Chapter 5 examined a relatively limited range of wellbeing dimensions, namely those which pertained to fulfilment and optimal functioning. There are other ways to conceptualise wellbeing, and thus I broaden my scope to account for subjective wellbeing, resilience and health in the current chapter.

Alternative Conceptions of Wellbeing

Subjective wellbeing. The psychological wellbeing tradition measures wellbeing in terms of fulfilment and optimal functioning through positive relations, personal growth, purpose, self-acceptance, autonomy and environmental mastery. However, this approach has been criticised for defining wellbeing in purely academic terms, rather than allowing participants to define what makes their life good (Diener, Sapyta & Suh, 1998). Another research tradition characterises wellbeing as the amount of pleasure, happiness and enjoyment in life (e.g. Diener & Lucas, 1999). This conceptualisation is referred to as subjective wellbeing, and is made up of three components: the absence of negative affect and the presence of positive affect and life satisfaction. Despite their different approaches and controversies (e.g. subjective wellbeing's alleged oversimplification of the construct

versus psychological wellbeing's predefined conceptions; Diener et al., 1998; Ryff & Singer, 1998), both approaches measure important aspects of what it is to lead a contented and fulfilled life. Furthermore, Keyes, Shmotkin and Ryff (2002) highlighted the relatedness of psychological and subjective wellbeing in their finding that self-acceptance and environmental mastery contribute to psychological wellbeing (along with positive relations, personal growth, purpose and autonomy) but also to subjective wellbeing (along with positive affect, negative affect and life satisfaction). This suggests that it is unnecessary to adopt measurement of wellbeing according to only one tradition and thereby examine either fulfilment or happiness in isolation. Instead, research should attempt to account for both psychological and subjective wellbeing.

Prior research has suggested that state nostalgia and age are both individually associated with subjective wellbeing. That is, nostalgia predicts positive affect (Baldwin & Landau, 2013; Hepper, Ritchie, Sedikides & Wildschut, 2012; Stephan, Sedikides & Wildschut, 2012; Verplanken, 2012; Wildschut, Sedikides, Arndt & Routledge, 2006; Wildschut, Sedikides, Routledge, Arndt & Cordaro, 2010), although sometimes alongside negative affect (Barrett et al., 2010; Wildschut et al., 2006). In addition, positive affect remains stable, while negative affect decreases across the lifespan (Barrick, Hutchinson & Deckers, 1989; Carstensen, Pasaputhi, Mayr & Nesselroade, 2000; Charles, Reynolds & Gatz, 2001). What role might nostalgia proneness, growth and age together play in subjective wellbeing? I examine this question in the current study.

Resilience. Psychological resilience is another important component of wellbeing, which entails "inner strength, competence, optimism, flexibility, and the ability to cope effectively when faced with adversity" (Wagnild, 2009, p. 105). Richardson (2002) further characterised resilience as the presence of "optimal characteristics and states" (p. 310) including happiness, subjective wellbeing and optimism, which could be used as a resource in the face of threat. Consistent with this, Diener (2000) argued that subjective wellbeing and resilience are highly related, because the ability to adapt effectively to

stressful or negative events contributes to happiness and satisfaction with life. This is related to Brickman and Campbell's (1971) concept of the 'hedonic treadmill' which suggests that over time, adaptation produces hedonic neutrality. That is, as well as happy events no longer producing elation (e.g. winning the lottery; Brickman, Coates & Janoff-Bulman, 1978), sad events no longer produce feelings of devastation because resilience enables people to adapt. Indeed, Suh, Diener and Fujita (1996) found that within six months, major negative life events (e.g. divorce, death of a close friend or family member, or being a victim of a violent crime) no longer had a detrimental impact on participants' levels of positive affect, negative affect and life satisfaction. Moreover, the levels of resilience that people possess (and thereby the speed in which they can adapt) varies amongst people (Carver, 1998). The broaden-and-build theory (Fredrickson, 2001) proposes that this ability to recover after stressful events may be driven by experiences of positive emotion which co-exist with resiliency and facilitate effective coping. Indeed, research has shown that resilience is related to shorter durations of cardiovascular reactivity after a stressful task (Tugade & Fredrickson, 2004), lower stress responses and quicker recovery from daily stressors (Ong, Bergeman, Bisconti & Wallace, 2006), and increased psychological growth and reduced depression after traumatic events (Fredrickson, Tugade, Waugh & Larkin, 2003). Consistent with the broaden-and-build theory, these outcomes were mediated by experiences of positive emotion. Furthermore, Fredrickson and Joiner (2002) demonstrated that positive affect and active coping facilitate each other reciprocally, creating an 'upward spiral' towards greater resilience and wellbeing. In sum, levels of resilience are instrumental in wellbeing; they are associated reciprocally with both subjective and psychological wellbeing through their capacity to promote positive functioning (e.g. Fredrickson & Joiner, 2002) as well as happiness and life satisfaction (e.g. Diener, 2000).

Prior research has suggested that both nostalgia proneness and a growth (but not deficit-reduction) oriented need to belong are related to resilience (Lavigne, Vallerand &

Crevier-Braud, 2011; Zhou, Sedikides, Wildschut & Gao, 2008). Might nostalgia, growth and age interact in their association with resilience? I aim to discover in the current chapter.

Health. Lavigne et al. (2011) called for research to examine the potential role of belongingness orientations in health, and the current research answers this call. Could nostalgia and growth have a role to play in physical health? Prior research has suggested that nostalgia may indeed be associated with health outcomes, particularly minor physical symptoms such as headaches, lack of sleep and fatigue (Robertson, 2010). In addition, although no research has directly examined the relationship between belongingness orientations and health, compelling evidence has shown that the presence of positive relationships and social support are instrumental in health. So strong is the need to belong that a failure to meet this need through the presence of social support is associated with both poorer health and increased mortality risk (e.g. House, Landis & Umberson, 1988; Uchino, Cacioppo & Kiecolt-Glaser, 1996).

Attention has also focused on the potential mechanisms responsible for the relationship between the presence of positive and supportive relationships with health outcomes, particularly on cardiovascular, endocrine and immune system functioning (Cohen, 1988; Uchino et al., 1996). Cohen (1988) proposed three categories of mediators between social support and health: social mechanisms (e.g. the stress-buffering effects of having others around), psychological mechanisms (e.g. companionship promoting wellbeing), and behavioural mechanisms (e.g. the influence of others' health-promoting behaviours on people's own health behaviours). In the current study, I focus on potential psychological mechanisms which could mediate the relationship between belongingness orientations and general health. Research has shown, for instance, that both subjective wellbeing and resilience are positively correlated with health (e.g. Okun, Stock, Haring & Witter, 1984; Wagnild & Young, 1993; Wilson, 1967). If nostalgia, growth and age interact

to predict health, might this be an indirect effect via subjective wellbeing or resilience? I examine this question in the current study.

The Present Research

In this research, I explore the influence of growth and deficit reduction belongingness orientations on broader measures of health and wellbeing. Specifically, I examine how nostalgia, growth, deficit-reduction and age interact to predict the components of subjective wellbeing, resilience and general health. I also examine a potential mediation path between nostalgia, growth and age on health, via subjective wellbeing or resilience. Guided by the findings of the previous chapter, I predict that (a) growth will be positively associated with subjective wellbeing, resilience and general health, whereas deficit-reduction will be negatively associated with these outcomes; (b) growth will moderate the interaction between age and nostalgia on subjective wellbeing, resilience and general health, such that the lifespan trajectories are more positive for low growth individuals who are high (compared to low) in nostalgia, but more negative for high growth individuals who are high (compared to low) in nostalgia; and (c) perceived physical health outcomes will be mediated by levels of subjective wellbeing.

Method

Participants

One hundred and thirty-nine participants (69 females, 70 males) resident in the Netherlands aged between 16 and 66 years (M_{age} = 37.58, SD_{age} = 13.64) completed the study after viewing a study advertisement on the website for "Top 2000," a popular Dutch radio and television programme aired annually around Christmas.

Procedure

Data collection took place during December 2012 and January 2013. Participants who accepted the invitation to participate in this research were presented with the study materials online.

Nostalgia proneness. Participants completed the 7-item Southampton Nostalgia Scale (α = .95; Routledge, Arndt, Sedikides & Wildschut, 2008) in order to assess how often they experience nostalgia and whether they value the experience. Items include, "How valuable is nostalgia for you?" (1 = *not at all*, 7 = *very much*) and, "Specifically, how often do you bring to mind nostalgic experiences??" (1 = *once or twice a year*, 7 = *at least once a day*).

Belongingness orientation. Participants completed the two 5-item growth (α = .85) and deficit-reduction (α = .77) subscales of the Belongingness Orientation Scale (Lavigne et al., 2011) which assess need to belong oriented towards actualisation and repair, respectively. Items include, "My interpersonal relationships are important to me because I consider that the people I meet are fascinating" (growth) and, "My interpersonal relationships are important to me because they fill a void in my life" (deficit-reduction). Responses were recorded on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*).

Health and wellbeing. To assess levels of positive and negative affect, participants completed the Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegen, 1988). Participants indicated the extent to which they experienced 10 positive (e.g. "interested", "elated", "inspired", and "proud"; α = .86) and 10 negative (e.g. "hostile", "nervous", "upset", and "afraid"; α = .92) feelings in general. Responses were recorded on a 5-point scale (1 = *barely or not at all*, 5 = *to a large extent*).

Participants then completed the 5-item Satisfaction with Life Scale (SWLS; α = .89; Diener, Emmons, Larsen & Griffin, 1985). Items include, "In most ways, my life is close to my ideal", and, "If I could live my life over, I would change almost nothing" (1 = *strongly disagree*, 7 = *strongly agree*).

Next, participants completed the 5-item World Health Organisation Wellbeing Scale (WHO-5; α = .89; World Health Organisation, 1998). Participants are asked to indicate the extent to which they agree with a set of statements when considering the past two weeks; for instance, "I felt cheerful and in a good mood", and, "My daily life was filled with things that interest me" (0 = *not at all*, 5 = *all the time*). This scale was originally developed by the World Health Organisation as an indicator of depression, but in doing so it provides a secondary assessment of life satisfaction to complement the SWLS described above. The key distinction between the two scales is that WHO-5 scale focuses on more concrete indicators of wellbeing over the past two weeks, whereas the SWLS probes for a broader assessment of wellbeing.

In order to assess levels of resilience, participants completed the 25-item Wagnild and Young Resilience Scale (α = .89; 1993). This scale assesses aspects of self-belief, perseverance, equanimity, meaning and autonomy, and includes the items, "My belief in myself gets me through hard times", "When I make plans, I follow through with them", "My life has meaning", "I can usually find something to laugh about", and, "It's okay if there are people who don't like me". Responses were recorded on a 4-point scale (0 = *does not apply to me*, 4 = *very applicable to me*).

Finally, in order to assess general health symptoms and functioning, participants completed the 12-item General Health Questionnaire (GHQ-12; α = .90; Goldberg & Williams, 1988). This scale assesses aspects of mental health and positive and negative functioning such as sleep quality, feelings of pressure and being overwhelmed, the ability to make decisions effectively and to derive pleasure from everyday activities. Items include, "Have you lost a lot of sleep due to worry lately?" (1 = *not at all*, 4 = *much more than usual*), and, "Have you been able to concentrate on your activities?" (1 = *better than usual*, 4 = *much worse than usual*). Participants responded according to the last two weeks, and the scale was coded so that higher scores denoted greater adverse health symptoms and thus poorer functioning.

Consistent with expectations, there were moderate to strong correlations between the dimensions of health and wellbeing assessed in the study. Both negative affect and adverse health symptoms were negatively correlated with all other indexes of wellbeing, *r*s ranged from -.33 (positive and negative affect) to -.74 (WHO wellbeing and GHQ-12), mean $r = -.55$. Furthermore, positive affect, life satisfaction, resilience and WHO wellbeing were significantly and positively inter-correlated; *r*s ranged from .47 (positive affect and life satisfaction) to .67 (WHO wellbeing and life satisfaction), mean $r = .57$.

Analysis

I conducted multiple regression models predicting wellbeing from nostalgia, growth, deficit-reduction, age (all mean centred) and gender (contrast coded). Specifically, I entered nostalgia, growth, deficit-reduction, age, age^2 (to test for curvilinear effects) and gender, then the two-way interactions between nostalgia and growth, nostalgia and deficit-reduction, nostalgia and age, growth and age, and deficit-reduction and age. Consistent with the previous chapter, I opted for the more parsimonious model and did not include interaction terms involving age^2 or gender. Finally, I entered the three-way interactions between nostalgia, growth and age, and nostalgia, deficit-reduction and age.

Results

Positive Affect

Relevant beta values are presented in Table 7. The multiple regression analyses revealed that growth and deficit-reduction were significant predictors of positive affect. Specifically, positive affect was greater in those who were high in a growth orientation and low in a deficit-reduction orientation. There was also a significant two-way interaction between nostalgia and deficit-reduction, $\beta = .18$, $t = 2.20$, $p = .030$. Simple slopes analyses

(Aiken & West, 1991) at low (*M* - 1*SD*) and high (*M* + 1*SD*) levels of deficit-reduction revealed that nostalgia was positively associated with positive affect, but only for participants who were high in deficit-reduction, β = .27, *t* = 2.30, *p* = .023. In participants who were low in deficit-reduction, nostalgia did not predict positive affect, β = -.08, *t* = -0.76, *p* = .451. Nostalgia was associated with relatively better wellbeing in those who were oriented towards deficit-reduction.

In addition, there was a significant two-way interaction between age and deficit-reduction, β = -.22, *t* = -2.83, *p* = .005. Simple slopes analyses revealed that positive affect increased with age, but only for participants who were low in deficit-reduction, β = .36, *t* = 3.25, *p* = .001. In participants who were high in deficit-reduction, positive affect remained stable across the lifespan, β = -.09, *t* = -0.85, *p* = .395. Across the lifespan, a low deficit-reduction orientation was associated with relatively better wellbeing.

Furthermore, there was a significant three-way interaction between nostalgia, growth and age (Figure 3, panel a). In order to examine this interaction further, I conducted simple slopes analyses in the youngest (age 16) and oldest (age 66) adults in the sample, and at low (*M* - 1*SD*) and high (*M* + 1*SD*) levels of nostalgia and growth.

Age predicting positive affect. These simple slopes analyses revealed that in participants who were low in growth, positive affect remained stable with age for those who were low in nostalgia, β = -.17, *t* = -1.28, *p* = .203, but increased significantly with age in those who were high in nostalgia, β = .36, *t* = 2.24, *p* = .027. However, in participants who were high in growth, the opposite pattern emerged. Positive affect increased across the lifespan for those who were low in nostalgia, β = .37, *t* = 2.63, *p* = .010, but remained stable in those who were high in nostalgia, β = -.03, *t* = -0.17, *p* = .863. These findings suggest that nostalgia is not related to gains in subjective wellbeing across the lifespan when combined with a growth orientation.

Nostalgia predicting positive affect. Partitioning the interaction in an alternative direction revealed that for younger adults, nostalgia was unrelated to positive

affect when growth was low, β = -.25, *t* = -1.27, *p* = .208. However, nostalgia was positively related to positive affect when growth was high, β = .35, *t* = 2.06, *p* = .042. In older adults, the reverse pattern emerged; nostalgia predicted positive affect when growth was low, β = .71, *t* = 3.16, *p* = .002, but was unrelated to positive affect when growth was high, β = -.38, *t* = -1.62, *p* = .108.

Negative Affect

Nostalgia marginally predicted negative affect, and growth, deficit-reduction and age significantly predicted negative affect. Specifically, negative affect was marginally greater for those who were high in nostalgia. In addition, negative affect declined across the lifespan, and was greatest in those who were low in growth and high in deficit-reduction. There was also a significant two-way interaction between age and deficit-reduction, β = .19, *t* = 2.32, *p* = .022. Simple slopes analyses revealed that negative affect decreased with age, but only for participants who were low in deficit-reduction, β = -.44, *t* = -.374, *p* < .001. In participants who were high in deficit-reduction, negative affect remained stable across the lifespan, β = -.04, *t* = -0.38, *p* = .709. This interaction pattern matched that which emerged for positive affect. However, there were no significant three-way interactions between nostalgia, deficit-reduction and age, or nostalgia, growth and age.

Life Satisfaction

Growth (but not nostalgia, deficit-reduction, age, age^2 or gender) was positively related to satisfaction with life. There was also a significant two-way interaction between nostalgia and deficit-reduction on satisfaction with life, β = .21, *t* = 2.32, *p* = .022. Simple slopes analyses revealed that nostalgia was unrelated to life satisfaction in participants who were high in deficit-reduction, β = .09, *t* = 0.68, *p* = .498. However, in participants who were low in deficit-reduction, nostalgia was negatively related to life satisfaction, β =

-.33, t = -2.81, p = .006. This was consistent with the two-way interaction pattern between nostalgia and deficit-reduction on positive affect; nostalgia was associated with relatively better wellbeing in those who were oriented towards deficit-reduction. However, no significant three-way interactions between nostalgia, deficit-reduction and age, or nostalgia, growth and age emerged.

WHO Wellbeing

Growth and deficit-reduction predicted wellbeing as assessed by the WHO-5 scale. Specifically, wellbeing was greatest in those who were highly growth-oriented and low in deficit-reduction. These main effects were not qualified by any two-way interactions, but they were qualified by a significant three-way interaction between nostalgia, growth and age. Simple slopes analyses explored this three-way interaction further (Figure 3, panel b).

Age predicting wellbeing. The simple slopes analyses revealed that in participants who were low in growth, wellbeing remained stable with age for those who were low in nostalgia, β = -.05, t = -0.36, p = .723, and for those who were high in nostalgia, β = .11, t = 0.60, p = .549. However, in participants who were high in growth, a different pattern emerged. Wellbeing increased across the lifespan for those who were low in nostalgia, β = .33, t = 2.07, p = .041, but decreased marginally in those who were high in nostalgia, β = -.32, t = -1.84, p = .069. In sum, the worst outcomes across the lifespan were observed in participants who were high in growth and nostalgia. These findings suggest that nostalgia is not adaptive for older adults when combined with a growth orientation.

Nostalgia predicting wellbeing. Partitioning the interaction in an alternative direction revealed that in younger adults who were low in growth, nostalgia was unrelated to wellbeing, β = -.05, t = -0.24, p = .814. However, in younger adults who were high in growth, nostalgia predicted wellbeing, β = .41, t = 2.14, p = .035. In older adults, a different pattern emerged. Although nostalgia remained unrelated to wellbeing in those who were

low in growth, β = .24, *t* = 0.95, *p* = .343, it was negatively related to wellbeing in those who were high in growth, β = -.78, *t* = -2.88, *p* = .005. Nostalgia appeared to be most beneficial to younger participants who were high in growth. In older participants who were high in growth, nostalgia was associated with lower wellbeing.

Resilience

Analyses revealed that growth, deficit-reduction and age predicted resilience. Specifically, resilience was greatest in those who were high in growth and low in deficit-reduction, and also increased with age. Furthermore, there was a significant two-way interaction between nostalgia and deficit-reduction, β = .17, *t* = 2.10, *p* = .038. Simple slopes analyses revealed a slight positive (but non-significant) relationship between nostalgia and resilience in participants who were high in deficit-reduction, β = .20, *t* = 1.65, *p* = .102, but a slight negative (but non-significant) relationship in those who were low in deficit-reduction, β = -.14, *t* = -1.35, *p* = .180. Although these simple slopes did not reach significance, they revealed a pattern consistent with those observed when examining the interaction between nostalgia and deficit-reduction on positive affect and life satisfaction. Nostalgia was associated with relatively better wellbeing in those who were oriented towards deficit-reduction.

There was also a marginal two-way interaction between nostalgia and growth on resilience, β = -.15, *t* = -1.91, *p* = .058. Simple slopes analyses revealed a slight positive (but non-significant) relationship between nostalgia and resilience in participants who were low in growth, β = .17, *t* = 1.54, *p* = .125, but a slight negative (but non-significant) relationship in those who were high in growth, β = -.11, *t* = -1.04, *p* = .301. Although these simple slopes did not reach significance, they do fit well with the Nostalgia × Deficit-reduction interactions on positive affect, life satisfaction and resilience reported above. Nostalgia was associated with relatively better wellbeing in those who were less oriented towards growth.

Finally, an interaction between nostalgia, age and growth emerged. In order to break down this significant three-way interaction, I conducted simple slopes analyses (Figure 3, panel c).

Age predicting resilience. In participants who were low in growth, resilience remained stable with age for those who were low in nostalgia, β = -.03, *t* = -0.22, *p* = .829, but increased with age in those who were high in nostalgia, β = .34, *t* = 2.09, *p* = .039. In participants who were high in growth, the opposite pattern emerged. Age was related to significant increases in resilience across the lifespan for those who were low in nostalgia, β = .32, *t* = 2.22, *p* = .028, but stability in those who were high in nostalgia, β = .04, *t* = 0.29, *p* = .771.

Nostalgia predicting resilience. Partitioning the interaction in an alternative direction revealed that in younger adults, nostalgia did not predict resilience when growth was low, β = -.12, *t* = -0.61, *p* = .546, or when growth was high, β = .11, *t* = 0.63, *p* = .531. In older adults, nostalgia was positively related to resilience when growth was low, β = .54, *t* = 2.40, *p* = .018, but not when growth was high, β = -.39, *t* = -1.65, *p* = .102. In sum, nostalgia was related to resilience in older adulthood, but only when combined with a low growth orientation.

General Health

Growth, deficit-reduction and age^2 significantly predicted general health; those who were high in growth and low in deficit-reduction reported the fewest adverse health symptoms. Furthermore, the curvilinear age trend demonstrated a slight decrease in reported adverse health symptoms into middle age, and then an increase into older adulthood. These main effects were not qualified by any two-way interactions. However, there was a significant three-way interaction between nostalgia, age and growth on general health. In order to examine this significant three-way interaction further, I next conducted simple slopes analyses (Figure 3, panel d).

Age predicting general health. These simple slopes analyses revealed that in participants who were low in growth, age was related to lifespan stability in adverse symptoms in both those who were low in nostalgia, β = .07, *t* = 0.44, *p* = .663, and in those who were high in nostalgia, β = -.20, *t* = -1.11, *p* = .270. In participants who were high in growth, a different pattern emerged. Adverse health symptoms remained stable with age in those who were low in nostalgia, β = -.20, *t* = -1.20, *p* = .233, but increased significantly with age in those who were high in nostalgia, β = .48, *t* = 2.46, *p* = .015. Towards older adulthood, the combination of a growth orientation with high nostalgia was associated with the poorest general health evaluations.

Nostalgia predicting general health. In younger adults, nostalgia was unrelated to general health in those with a low growth orientation, β = .35, *t* = 1.53, *p* = .128. However, in younger adults with a high growth orientation, nostalgia was related to a reduction in symptoms, β = -.43, *t* = -2.14, *p* = .035. In older adults, a different pattern emerged. Although nostalgia remained unrelated to general health in those with a low growth orientation, β = -.14, *t* = -0.54, *p* = .593, it was associated with an increase in adverse symptoms in high growth older adults, β = .84, *t* = 2.80, *p* = .006. In terms of general health, nostalgia appeared to be most adaptive in highly growth oriented younger adults, and least adaptive in highly growth oriented older adults.

Mediation Analyses

Nostalgia, growth and age interacted to predict aspects of subjective wellbeing and resilience, but also general health symptoms. In order to discover whether the three-way interaction between nostalgia, age and growth on general health was predicted via subjective wellbeing and resilience, I next tested for mediation using the PROCESS macro (Hayes, 2013; model 12; 5000 bootstraps). I evaluated the indirect effect of nostalgia on general health via positive affect, WHO wellbeing and resilience, conditional upon age and growth. Consistent with the earlier models tested in this study, gender, age^2 and deficit-

reduction were entered as covariates in order to statistically control for their effects. A schematic representation of the model is presented in Figure 3. First, I examined the potential mediators individually. These analyses revealed a significant indirect effect via WHO wellbeing, M_{effect} = .006, *SE* = .003, 95% CI = .0007 / .012, and via resilience, M_{effect} = .003, *SE* = .002, 95% CI = .001 / .007, but not via positive affect, M_{effect} = .003, *SE* = .002, 95% CI = -.0003 / .007. Second, I examined WHO wellbeing and resilience in parallel in order to compare their relative strength as mediators. When both potential mediators were entered simultaneously, there was a significant indirect effect via WHO wellbeing, M_{effect} = .006, *SE* = .003, 95% CI = .0007 / .011, but not via resilience, M_{effect} = .0002, *SE* = .001, 95% CI = -.001 / .002. In sum, nostalgia, age and growth interacted in their association with WHO wellbeing, and this was in turn associated with levels of general health.

Discussion

The Moderating Role of Growth

Overall, the current results were highly consistent with those reported in the previous chapter and suggested that alongside nostalgia, growth has an important role to play in determining broader measures of health and wellbeing. Consistent with expectations generated by prior published research (Lavigne et al., 2011) as well as my findings in Chapter 5, a growth oriented need to belong was strongly associated with all dimensions of health and wellbeing assessed in the study. Specifically, a high growth orientation predicted greater positive affect, life satisfaction, WHO wellbeing and resilience. In addition, growth was related to lower negative affect and fewer adverse health symptoms. Furthermore, the results indicated that a growth-oriented need to belong qualified the interaction between age and nostalgia proneness on positive affect, WHO wellbeing, resilience and general health. Specifically, in low growth individuals, the

interaction between age and nostalgia established in Chapter 3 (and conceptually replicated in Chapter 4) was broadly replicated; lifespan trajectories of subjective wellbeing, resilience and perceived health were more positive for high (compared to low) nostalgia individuals. However, the reverse tended to be true for high growth individuals. That is, health and wellbeing declined (for WHO wellbeing and general health) or remained stable (for positive affect and resilience) across the lifespan for those who were both nostalgia-prone and high in growth.

It is also possible to approach the interaction from a different angle; namely to examine the role of nostalgia in younger and older adults who are high and low in growth. In younger adults, nostalgia predicted significantly greater positive affect and WHO wellbeing, and a significant reduction in adverse health symptoms, but only in those who were high in a growth-oriented need to belong. In younger adults who were less growth oriented, nostalgia was unrelated to wellbeing. In older adults, the opposite pattern emerged. Nostalgia was associated with poorer WHO wellbeing and greater adverse health symptoms in older adults who were highly growth oriented. Conversely, in older adults who were low in growth, nostalgia predicted significantly greater positive affect and resilience. In sum (and in line with Chapter 5), the results suggested that nostalgia is most adaptive in conjunction with a high growth orientation in younger adults, but with a low growth orientation in older adults.

A crucial contribution of the current study was the additional measurement of general health symptoms. Specifically, this study also examined aspects of mental health and positive and negative functioning such as sleep quality, feelings of pressure and being overwhelmed, and the ability to make decisions effectively and to derive pleasure from everyday activities. This represents a step onwards from measuring happiness or fulfilment to examine the implications that nostalgia and growth may have on actual perceptions of health. Furthermore, mediation analyses revealed an indirect effect of nostalgia, growth and age on health via WHO wellbeing. It is important to note that these

findings are correlational, and by referring to an 'indirect effect', I am using the terminology of intervening variable models rather than implying causation. Nevertheless, the current findings provided insight into a potential mechanism for how nostalgia relates to health; through wellbeing rather than directly. The WHO-5 scale measures a form of wellbeing akin to satisfaction with life, by asking participants to rate the extent to which they felt cheerful, calm, active, well-rested and that their lives were filled with interest over the past two weeks. Overall, then, the results suggest that the interactive effect of nostalgia, growth and age on health operated via the recent levels of happiness and interest present in participants' lives. Interestingly, despite the strong links between resilience and health in the literature (e.g. Tugade & Fredrickson, 2004; Wagnild & Young, 1993), resilience did not mediate the relationship between nostalgia, growth and age on general health symptoms when WHO wellbeing was entered in parallel into the model. This may be because of the degree of similarity between some items on the WHO-5 and the GHQ-12; for instance, "I woke up feeling fresh and rested" (WHO-5) versus, "Have you lost a lot of sleep due to worry lately?" (GHQ-12). Because these two scales were somewhat overlapping in their assessment of health and wellbeing, this may have meant that WHO wellbeing appeared to be a much stronger mediator relative to resilience. However, resilience did significantly mediate the relationship between nostalgia, growth and age on health when evaluated individually.

These findings complement those reported in the previous chapter and show that alongside nostalgia, a growth oriented need to belong plays a role in wellbeing across the lifespan. Although the simple slopes analyses revealed slight differences in the emphasis of the interactions between indexes of wellbeing, the overall pattern suggests that in highly nostalgic people, lifespan maintenance or enhancement of subjective wellbeing, resilience and health in older adults would be expected, but only for those who have a low growth-oriented need to belong. In those who have a high growth-oriented need to belong, nostalgia is not associated with such favourable outcomes across the lifespan.

Once again, these findings suggest that nostalgia, an indirect social strategy which relies on mental representations of social bonds, does not meet the affiliative needs of high growth individuals as they get older. Instead, it is likely that these individuals would benefit most from direct social strategies involving actual social contact.

The Role of Deficit-reduction

Consistent with prior research (Chapter 5; Lavigne et al., 2011), an orientation towards deficit-reduction was associated with poorer wellbeing. Specifically, deficit-reduction predicted significantly lower levels of positive affect, WHO wellbeing and resilience. Furthermore, a deficit-reduction orientation predicted greater negative affect and adverse health symptoms. However, these main effects were also qualified by several two-way interactions on positive affect, negative affect, life satisfaction, and resilience.

First, age and deficit-reduction interacted to predict positive and negative affect. Specifically, positive affect increased with age and negative affect decreased with age, but only for participants who were low in deficit-reduction. These findings provide further evidence for the relative maladaptiveness of the deficit-reduction orientation. Overall, evidence has suggested a more favourable balance between positive and negative affect across the lifespan (Barrick et al., 1989; Carstensen et al., 2000; Charles et al., 2001; Mroczek & Kolarz, 1998; Ryff, 1989), but it appears that this is best achieved in those who are not oriented towards deficit-reduction. These findings further point towards the potentially far-reaching consequences of the nature of people's affiliations with others.

Second, nostalgia and deficit-reduction interacted to predict positive affect, life satisfaction, and resilience. Results indicated that nostalgia was most associated with positive wellbeing in those who were oriented towards deficit-reduction. Specifically, nostalgia predicted positive affect (but was unrelated in those who were low in deficit-reduction), was unrelated to life satisfaction (but negatively related in those who were low in deficit reduction), and showed a slight positive relationship with resilience (but a slight

negative relationship in those who were low in deficit reduction). Overall, then, nostalgia was associated with relatively better wellbeing in those who were oriented towards deficit-reduction. Whilst this finding might appear incongruous, given that evidence has suggested that the deficit-reduction orientation is maladaptive (Lavigne et al., 2011), what it does suggest is that nostalgia is best able to meet the needs of those who are oriented towards deficit-reduction. This may be because nostalgia is a flexible resource which can be used both in the presence of others and when alone in order to repair deficits in social connectedness (Wildschut et al., 2006). The element of memory bias integral to nostalgia through rose tinted recall (Hepper et al., 2012) is also likely to be useful to those who are motivated by deficit-reduction and who want to avoid anxiety induced by the experience (or recall) of less successful social interactions. These findings are consistent with prior research which has shown that nostalgia best serves connectedness functions in those who are low in attachment-related avoidance (Wildschut et al., 2010). On the contrary, and in line with the findings relating to growth in this and the previous chapter, people who are less oriented towards deficit-reduction (thus, potentially more oriented towards growth) may be better served by direct, rather than indirect, social strategies (Gardner, Pickett & Knowles, 2005).

Summary of Nostalgia, Age and Gender Findings

Nostalgia. Nostalgia was unrelated to positive affect, life satisfaction, WHO wellbeing, resilience and general health. However, nostalgia did marginally predict negative affect, consistent with prior research (Barrett et al., 2010; Wildschut et al., 2006). In line with the supplementary analyses reported in Chapter 5, I once again examined the models without the deficit-reduction term included. Here, the marginal positive relationship between nostalgia and negative affect was maintained. This suggests that the deficit-reduction orientation cannot fully explain the relationship between nostalgia and negative affect. Instead, perhaps this is because of the elements of loss, longing and

sadness which form a part of the nostalgic experience (Hepper et al., 2012; Holak & Havlena, 1998).

Age. With increasing age, participants reported lower levels of negative affect but stability in levels of positive affect. This matches findings from prior research showing that the more favourable balance of positive and negative affect in older adults is characterised by lifespan changes in negative affect and stability in positive affect (Barrick et al., 1989; Carstensen et al., 2000; Charles et al., 2001). Although the current findings are consistent with prior research, it is important to note that in this study the age effects occurred in the context of a three-way interaction (thus, it is most informative to interpret them in this manner). Resilience also increased with age, and general health symptoms demonstrated a curvilinear trend (whereby symptoms decreased slightly towards middle age and then increased towards older age). The other indexes of wellbeing measured in this study (life satisfaction and WHO wellbeing) did not change with age.

Gender. Consistent with previous findings, which have suggested variously no gender differences on subjective wellbeing (e.g. Hepper, Robertson, Wildschut, Sedikides & Routledge, 2013; Ryff, 1989), or differences of a very small magnitude (e.g. Haring, Stock & Ukun, 1984), males and females did not differ significantly on any of the indexes of wellbeing assessed in this study.

Strengths, Limitations and Future Directions

The current study provided a vital replication of the three-way interaction pattern between nostalgia, growth and age on broader measures of health and wellbeing. Taken together with the findings of Chapter 5, nostalgia, growth and age interact to predict psychological wellbeing, subjective wellbeing, resilience and general health. The findings suggest that growth and nostalgia have an important role to play in multiple domains of wellbeing across the lifespan.

Furthermore, this study answered the call for examination of health outcomes in relation to belongingness orientations (Lavigne et al., 2011). Consistent with expectations, the growth orientation was associated with significantly fewer adverse health symptoms while the deficit-reduction orientation was associated with significantly greater adverse health symptoms. However, it is important to keep in mind that these main effects were qualified by interactions with nostalgia and age, such that nostalgia best met the needs of those who were deficit-oriented but was less adaptive in older, highly growth oriented adults. In sum, and in line with the findings of Chapter 5, the current study suggested that the growth orientation is not unequivocally positive and adaptive.

One potential limitation of the study was that it examined self-reported health. Prior research has suggested that the association between subjective wellbeing and health is present only when perceived health is assessed, and weakens or disappears when objective measures of health (e.g. health rated by a doctor, or the frequency of health centre visits) are examined (George & Landerman, 1984; Okun & George, 1984; Watten, Vassend, Myhrer & Syversen, 1997). This is likely to be because self-reported health is more subject to bias and symptoms may be interpreted and reported differently dependent on both personality and subjective levels of wellbeing in other domains of life (Brief, Butcher, George & Link, 1993; Hooker & Siegler, 1992; Larsen, 1992). While the current findings are valuable because they demonstrate that perceived health and wellbeing are associated with levels of growth and nostalgia, future research could examine whether these findings also replicate for objective measures of health. If so, this would further highlight the value of studying nostalgia and its very real implications on quality of life.

Concluding Comments

This chapter presented an important replication of the interaction between nostalgia, growth and age on broader measures of health and wellbeing. The findings

suggested that these three variables interact to predict positive affect, WHO wellbeing, resilience, and general health. In sum, these findings suggest that nostalgia and growth both have important implications for health and wellbeing across the lifespan; nostalgia is less successful at meeting the needs of high growth individuals as they get older.

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Table 7. *Dimensions of Subjective Wellbeing, Resilience and Health as a Function of Nostalgia*, *Growth, Deficit-reduction and Age*.

Wellbeing dimension	Nostalgia	Growth	Deficit	Age	Age^2	Gender	Nostalgia × Deficit × Age	Nostalgia × Growth × Age	Model R^2
Positive affect	.10	.49***	-.23**	.13	-.05	-.01	.03	-.27***	.37***
Negative affect	.16†	-.21*	.31***	-.24**	.13	-.03	.09	.15	.28***
Life satisfaction	-.12	.33***	-.13	-.04	-.12	.00	-.08	-.12	.18*
WHO wellbeing	-.01	.33***	-.21*	.02	-.02	.00	-.03	-.24*	.17*
Resilience	.03	.49***	-.33***	.17*	-.11	.08	-.04	-.19*	.35***
General health	.13	-.30**	.29**	.04	.21*	-.13	.06	.28**	.23**

Note. † $p < .07$, * $p < .05$, ** $p < .01$, *** $p < .001$. Values are standardised beta coefficients.

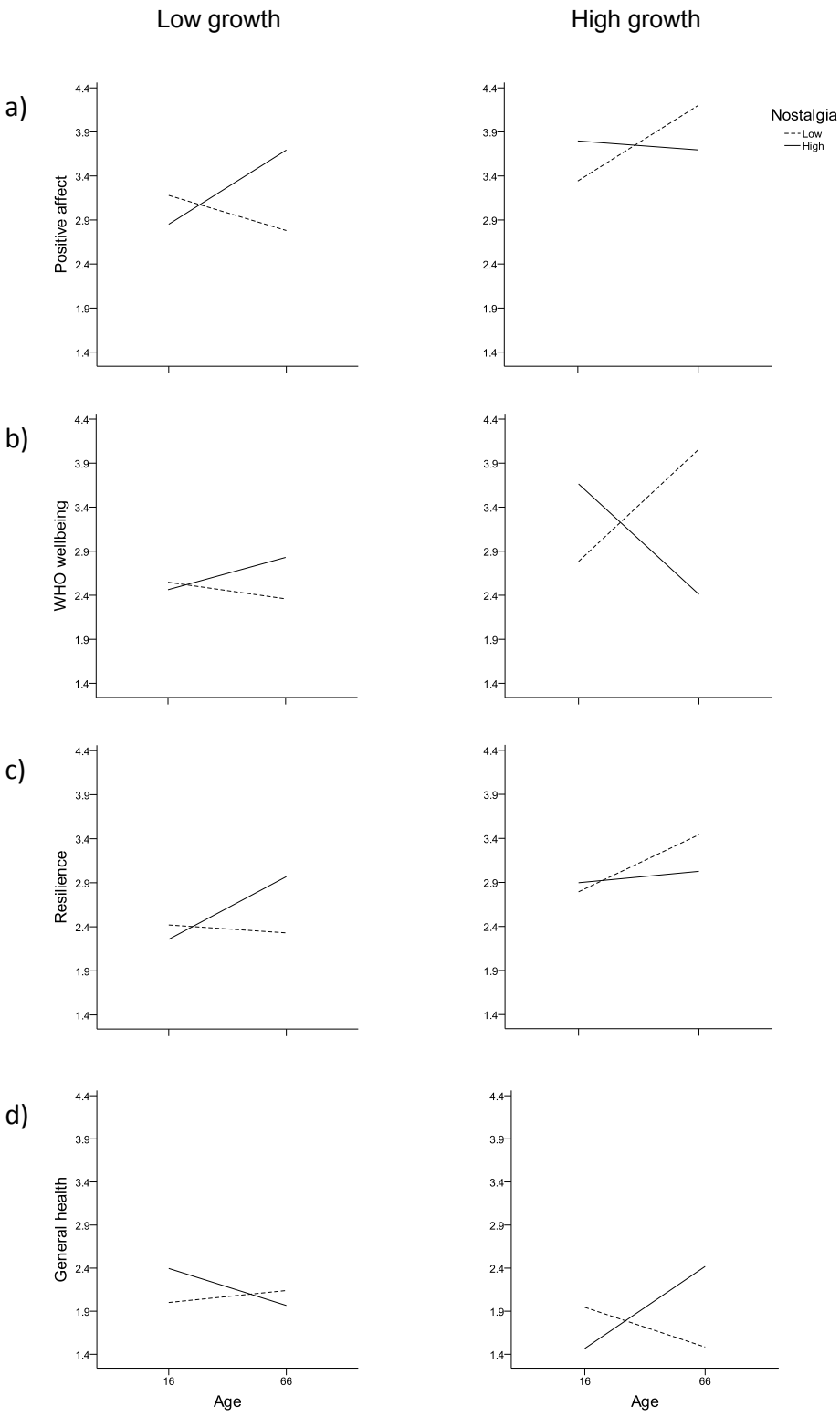

Figure 3. Interactions between nostalgia and age on positive affect, WHO wellbeing, resilience and general health in low and high growth participants.

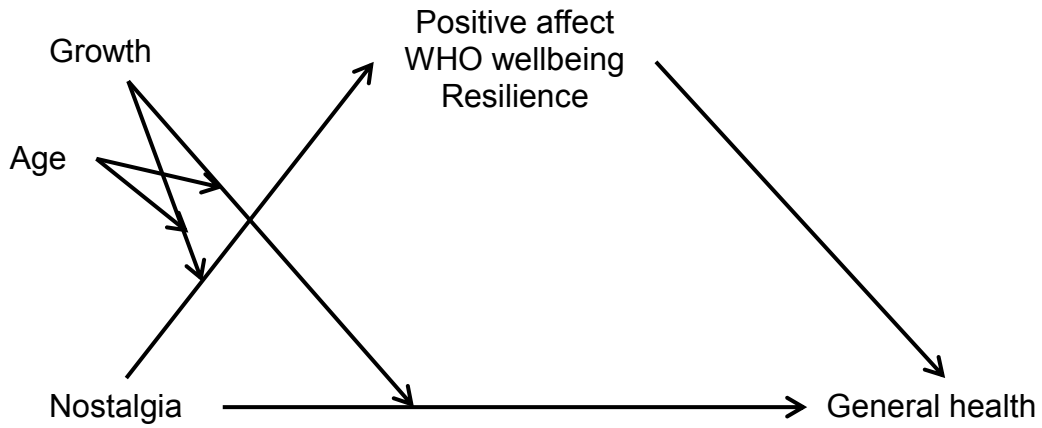

Figure 4. A schematic representation of the mediation model 12 tested in the current study.

Chapter 7: General Discussion

The overarching aim of the research presented in this thesis was to understand more about the nature of nostalgia across the lifespan. Does nostalgia, in terms of its properties, functions and relation to wellbeing, change across the lifespan? If so, is this motivated by chronological age or a perception of limited time? Are there individual differences in those who stand to benefit most from nostalgia across the lifespan? In the course of investigating these issues, I have studied the content of nostalgia in adults aged over 50, examined how nostalgia contributes to age-related differences in wellbeing, manipulated time perspective and measured the wellbeing outcomes of nostalgia in younger adults, and examined the role of a growth-oriented need to belong in psychological wellbeing, subjective wellbeing and health across the lifespan. In the present chapter, I now aim to summarise, synthesise and evaluate the findings from each of these studies and to identify some fruitful and productive areas for future research.

Summary of Main Findings, Implications and Future Directions

Nostalgic Memories in Older Adults

In Chapter 2, I examined the sociality of nostalgia using a novel combination of coding methods. I compared the content of narratives describing older adults' nostalgic and ordinary memories using LIWC2007 (Linguistic Inquiry and Word Count; Pennebaker, Chung, Ireland, Gonzalez & Booth, 2007) and a detailed coding scheme. The findings generated insight in three main areas: the level of sociality in older adults' nostalgic memories, the potential for interpersonal transfer of nostalgia, and (at a methodological level) the value of combining multiple coding methods.

First, the findings demonstrated that nostalgia is highly socially-oriented in older adults. Specifically, nostalgic narratives contained more social language, references to

close others and descriptions of social situations than ordinary narratives. These differences were represented through more frequent use of words relating to social processes and family, more frequent first person plural pronouns, less frequent first person singular pronouns, greater levels of description of social interactions and stronger expressions of companionship than in ordinary narratives.

Although Hepper, Ritchie, Sedikides and Wildschut (2012) speculated that perhaps all recalled memory in older adults is highly social, my findings demonstrated that this was not necessarily the case; it was possible to differentiate between older adults' nostalgic and ordinary memories by means of examining social content. Nostalgic memory in older adults, as in younger adults (e.g. Wildschut, Sedikides, Arndt & Routledge, 2006), is highly social. Future research could examine the question of whether the level of social language in nostalgic recollections prospectively predicts feelings of social connectedness. That is, do participants who express particularly high levels of companionship, for instance, benefit most in terms of feelings of closeness and affiliation with others? Indeed, prior research has suggested that language use can predict future outcomes; during expressive writing tasks following a negative event, coded levels of meaning-making combined with LIWC-assessed cognitive words were shown to predict a decrease in intrusive thoughts (Boals, 2012). Might the same be the case with the levels of sociality in nostalgic recollections? This could begin to provide an explanatory mechanism for how nostalgia (versus other autobiographical memory) promotes feelings of social connectedness, in line with previous theorising (Wildschut, Sedikides, Routledge, Arndt & Cordaro, 2010).

Second, the findings suggested that nostalgia may be communicable to others. Specifically, reading nostalgic narratives conferred greater nostalgia on the coder than reading ordinary narratives. Furthermore, the coded levels of nostalgia expressed in the narrative and the levels of nostalgia conferred on the coder were highly correlated. This suggested that the more prototypically nostalgic the narrative was, the more nostalgic the

coder tended to feel. These findings point even further to the social nature of nostalgia; nostalgia is highly social in content (e.g. Chapter 2; Robertson, Wildschut & Sedikides, 2011; Wildschut et al., 2006), has social outcomes and correlates (e.g. Wildschut et al., 2006, 2010; Zhou, Sedikides, Wildschut & Gao, 2008), and now has the potential to be shared socially. Although this discovery was not a central aim of Chapter 2 and so further investigation was outside the scope of the project, an important task for future research will be to understand the nature and potential of this effect further. That is, the findings indicated that feelings of nostalgia have the potential to be shared through written texts. Might the same effects be observed during oral sharing of memories? Perhaps nostalgic storytelling in social situations would trigger feelings of nostalgia in others present. Furthermore, might nostalgic narratives inspire prosocial attitudes and even behaviour in those who read them? For instance, might young people who read older adults' nostalgic (compared to ordinary) narratives subsequently evaluate older adults more positively in general, via nostalgia? If so, this would represent a step onwards from research which has shown that recalling nostalgic memories which include members of a typically-stigmatised outgroup (e.g. overweight people and those with mental health issues) can improve general attitudes towards that outgroup (Turner, Wildschut, & Sedikides, 2012; Turner, Wildschut, Sedikides & Gheorghiu, 2013).

Future research should also examine whether the transfer of nostalgia between individuals operates through emotion contagion (i.e., where nostalgia is directly triggered without the person's conscious awareness; e.g. Hatfield, Cacioppo & Rapson, 1994) or social appraisal (i.e., hearing about nostalgic memories causes the person to reappraise their own environment and life circumstances; e.g. Manstead & Fischer, 2001). Given that nostalgia contains a unique combination of cognition and affect (Hepper et al., 2012; Sedikides, Wildschut & Baden, 2004) and is characterised by appraisal of past and present life circumstances (Robertson et al., 2011; Stephan, Sedikides & Wildschut, 2012), I suspect that the latter option is most likely. That the object of nostalgia is *personally*

experienced is a key hallmark of the distinction between personal and historical nostalgia (Davis, 1979; Hepper et al., 2012; Stern, 1992). Therefore, it seems less likely that authentic feelings of personal nostalgia could be produced through emotion contagion without conscious awareness when this would imply that there is no object to the nostalgia and that the individual is not engaging in reflection and appraisal of their own personally experienced past. However, this is a question for future research to address. In sum, then, future research should examine a) the mechanisms driving nostalgia's potential for affective transfer; and b) the limits of this effect.

Nostalgia across the Lifespan

In Chapter 3, I shifted my perspective away from the content of nostalgia to examine its role in psychological wellbeing across the lifespan. Many studies have examined the functions that nostalgia can serve in younger adults when induced experimentally, but fewer have examined how nostalgia proneness (i.e. trait-level nostalgia) might relate to positive outcomes. To my knowledge, no research had examined nostalgia proneness in the context of global measures of longer-term wellbeing, particularly in older adults. Therefore, I explored how nostalgia and age might interact to predict psychological wellbeing in a lifespan sample. The findings began to shed light on nostalgia's potential to facilitate psychological gains in older adulthood, consistent with the principles of socioemotional selectivity. Specifically, positive social relations increased across the lifespan, and personal growth and purpose in life were maintained across the lifespan, but only for those who were prone to nostalgia. Importantly, repeated measures analyses revealed that although the interactions between age and nostalgia on self-acceptance, autonomy and environmental mastery did not individually reach significance, the overall pattern was not moderated by subscale. Thus, the interaction between age and nostalgia could be interpreted as generalisable across domains of psychological wellbeing.

In sum, the findings suggested that prior-noted increases in psychological wellbeing across the lifespan (e.g. Ryff, 1989) may be contingent on nostalgia proneness, suggesting a potential role for nostalgia as a facilitator of socioemotional selectivity.

Rather unexpectedly, the findings also suggested that high nostalgia proneness was associated with poorer wellbeing in younger adults than was low nostalgia proneness. Although younger adults were not my main focus in this study, this was an intriguing finding, partly because prior published findings have been biased towards containing younger samples and yet have tended to paint nostalgia in a very positive light. For instance, research has shown that state nostalgia promotes optimism, psychological growth and social connectedness in younger adults (e.g. Baldwin & Landau, 2013; Cheung et al., 2013; Wildschut et al., 2006). What the current findings began to suggest was that while state nostalgia in response to a specific need (e.g. loneliness) may promote short-term benefits for younger adults, perhaps a general tendency towards nostalgia in everyday life might be less adaptive in terms of evaluations of longer-term wellbeing. In order to understand more about nostalgia during younger adulthood, I next examined nostalgia in the context of an undergraduate sample.

I noted three main methodological limitations in this study. First, the correlational nature of the findings meant that it was not possible to establish a causal relationship between nostalgia and psychological wellbeing. Although the current findings plausibly suggested that nostalgia proneness facilitated gains in psychological wellbeing across the lifespan (particularly when considered alongside prior experimental findings; e.g. Baldwin & Landau, 2013; Cheung et al., 2013; Hepper et al., 2012; Wildschut et al., 2006), the possibility remained that those with greater wellbeing tended to be the most nostalgic, or that a third variable was responsible for this relationship.

Second, I used past-oriented longing as an indirect measure of nostalgia proneness in this study. Longing is a central feature of nostalgia (Hepper et al., 2012), but it is likely to be a narrower construct which contributes to the broader experience of nostalgia,

rather than being a fully representative entity on its own. Thus, a more rounded measure of nostalgia may have shown a different picture of the relationship between age, nostalgia and wellbeing.

Third, although I used socioemotional selectivity theory (Carstensen, Isaacowitz & Charles, 1999) as a framework to begin to understand the role that nostalgia might play across the lifespan, a key tenet of this theory is that it is limited time, rather than chronological age *per se*, which is responsible for the emotional, motivational and behavioural changes observed in older adults. In older adults, chronological age and limited time perception are strongly confounded, which meant that it was not possible to infer reliably which mechanism was operating. I addressed these issues in Chapter 4.

Chronological Age versus a Limited Time Perspective

In Chapter 4, I considered whether the socioemotional selectivity theory (Carstensen et al., 1999) was an appropriate framework for understanding age-related differences in wellbeing which are contingent on nostalgia. To do this, I extended my perspective to examine how a perception of limited time unrelated to age was associated with wellbeing in those who recalled nostalgic or ordinary memories. That is, I manipulated both time perspective and memory recall in an age-homogenous undergraduate sample and measured psychological wellbeing. Importantly, this experimental design allowed me to examine nostalgia directly, to determine causality, and to isolate limited time as a potential explanatory mechanism. Furthermore, my sampling strategy meant that it was possible to examine nostalgia during younger adulthood further. The findings of Chapter 3 suggested that nostalgia may be less adaptive in younger adults; potentially associated with lower psychological wellbeing. Thus, it seemed prudent to examine nostalgia in younger adults more closely.

As predicted, the findings demonstrated that nostalgia could mitigate the threats to wellbeing posed by a perception of limited time. Specifically, the interaction between time perspective and memory recall was significant for personal growth, purpose in life, self-acceptance and environmental mastery. The results suggested that the prospect of limited time undermined wellbeing in the absence, but not the presence, of nostalgia. Importantly, despite slight variations in the interaction patterns between subscales, repeated measures analyses suggested that the interaction between time perspective and memory recall was best interpreted as having a generalised effect across domains of psychological wellbeing.

These findings provided an important conceptual replication of those in Chapter 3, suggesting that limited time is the key component of older age in explaining age-related differences in wellbeing, contingent on nostalgia. Furthermore, the results provided clarity on the role of nostalgia in younger adulthood. The results suggested that nostalgia in response to the perception of limited time (a specific need) could serve younger adults well, allowing them to make the most of the time that they have remaining at university by maintaining or even enhancing psychological wellbeing.

The Role of Belongingness Orientations

In psychological wellbeing. In Chapter 5, I began to consider the potential role of belongingness orientations in the interactions observed between nostalgia and age on psychological wellbeing. Research has identified two distinct orientations: growth (characterised as a desire to be around others because of genuine interest and enjoyment in time spent with them) and deficit-reduction (characterised as a desire to be around others because of a search for acceptance and the need to fill a void) and examined their adaptive and maladaptive correlates (Lavigne, Vallerand & Crevier-Braud, 2011). While a growth orientation tends to be associated with positive outcomes, a deficit-reduction

orientation appears to undermine wellbeing and produce negative interpersonal outcomes.

Recent evidence has suggested that examination of these distinct belongingness orientations could contribute to the understanding of how nostalgia operates in a social context (Seehusen et al., 2013). What light, then, could belongingness orientations shed on the relative adaptiveness of nostalgia at different stages in the lifespan, and in different people? I examined the possibility that the interactions between age and nostalgia on wellbeing might be contingent on a pre-existing growth or deficit-reduction orientation in the quest for belongingness. In order to allow prospective prediction of psychological wellbeing, data were collected across two time points. At Time 1, participants from the LISS panel (Longitudinal Internet Studies for the Social sciences) completed measures of nostalgia proneness and belongingness orientations. At Time 2, participants rated their levels of wellbeing across the six psychological wellbeing domains.

The findings suggested that alongside nostalgia, growth has an important role to play in determining wellbeing. A growth oriented need to belong qualified the interaction between age and nostalgia on positive social relations, self-acceptance, environmental mastery and the composite measure of psychological wellbeing. In low growth individuals, the previously-observed interaction between age and nostalgia (Chapter 3) was broadly replicated; lifespan stability or increases in wellbeing were contingent on a high level of nostalgia. However, a different pattern emerged in high growth individuals. Specifically, wellbeing declined (for positive social relations) or remained stable (for environmental mastery, self-acceptance and the composite measure of psychological wellbeing) across the lifespan for those who were both nostalgia-prone and high in growth.

Crucially, repeated measures analyses revealed that the observed interactions were moderated by subscale, suggesting that nostalgia, growth and age have a distinct association with the positive social relations, self-acceptance and environmental mastery

domains of psychological wellbeing. Although the interaction on the composite measure was also significant, the simple slopes analyses evinced a weaker pattern, likely because this measure also incorporated personal growth, purpose in life and autonomy, which did not show significant interactions individually. That the interaction did not exert a generalised influence on psychological wellbeing in this study (unlike in Chapters 3 and 4) could be attributed to the relative complexity of a three-way (versus a two-way) interaction.

Overall, these findings suggested that nostalgia does not meet the needs of high growth individuals, who have a need for stimulation and novelty in social interactions, as they get older. Nostalgia may be adaptive in younger people when used alongside an arsenal of more active growth strategies, but this was not the case in older adults. Instead, nostalgia appears to undermine wellbeing in high growth older adults when habitually used as a form of 'social snacking'. Perhaps nostalgia simply serves to highlight the lack of novelty in present life circumstances and the relative inaccessibility of past social partners in these older adults.

The current findings also provided insight on the specific circumstances in which nostalgia and growth are most beneficial or problematic. Although nostalgia is a pleasant and positive emotional experience for most (Hepper et al., 2012; Wildschut et al., 2006), it is useful to understand its limitations. These appear to be in meeting the needs of high growth older adults. It is important to note, however, that these findings do not necessarily imply that state nostalgia is problematic in high growth older adults, and only call into question nostalgia as a habitual strategy in these adults. Furthermore, the study provided novel insights into circumstances under which a growth orientation may be less adaptive. That is, when combined with nostalgia proneness in older adults, high (compared to low) growth no longer confers a strong advantage.

A strength of this study was that it employed a longitudinal design. Although the findings were still correlational in nature (meaning that a causal direction could not be

firmly established), they did at least imply that levels of nostalgia and growth were related to wellbeing two months later. However, a potential limitation in the design was that there was a relatively short time period of two months between the Time 1 measurement of nostalgia and belongingness orientations and the Time 2 measurement of psychological wellbeing. Therefore, future research could investigate whether nostalgia, growth and age still predict wellbeing after a longer time lapse, and could also aim to assess whether the three-way interaction predicts *change* in wellbeing across this longer time period by measuring wellbeing at Time 1 and controlling for this in the analyses. I am currently collecting some follow-up data from the LISS panel in order to address both of these questions.

In sum, this study suggested that nostalgia does not meet the psychological wellbeing needs of high growth older adults. However, it would be useful to understand the extent of the implications from this study; for instance, would they also extend to broader types of wellbeing, such as subjective wellbeing and perceived health? I considered this question in the final chapter.

In subjective wellbeing and health. In Chapter 6, I expanded my perspective to consider the potential influence of a growth-oriented need to belong on broader measures of health and wellbeing. First, I aimed to examine the presence of pleasure, happiness and enjoyment in life by assessing positive affect, negative affect and life satisfaction, consistent with the subjective wellbeing tradition (e.g. Diener & Lucas, 1999). Second, I examined psychological resilience. Third, with a view to understanding the tangible correlates of nostalgia, growth and age (and in response to Lavigne et al.'s call for research on the relation between belongingness orientations and health; 2011), I examined perceived physical health. The findings complement those reported in Chapter 5, suggesting that alongside nostalgia, growth has an important role to play in determining broader measures of health and wellbeing. A growth-oriented need to belong qualified the interaction between age and nostalgia proneness on positive affect, WHO wellbeing,

resilience and general health. Nostalgia does not appear to meet the needs of high growth individuals as they get older.

An additional contribution of this study was the measurement of general health symptoms, which represented a step onwards from measuring happiness or fulfilment to examine the potential implications of nostalgia proneness and a growth orientation on actual perceptions of health. Participants were asked to report on aspects of mental health and functioning such as sleep quality, feeling overwhelmed, and the ability to make decisions effectively and to derive pleasure from everyday activities. Analyses demonstrated that there was an indirect interactive effect of nostalgia, growth and age on health via WHO wellbeing. Consistent with preliminary research (Robertson, 2010), this finding provided insight into a potential mechanism for how nostalgia may relate to health. Overall, the results suggested that nostalgia, growth and age predicted health via the recent levels of happiness and interest present in participants' lives.

However, it is important to note the distinction between subjective health (assessed in this study) and objective health measures. For instance, in this study, general health was related to all other wellbeing indexes, but research has suggested that this association tends to weaken or even disappear when objective measures of health are examined instead (George & Landerman, 1984; Okun & George, 1984; Watten, Vassend, Myhrer & Syversen, 1997). While the current findings are valuable because they contribute to our understanding of people's subjective judgements of their health, future research could aim to examine whether these findings replicate for objective measures of health.

This study also provided some additional insight into the relationship between a deficit-reduction orientation and nostalgia. First, age and deficit-reduction interacted to predict positive and negative affect; positive affect increased with age and negative affect decreased with age, but only for participants who were low in deficit-reduction. These

findings further point towards the relative maladaptiveness of the deficit-reduction orientation.

However, nostalgia and deficit-reduction also interacted to predict positive affect, life satisfaction, and resilience; nostalgia was associated with relatively better wellbeing in those who were oriented towards deficit-reduction. This finding suggested that nostalgia is better able to meet the needs of those who are strongly (compared to weakly) oriented towards deficit-reduction. This may be because nostalgia can be used both in the presence of others and when alone in order to repair deficits in social connectedness and also because the element of memory bias integral to nostalgia is likely to be particularly useful to those who want to avoid anxiety induced by the experience (or recall) of less successful social interactions (Hepper et al., 2012; Wildschut et al., 2006, 2010).

This chapter presented an important replication of the interaction between nostalgia, growth and age on broader measures of health and wellbeing; specifically positive affect, WHO wellbeing, resilience, and general health. In sum, nostalgia and growth both have important implications for health and wellbeing across the lifespan.

Concluding Comments

The main findings from this collection of studies are that a) nostalgic memory has a strong social orientation in older adults; b) feelings of nostalgia may be communicable to others through an affective transfer process; c) psychological wellbeing stability or gains across the lifespan are contingent on nostalgia; d) these age-related differences are at least partly driven by a perception of limited time; and e) nostalgia does not meet the needs of high growth older adults across a wide variety of outcome measures, including psychological wellbeing, subjective wellbeing and health.

In recent years, interest in nostalgia has blossomed within a worldwide context of an aging population, yet examination of the nature of nostalgia in older adulthood has

been neglected. This thesis is timely in its exploration of the topic, and contributes substantially to our understanding of the role of nostalgia across the lifespan.

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Appendices

Appendix A: Nostalgia Coding Manual

First, read through the narrative once without writing anything down, to get a feel for the event being described and how the author is feeling about it. Then, read through the narrative again and code it on each of the questions below. Approach each question individually – do not consider what effect one response may have on another question.

Texture of the story

1) Vividness (How vivid is the description?)

   0 = Minimal/none, e.g., plain narrative, minimal imagery, minimal use of metaphors
   1 = A little
   2 = Quite a bit
   3 = Very much, e.g., lively description, frequent use of adjectives, extensive use of metaphors, extensive use of imagery

Self and social interaction

2) Degree of social interaction recalled:

   0 = Minimal, i.e., none/very little, lacking detail
   1 = A little
   2 = Quite a bit
   3 = Very much, i.e., detailed anecdotes

3) Degree of companionship expressed in description as a whole
   (explicit or implicit, i.e., can just get the impression – doesn't have to be explicitly written)
   e.g., appreciation at not being alone, the sharing of things, a sense of belonging, joy at the "togetherness" in itself.

   0 = None
   1 = A little, i.e., little expression made
   2 = Quite a bit
   3 = Very much, i.e., strongly expressed

Nostalgia

4) To what extent did the author feel nostalgic?

5) To what extent did the narrative make YOU feel nostalgic?