UNIVERSITY OF SOUTHAMPTON

FACULTY OF SOCIAL, HUMAN AND MATHEMATICAL SCIENCES

RESILIENCE-RELATED INDIVIDUAL DIFFERENCES AND THE ROLE OF NOSTALGIA AS A RESOURCE FOR STRENTHENED SOCIAL CONNECTEDNESS

by

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ABSTRACT

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RESILIENCE-RELATED INDIVIDUAL DIFFERENCES AND THE ROLE OF NOSTALGIA AS A RESOURCE FOR STRENTHENED SOCIAL CONNECTEDNESS

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Nostalgia is a sentimental longing for the past, and serves a number of psychological functions that are pivotal to well-being. Resilience-related individual differences shape one's ability to experience positive emotions, resist being affected by shock or disturbance, and use personal and social resources for effective self-regulation in the face of threat. In Study 1, I predicted that loneliness would increase nostalgia, and that this effect of loneliness on nostalgia would be stronger for high (compared to low) resilience participants. Indeed, results revealed that high (compared to low) resilience participants were more likely to become nostalgic when lonely. In Studies 2-3b, I investigated whether the psychological significance of nostalgia resided in its capacity to strengthen social connectedness, and how this role of nostalgia is shaped by resilience-related individual differences. Results revealed that recalling a nostalgic (vs. ordinary) event (Study 2) and listening to a nostalgic (vs. a control) song (Studies 3a-3b) bolstered social connectedness irrespective of resilience-related individual differences. In Study 4, I examined whether nostalgia bolstered social connectedness for high (compared to low) resilience participants when loneliness was high (vs. low). When loneliness was high, nostalgia increased social connectedness among high (compared to low) resilience participants. When loneliness was low (vs. high), nostalgia boosted social connectedness among low (compared to high) resilience participants. These findings provide encouraging evidence supporting the far-reaching benefits of nostalgia. As in the case of social connectedness, this beneficial effect of nostalgia was particularly apparent among high (compared to low) resilience individuals in the face of psychological threat.

Table of Contents

List of tables

x

List of figures

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Definitions and Abbreviations

CD-RISC	Connor-Davidson Resilience Scale
ECR-R	Experiences in Close Relationships Scale Revised
EMN	Emotional memories network
EMNA	Emotional memories networks assessment
ER	Ego-resilience
ERT	Event Recollection Task
MSPSS	Multidimensional Scale of Perceived Social Support
PANAS	Positive and Negative Affect Schedule
PTSD	Post-traumatic stress disorder
RS	Resilience Scale
SNS	Southampton Nostalgia Scale

Chapter 1: Literature Review

1.1. Introduction

Recent years have witnessed an increase in research on positive emotions. According to Levenson's (1988) undoing hypothesis, positive emotions act to 'undo' arousal states produced by negative emotions, and assist the body in returning back to its neutral homeostatic state. Researchers have also argued that positive emotions increase resourcefulness and broaden thought-action repertoires (Fredrickson, 2001). Positive emotions may thus serve as "homeostatic correctives." Indeed, evidence suggests that positive emotions play a critical role in the regulation of distress and the maintenance of psychological homeostasis (Fredrickson & Levinson, 1998). Researchers have found that positive emotions compensate for the impact of negative emotions (Fredrickson, Tugade, Waugh, & Larkin, 2003) and negative feedback that threatens one's self-views (Aspinwall, 1998). I adopted this general framework to study the capacity of nostalgia ("a wistful affection or sentimental longing for the past"; *The New Oxford Dictionary of English*, 1998, p. 1266) to promote social connectedness in response to loneliness.

Overview: Nostalgia as a Positive Emotion

I begin by providing a brief historical overview of what nostalgia is, followed by a review of the triggers and psychological functions of nostalgia. Then, I will examine a body of recent evidence that suggests an important role for resilience in determining when individuals become nostalgic and what functions nostalgia serves. Resilience-related individual differences shape one's ability to experience positive emotions, recover from shock and resist being affected by disturbance (Garmezy, 1991), and use personal and social resources for effective self-regulation in the face of threat (Fieldman-Barrett & Gross, 2001). I propose the possibility that the adaptive benefits of nostalgia are greatest for high-resilience (compared to low-resilience) individuals, particularly when confronted

with threatened social connectedness, for example due to loneliness. In addition, I investigate whether the psychological significance of nostalgia resides in its capacity to strengthen social connectedness, and how this role of nostalgia is shaped by resilience-related individual differences.

1.2. The Psychological Significance of Nostalgia

Nostalgia is a compound word developed from the Greek words *nostos,* meaning to return, and *algos,* meaning pain or suffering. It is a term coined by a Swiss physician, Johannes Hofer (1688/1934), during the late 17th Century. The concept of nostalgia existed within classical literature long before the term was coined. In Homer's *The Odyssey*, the hero Odysseus expresses his intense longing to return home to his wife, Penelope, after fighting the Trojan War. In origin, the idea of nostalgia captured the unique human ability to draw strength and motivation from memories of the past, especially memories relating to family or close others. Hofer (1688/1934) conceptualized the term to describe what was believed to be a medical illness consisting of a compilation of distinct physical and psychological symptoms suffered by Swiss mercenaries. These symptoms were thought to include insomnia, bouts of weeping, irregular heartbeat, and persistent thinking of home (McCann, 1941). The causes of nostalgia were often debated. Hofer proposed that nostalgia was caused by "continuous vibration of animal spirits through those fibers of the middle brain in which impressed traces of ideas of the Fatherland still cling" (p. 384). In contrast, J. J. Scheuchzer (1732) believed that nostalgia was caused by "a shape differential in atmospheric pressure causing excessive body pressurization, which in turn drove blood from the heart to the brain, thereby producing the observed affliction of sentiment" (cited in Davis, 1979, p. 2). The view of nostalgia as a psychological disorder or "neurological disease" remained throughout the 17th and 18th centuries (J. J. Scheuchzer, 1732). In the beginning of the 19th Century, the term became

viewed as a psychological illness affecting anyone separated from their homeland (McCann, 1941). Most people viewed nostalgia as a psychological disorder involving melancholy and depression (McCann, 1941; Rosen, 1975). This was partly due to the fact that "nostalgia" and "homesickness" were often used interchangeably (McCann, 1941).

Things changed in the late 1970s. The sociologist Fred Davis (1977, 1979) was one of the first researchers to discover that nostalgia and homesickness were, in fact, two separate concepts. He showed that certain words such as "warm," "childhood," and "old times" were more readily associated with "nostalgia" than "homesickness" (Davis, 1979). Today, nostalgia is commonly defined as a "sentimental longing or wistful affection for a period in the past" (*The New Oxford Dictionary of English,* 2011), and is considered to be an emotion that is experienced by almost everyone (Boym, 2001).

1.3. Nostalgia as a Positive, Self-Relevant, and Social Emotion

1.3.1. Affective signature of nostalgia

The question of whether nostalgia was a positive or negative emotion has been the topic of considerable debate (Sedikides, Wildschut, & Baden, 2004; Wildschut, Sedikides, Arndt, & Routledge, 2006). A number of researchers viewed nostalgia as a primarily negative emotion marked by sadness for the loss of an irretrievable past (Hertz, 1990; Johnson-Laird & Oatley, 1989). For example, Hertz (1990) described nostalgia as "an intense, almost unbearable longing for the past" (p. 194). Thus, researchers proposed that nostalgia was a form of mourning for the past, because nostalgic experiences typically focus on elements of the past that can never be experienced again (Hertz, 1990; Johnson-Laird & Oatley, 1989). Other researchers proposed that nostalgia was a predominantly positive emotion (Batcho, 1998; Davis, 1979) and contained intense feelings of happiness and joy (Sedikides et al., 2004).

Two investigations examined the content of autobiographical narratives to shed light on the emotional focus of nostalgia. In one study, Holak and Havlena (1998) gave participants a dictionary definition of nostalgia and asked them to generate three nostalgic experiences referring to persons, tangible objects, and events. They found that nostalgic narratives were characterized by positive emotions and consisted of themes including "warmth," "old times," "joy," and "tenderness." In a more recent study, Wildschut et al. (2006, Study 1) engaged in content analyses of archival narratives that were published in the periodical *Nostalgia,* as well as narratives of British undergraduates who described a nostalgic event (Wildschut et al., 2006, Study 2). In both cases, they found that the self, close others (family members, friends), and momentous events (vacations, anniversaries) were frequently featured in the nostalgic narratives. They also examined the structural facet of nostalgic recollections. McAdams and colleagues (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001) proposed two narrative sequences. In a redemptive sequence, narratives progress from an affectively negative situation to an affectively positive one. In a contamination sequence, narratives advance from an uncomplicated and favourable situation to an affectively negative one. In both studies, Wildschut et al. (2006, Studies 1-2) found that negative events were followed by positive events in a redemption sequence. Nostalgic narratives typically progressed from a disadvantaged to a more triumphant life scene with accompanying positive feelings.

Layperson definitions. In a recent series of studies, Hepper, Ritchie, Sedikides, and Wildschut. (2012) explored lay conceptions of nostalgia among UK and US students. In Study 1, participants were asked to list all descriptors that, in their opinion, best described and distinguished nostalgia. Two independent judges coded the descriptors into 35 features out of a total of 1752 descriptors (7.5 per participant). In Study 2, participants rated how closely each feature was related to their view of nostalgia. A median-split

resulted in 18 central features and 17 peripheral features. Central nostalgia features entailed fond, rose-coloured, and personally significant memories of childhood or social relationships. They involved the following verbs: memory/memories, the past, fond memories, remembering, reminiscence, feeling, personal meaning, longing/yearning, social relationships, memorabilia/keepsakes, rose-tinted memories, happiness, childhood/youth, sensory triggers, thinking, reliving/dwelling, missing, and wanting to return to the past. Peripheral features, on the other hand, included: comfort/warmth, wishing/desire, dreams/daydreaming, mixed feelings, change, calm/relaxed, regret, homesickness, prestige/success, ageing/old people, loneliness, sadness/depressed, negative past, distortion/illusions, solitude, pain/anxiety, and lethargy/laziness.

Hepper et al. (2012) sought further validation of the features' centrality or peripherality. In Study 3, participants were presented all features and were subsequently given a surprise recall and recognition task. Prototype theory (Cantor & Mischel, 1977; Rosch, 1978) states that central features are more readily encoded and accessible compared to peripheral ones. Moreover, central features are also most likely to be falsely ascribed to a prototypical target compared to peripheral features. Indeed, participants recalled and falsely recognized a higher number of central than peripheral features. In Study 4, participants completed a computer task where they were presented with central, peripheral, and control (i.e., nostalgia-free) features on the screen. They were then instructed to respond with a 'Yes' or a 'No' as quickly as possible to the question "Is this a feature of nostalgia?" Participants were more accurate and quicker to classify the central features (compared to peripheral or control ones) as belonging to nostalgia. In Study 5, participants read vignettes describing a character's autobiographical event, which included central (vs. peripheral) features. They rated the event with central (compared to peripheral) features as being significantly more nostalgic. Finally, in Study 6, participants

wrote a nostalgic (vs. ordinary) event and rated the event on all 35 features. They also recorded how nostalgic they felt (e.g., "I feel nostalgic when I think about this event"). Indeed, participants rated nostalgic events higher on central than on peripheral or control features. Participants in the nostalgic-event condition (relative to the ordinary condition) felt more nostalgic, as nostalgic events were characterized better by central features.

The Hepper et al. (2012) findings suggest that laypersons view nostalgia as a predominantly positive, social, and past-oriented emotion. In waxing nostalgic, fond and personally meaningful events involving one's childhood, a close relationship, or an evocative past experience are brought to mind. These events are viewed through rose-tinted glasses and the person longs to return to that moment. The person consequently feels sentimental, most often happy but with a tinge of longing.

1.3.2. Triggers of nostalgia

In order to fully understand how nostalgia operates, researchers have paid particular attention to the various stimuli that are capable of triggering and generating nostalgic feelings. Many stimuli are capable of triggering nostalgic feelings. These can be social stimuli, such as the presence of friends, family members (Wildschut et al., 2006), or non-social stimuli, such as music (Barrett et al., 2010) and scents (Reid, Green, Wildschut, & Sedikides, 2014).

Certain triggers of nostalgia are more common than others. Studies have shown that negative affect is the most common trigger of nostalgia (Wildschut et al., 2006). One investigation examined the content of nostalgic narratives regarding the emotional focus of nostalgia. Wildschut et al. (2006, Study 2) asked British undergraduates to describe the circumstances in which they became nostalgic. Analyses of the written narratives revealed that the most common trigger of nostalgia was negative affect. One participant, for example, wrote: "I think people would turn to nostalgia in unhappy, sad, or lonely

situations to make themselves smile." Of those who listed negative affect as a trigger of nostalgia, 78% referred to negative mood, and 58% referred to discrete negative affective states (emotions that arise from specific actual states of the world, e.g., loneliness, feeling scared). These categories were not mutually exclusive because some participants referred to both negative mood and discrete negative affective states. Loneliness was the most frequently mentioned discrete negative affective state.

A number of studies support the notion that negative affect triggers nostalgia. In one experiment, Wildschut et al. (2006, Study 3) manipulated mood by exposing participants to different news stories. In the positive mood condition, participants read a happy news story about the birth of a polar bear; in the neutral mood condition, participants read about the landing of the Huygens probe on Titan, one of Saturn's moons; and in the negative mood condition, participants read about the Tsunami that struck coastal regions of Asia and Africa in 2007. Next, participants completed a measure which assessed how nostalgic they felt about 18 aspects of their past (Batcho, 1998). Results revealed that participants in the negative mood condition reported feeling more nostalgic about aspects of their past ("my family," "someone I loved," "my friends," "the way people were," "having someone to depend on," "my family house," "the way society was," and "the things I did") than did participants in the positive and neutral mood conditions. Thus, negative mood increased nostalgia.

The complementary relationship between nostalgia and loneliness. Loneliness is also a trigger of nostalgia. Loneliness is a psychological state that is characterized by a set of discomforting emotions and cognitions including sadness, despair, and depression (Cacioppo & Hawlkey, 2005; Ernst & Cacioppo, 1998). Loneliness often occurs as a result of having significantly less satisfying relationships than desired (Archibald, Bartholomew, & Marx, 1995). Thus, loneliness is a subjective experience elicited by life

circumstances in which intimate and social needs are less likely to be met (Weiss, 1973). Individuals employ a wide range of compensatory mechanisms geared toward reducing and ultimately diminishing feelings of loneliness (Maner, DeWall, Baumeister, & Schaller, 2007; Weiss, 1973). Individuals often alleviate loneliness by seeking support from social networks (Asher & Paquette, 2003). However, social support is sometimes hindered by individual (e.g., shyness) and situational (e.g., relocation) factors.

Recent research demonstrates that nostalgia counteracts reductions in perceived social support caused by loneliness (Zhou, Sedikides, Wildschut, & Gao, 2008). Lonely individuals regulate deficiencies in connectedness by seeking proximity to close others and nostalgia can be a source of such proximity (Davis, 1979; Wildschut, Sedikides, Routledge, Arndt, & Cordaro, 2010). By forming mental representations of social bonds, nostalgia brings to mind significant figures from one's past (e.g., childhood friends, family members) so that they become a part of one's present.

Wildschut et al. (2006, Study 4), for instance, manipulated loneliness in a laboratory experiment. They achieved this by providing participants with false questionnaire feedback after completion of a loneliness measure. Specifically, participants completed the Southampton Loneliness Scale, which consisted of 15 items drawn from the UCLA Loneliness Scale (Russell, 1996). Participants specified whether they agreed or disagreed with each of the 15 statements. Statements presented to participants in the high loneliness condition were phrased in a manner to elicit agreement (e.g., "I sometimes feel that I am "out of tune" with the people around me"), whereas statements presented to participants in the low loneliness condition were phrased in a manner to elicit disagreement (e.g., "I always feel that I am "out of tune" with the people around me"). After completion, participants received false feedback. They were informed that the experimenter would score their responses and that they would receive feedback regarding their true level of

loneliness. Participants in the high loneliness condition learned that they were in the 62nd percentile of the distribution of loneliness and were therefore "above average on loneliness" compared with other undergraduates at the University of Southampton. Conversely, participants in the low loneliness condition learned that they were in the 12th percentile of the distribution of loneliness and were therefore "very low on loneliness" compared with other undergraduates at the University of Southampton. Participants were then instructed to provide reasons for their loneliness score. This step was taken to further strengthen the loneliness manipulation. Subsequently, Wildschut et al. assessed how nostalgic participants felt for 18 aspects of their past. Results revealed that high loneliness participants reported feeling more nostalgic for aspects of their past (e.g., "my family," "the way people were," "having someone to depend on," and "not having to worry") than did low loneliness participants. In all, loneliness increased nostalgia.

Zhou et al. (2008, Study 1) extended these findings and examined whether nostalgia counteracts reductions in perceived social support caused by loneliness. In one study, 758 Chinese children who had migrated with their parents from rural to urban areas completed measures of loneliness (UCLA Loneliness Scale; Russell, 1996), nostalgia (Southampton Nostalgia Scale; Barrett et al., 2010; Routledge, Arndt, Sedikides, & Wildschut, 2008), and perceived social support (Multidimensional Scale of Perceived Social Support; Zimet, Dahlem, Zimet, & Farley, 1988). Zhou et al. showed that, whereas lonely children perceived little social support (negative association between loneliness and social support), they were also the most nostalgic (positive association between loneliness and nostalgia). Nostalgia, in turn, was linked with increased perceptions of social support (positive association between nostalgia and social support). In a follow-up study, Zhou et al. (2008, Study 2) induced high versus low loneliness in Chinese university students, using the loneliness manipulation developed by Wildschut et al.

(2006, see above). Following this manipulation, participants completed the a state version of the Southampton Nostalgia Scale (SNS; Routledge et al., 2008) to assess state nostalgia, and a state version of the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) to assess perceived social support. Results revealed that, whereas the direct effect of loneliness was to reduce perceived social support, the indirect effect of loneliness was to increase perceived social support via increased nostalgia.

1.3.3. Functions of nostalgia

Nostalgia serves a number of psychological functions. Researchers have documented six primary functions so far. One psychological function of nostalgia is to increase positive affect. Nostalgia has been described as a "joyous" experience which gives rise to feelings of elation (Kaplan, 1987). Wildschut et al. (2006, Study 5), for example, randomly assigned participants to recall a nostalgic or ordinary autobiographical event from their past and then assessed state affect with the items "happy," "content," "sad," and "blue" and with the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). They found that nostalgic participants reported elevated positive affect (but not reduced negative affect) compared to participants who brought to mind an ordinary event. Thus, nostalgia serves to maintain and preserve positive affect.

A second psychological function of nostalgia is to help maintain a positive self-concept. Research has found that participants who thought about a nostalgic event from their past manifested greater levels of state self-esteem (Wildschut et al., 2006, Study 5) and implicit self-positive associations (Vess, Arndt, Routledge, Sedikides, & Wildschut, 2012, Study 1) than did participants who recalled an ordinary event from their past. In addition, participants who received negative feedback regarding their performance in a purported test of analytic reasoning were more likely to attribute their failure to their ability in the nostalgia (vs. control) condition (Vess et al., 2012, Study 2). This suggests

that nostalgia lends individuals the fortitude to accept negative performance-related feedback, thereby reducing defensiveness in response to self-threat.

A third function of nostalgia is to increase perceptions of meaning in life. The perception that one's life has meaning and purpose is considered a fundamental buffer against existential and death-related anxiety (Solomon, Greenberg, & Pyszczynski, 1991). Research has shown that nostalgia boosts perceptions of life as meaningful (Van Tilburg, Igou, & Sedikides, 2013) and acts against death-related concerns (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010; Routledge, et al., 2008). For example, Routledge et al. (2011) found that threatened meaning in life increased nostalgia. Nostalgia, in turn, reduced defensive responses to meaning threats.

A fourth function of nostalgia is to bolster optimism. Research has demonstrated that nostalgia is not just a past-oriented emotion, but also extends into the future. Davis (1979) speculated that, when nostalgic, individuals retrieve positivity accumulated from the past to boost their current self-worth, thereby making them feel more optimistic about the future. In a series of studies, Cheung and colleagues (2013) tested whether nostalgic narratives contained traces of, and increased, optimism about the future. Indeed, they found that nostalgic (vs. ordinary) narratives contained more expressions of optimism. They also found across multiple methods of assessment that nostalgia boosted feelings of optimism. Interestingly, this effect was mediated by social connectedness and self-esteem; nostalgia fostered social connectedness, which fueled and increased self-esteem, which, in turn, boosted optimism. Thus, nostalgia facilitates perceptions of a rosier and more hopeful future.

A fifth function of nostalgia is to strengthen self-continuity. Davis (1979) first theorized that nostalgia is an emotional reaction designed to repair discontinuity in a person's life. He proposed that nostalgia is instigated when a sharp contrast is perceived

between past and present selves (individual or collective). For instance, self-discontinuity may be triggered by occupational crises, health deterioration, and the death of loved ones (Batcho, 1995). Sedikides, Wildschut, Routledge, and Arndt (2014, Study 1) provided support for the notion that nostalgia constitutes a response to self-discontinuity. They measured nostalgia proneness and self-discontinuity in response to negative life events (using the Social Readjustment Rating Scale; Holmes & Rahe, 1967). Events ranged in severity from high ("death of a spouse," "divorce,") to low ("change in eating habits"). Results revealed that the total frequency of negative life events was associated with higher proneness to nostalgia. In a follow-up study, experimentally induced negative self-discontinuity increased nostalgia (Study 2). Finally, Sedikides et al. (Study 3) demonstrated that participants who brought to mind a nostalgic experience reported higher levels of self-continuity ("Right now, I feel… that there is continuity in my life") than did those who recalled an ordinary event. Thus, nostalgia increased self-continuity.

A sixth function is the strengthening of social connectedness and belongingness. Individuals possess a need to belong, that is, a "need for frequent, nonaversive interactions with ongoing relational bonds" (Baumeister & Leary, 1995, p. 497). However, social networks often weaken or deteriorate, and individuals may feel adrift or lonely in their absence (Cacioppo & Cacioppo, 2014). Gardner, Pickett, and Knowles (2005) posited a distinction between direct and indirect compensatory strategies to imply social connectedness and intimacy. An individual will use direct strategies when suitable interaction partners are available for the purpose of forming or repairing relationships with them. An individual will use indirect strategies, on the other hand, when suitable interaction partners are unavailable by relying on mental representations of social relationships as sources of sociality. Nostalgic narratives are rich in social themes and constitute an indirect strategy for sustaining sociality (Abeyta et al., 2014; Batcho, 2008;

Holak & Havlena, 1992; Hepper et al., 2012; Robertson et al., 2014; Wildschut et al., 2006, Studies 1-2). They often involve interactions between the self and close others (i.e., family members, romantic partners, friends) which occur in the context of momentous events (i.e., vacations, anniversaries, weddings, birthdays; Wildschut et al., 2006, Studies 1-2). Social connectedness can be operationalized as: feeling loved, protected, connected to others, and trusting of others; experiencing attachment security; feeling socially supported; or being empathetic.

Feeling loved, protected, connected to others, and trusting of others. In previous studies, participants who thought about a nostalgic event experienced increased perceptions of social bonds (feeling "loved" and "protected") compared to those who recalled an ordinary event (Wildschut et al., 2006, Study 5). Furthermore, participants who reflected on an event characterized by central features of nostalgia felt more loved, protected, connected to loved ones, and trustful of others than those who reflected on an event characterized by peripheral features of nostalgia (Hepper et al., 2012, Study 7). Recent findings indicate the same differences among UK undergraduates who recalled a nostalgia (compared to an ordinary) interaction with an outgroup member, that is, individuals who are overweight, or suffering from mental illness. Nostalgic participants expressed more trust toward the outgroup member than control participants (Turner, Wildschut, & Sedikides, 2012, Studies 1-2; Turner, Wildschut, Sedikides, & Gheorghui, 2013, Study 2).

Experiencing attachment security. Wildschut et al. (2006, Study 7) demonstrated that participants who reflected on a nostalgic (vs. ordinary) event expressed lower levels of attachment anxiety (e.g., "I worry that romantic partners won't care about me as much as I can about them") and attachment avoidance (e.g., "I am very uncomfortable with being close to romantic partners"). Attachment anxiety and avoidance were measured

with the Revised Experiences in Close Relationships Scale (ECR-R; Fraley, Waller, & Brannan, 2000).

Feeling socially supported. Nostalgia also contributes to a subjective sense of social support. Chinese undergraduates who recalled a nostalgic (vs. ordinary) event manifested stronger perceptions of social support (Zhou et al. 2008, Study 3). In particular, they scored higher on a standardized measure of social support, assessed using the 12-item MSPSS (Zimet et al., 1988; e.g., "I can count on my friends when things go wrong"). They also predicted that a higher number of their peers would come to their support, volunteering in a psychology experiment so that they could benefit by receiving additional credit. In conclusion, nostalgia bolsters perceptions of social support.

Empathy. Nostalgia also augments empathy. Chinese undergraduates recalled a nostalgic (vs. ordinary) event and subsequently read information about an organization, "Half the Sky Foundation," whose ostensible mission was to aid victims of the May 2008 Wenchuan earthquake. Afterward, they recorded their level of empathy with the earthquake victims (i.e., "sympathetic," "soft-hearted," "tender," "compassionate"). Participants who recalled the nostalgic event expressed stronger empathy than those who had recalled an ordinary event (Zhou, Wildschut, Sedikides, Shi, & Feng, 2012, Study 2). This was replicated with an additional charitable cause, "Lemon Field Foundation," whose mission was to foster children's developmental and educational need in the remote and rural province of Guangdong (Study 3). Finally, this was replicated in a diverse sample of immigrants and overseas university students, who, albeit enrolled in Chinese universities, completed the materials in English (Study 4). In all, nostalgia increases empathy.

Taken together, the literature indicates that nostalgia serves as a psychological resource that helps to maintain psychological equanimity and subjective wellbeing. When

people think nostalgically, social bonds and relationships are symbolically strengthened despite the physical absence of the people involved in the experience (Batcho, 1998; Sedikides et al., 2004). This supports the view by Hertz (1990) that, in the nostalgic experience, "the mind is 'peopled'" (p. 195). Thus, important figures from the past are brought to life and indirectly become a part of one's present.

1.4. Nostalgia, Social Connectedness, and Attachment-Related Individual Differences

A body of evidence suggests that waxing nostalgic in response to loneliness is shaped by attachment-related individual differences. Researchers have demonstrated that such differences influence how individuals regulate distress and felt security in response to loneliness. Attachment theory (Bowlby, 1982; Mikulincer & Shaver, 2003) illustrates that reactions to psychological distress are influenced by two underlying attachment-related dimensions: anxiety, which reflects the extent to which the self is seen as worthy of love and support, and avoidance, which reflects the extent to which others are seen as responsive to one's distress. Individuals who are low in both dimensions are classified as having a secure attachment style (Hazan & Shaver, 1987; Mikulincer & Shaver, 2003). These internal working models of self and others develop early in life in response to experiences with attachment figures (Ainsworth, Blehar, Waters, & Wall, 1978) and are thought to remain relatively stable across the lifespan (Scharfe & Bartholomew, 1994).

Research suggests that attachment-related avoidance is negatively associated with support-seeking behavior (Feeney, 2006). Highly avoidant individuals tend to view others as unreliable or unresponsive, and do not rely on social bonds to regulate and fend off the harmful effects of distress. Additionally, research has shown that there is a positive association between emotional distress and support seeking when others are seen as reliable and responsive to one's needs (i.e., when avoidance is low), but not when others

are seen as unreliable and unresponsive (i.e., when avoidance is high; Fraley & Shaver, 2000).

In a series of experiments, Wildschut et al. (2010, Study 1) examined whether the tendency to respond to loneliness by seeking refuge in nostalgia is shaped by attachment-related avoidance (avoidance) and attachment-related anxiety (anxiety). They hypothesized that, to the extent that nostalgia serves as a source of social connectedness, the positive association between loneliness and nostalgia would be stronger when attachment-related avoidance is low rather than high. In the first study, they assessed avoidance and anxiety, and then asked participants to write about the circumstances in which they became nostalgic. Initial findings revealed that low-avoidance (compared to high-avoidance) participants more frequently identified loneliness as a primary trigger of nostalgia. Wildschut et al. (2010, Study 2) extended these findings to distinguish among three facets of loneliness-connectedness (Hawkley, Browne, & Cacioppo, 2005). These facets included isolation (which reflects feelings of aloneness and withdrawal), relational connectedness (which relates to familiarity, intimacy, and emotional support), and collective connectedness (which corresponds to group familiarity). Wildschut et al. (2010) measured how often participants felt lonely, and how frequently participants experienced nostalgia (SNS). Results indicated that deficiencies in relational connectedness most strongly predicted increased nostalgia. However, this was present for low-avoidance participants only. Thus, for participants low (compared to high) in attachment-related avoidance, nostalgia was linked with a perceived lack of familiarity, intimacy, and emotional support.

Next, Wildschut et al. (2010, Study 3) examined the impact of a social exclusion manipulation. They aimed to reinforce the idea that deficiencies in relationship connectedness would increase nostalgia among low avoidance (compared to high

avoidance) individuals. They manipulated social exclusion by use of a validated social exclusion manipulation (Twenge, Baumeister, Tice, & Stucke, 2001) and examined in-the-moment feelings of nostalgia. Participants were assigned to two conditions which targeted anticipated deficiencies in relational connectedness. In the future alone condition, participants were given false personality feedback suggesting that they would not enjoy lasting friendships or marriages and were more likely to end up alone later in life. In the future belonging condition, participants were given false personality feedback suggesting that they would enjoy a stable marriage and rewarding friendships throughout their lives. After participants received the false personality feedback, they reported how nostalgic they felt. Results revealed that social exclusion (compared to social inclusion) increased levels of nostalgia among low-avoidance participants, but not high-avoidance participants. These findings indicate that the psychological significance of nostalgia resides in its capacity to strengthen social connectedness, and that low-avoidance (compared to high-avoidance) individuals are more capable of regulating and restoring deficiencies in relational connectedness by recruiting nostalgia. Does this suggest that low-avoidance (compared to high-avoidance) individuals are more likely to derive other desirable benefits from nostalgia (Wildschut et al., 2006) such as boosted self-esteem and augmented positive affect?

Wildschut et al. (2009, Study 4) finally asked participants to complete the Experiences in Close Relationships (ECR-R; Fraley, Waller, & Brennan, 2000) scale to assess attachment-related individual differences, and randomly assigned participants to think about either a nostalgic or ordinary event from their past. Next, participants completed state-level measures of positive affect ("Thinking about this event makes me feel happy," "… makes me feel in a good mood "), self-esteem ("… makes me feel I have many positive qualities," "… makes me value myself more"), and social connectedness

("… makes me feel loved," "… makes me feel connected to loved ones"). Findings indicated that induced nostalgia increased positive affect and self-esteem irrespective of attachment-related individual differences. However, induced nostalgia strengthened social connectedness only among low-avoidance (compared to high-avoidance) participants.

Taken together, these findings substantiate that high-avoidance (compared to low-avoidance) individuals tend to view others as unavailable and unresponsive and are therefore less likely to rely on social bonds to regulate psychological distress (Collins & Feeney, 2000). On the other hand, low-avoidance (compared to high-avoidance) persons are more apt to derive social connectedness from social bonds to regulate distress, in particular, from nostalgia. The primary focus of this chapter is to further examine whether nostalgia's capacity to counteract the adverse effects of loneliness is shaped by certain other individual differences. In particular, I focus my attention on the role of resilience-related individual differences.

1.5. The Role of Psychological Resilience in Shaping Nostalgia's Triggers and

Functions

Prior research suggests that individual differences in psychological resilience may shape the triggers and functions of nostalgia (Zhou et al., 2008, Study 4). During the normal course of life, most adults are exposed to at least one traumatic or life-threatening event (Ozer, Best, Lipsey, & Weiss, 2003), but not everyone reacts to these events in the same way. Longitudinal research shows that there are clear individual differences in how people respond to traumatic experiences. Whereas some individuals may experience posttraumatic stress disorder (PTSD) and severe distress from which they are unable to recover (i.e., anxiety, depression, and sleep deprivation; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), others manage to "bounce back" and cope with the temporary turmoil of loss or trauma remarkably well (Bonanno, 2004). These different responses to

the changing demands of stressful experiences reflect individual differences in psychological resilience (J. J. Block & Block, 1980).

Previous research has demonstrated that psychological resilience may be influenced by many factors, including situational factors (e.g., supportive relationships) and individual factors (e.g., the capacity to adapt to challenges; Block & Block, 1980). For instance, Bonanno and Keltner (1997) found that whereas most resilient bereaved individuals expressed negative emotions when talking about their loss, they expressed less negative emotion and more positive emotion than did low-resilience bereaved individuals. Furthermore, they were able to "increase continued contact with and support from important people in the social environment" (Bonanno & Keltner, 1997, p. 134; Keltner & Bonnano, 1997). Resilient individuals therefore capitalize on available personal and social resources for effective self-regulation.

Much of the theorizing on psychological resilience originated from developmental psychologists and mental health professionals working in the late 1970s. Their work began after documenting the large numbers of children who, despite growing up in highly aversive circumstances, emerged as efficient and highly functional adults (Garmezy, 1991; Murphy & Moriarty, 1976; Rutter, 1979; Werner, 1984, 1990). The early research focused on chronic forms of adversity, such as long-term abusive relationships or poverty. This led researchers to contextualize resilience as favourable adjustment over a considerable length of time in spite of severe risk experiences (Masten, 2001). For instance, a child would be considered resilient if he or she met normal developmental milestones or levels of psychological adjustment after suffering for years with the stress of ongoing difficulty (Luthar, Cicchetti, & Becker, 2000; Masten & Coatsworth, 1995). Evidence of competent functioning included success in social relationships, job performance, and marriage (DiRago & Vaillant, 2007; Vaillant & Davis, 2000).

Gradually, the focus shifted from resilient children to resilient adults, and research broadened to encompass more isolated and acute events (short-lived events) instead of chronic adversity (Bonanno & Mancini, 2008; Bonanno, Westphal, & Mancini, 2011). These studies have documented the pervasiveness of resilience following traumatic events (Bonnano, 2004) and have highlighted that there are fundamental, far-reaching individual differences in psychological resilience.

Resilient individuals respond to adversity by means of their optimistic, enthusiastic, and energetic approaches to life (Block & Kremen, 1996). Evidence suggests that resilient individuals promote positive emotionality through the use of optimistic thinking (Kumpfer, 1999), relaxation techniques (Demos, 1989), and humour (Werner & Smith, 1992). This allows individuals to fulfil their personal and social responsibilities, to experience positive emotions, and to engage in creative activities immediately following exposure to traumatic events and unfavourable life situations (Bonanno, 2004). A review of recent evidence suggests that positive emotions buffer against the effects of stress (Folkman & Moskowitz, 2000; Moskowitz, Folkman, & Acree, 2003). Researchers have found that positive coping strategies, such as positive reappraisal, problem-focused coping, and infusing ordinary events with positive meaning predict increases in psychological well-being and health (Affleck & Tennen, 1996). Fredrickson's (1998, 2001) broaden-and-build theory of positive emotions suggests that discrete positive emotions (e.g., joy, contentment) contain the capacity to broaden one's thought-action repertoire and expand the individual's range of cognitions and behaviours. These mindsets, in turn, build the individual's physical, intellectual, and social resources.

Evidence suggests that psychologically resilient individuals are particularly skilful at drawing on positive emotions in times of stress (Feldman-Barrett & Gross, 2001). In two studies, Philippe, Lecours, and Beaulieu-Pelletier (2009) administered an emotional

memories networks assessment (EMNA), a questionnaire that was created to collect autobiographical emotional memories that are context-dependent and spontaneous. They proposed that when the content of an emotional memory is activated, its components lead to the activation of other emotional memories that the prior memory is associated with. Philippe et al. posited that resilient individuals experience and self-generate positive emotions in distressing situations because they rely heavily on positive affect-laden emotional memories composed of intense positive links to other memory elements. Thus, they proposed that individuals with internal resources are better skilled at generating positive memories and emotions, and at coping in times of adversity (Block, 2002). In Study 1, they collected ratings of resilience and positive and negative emotions (e.g., active, alert, afraid, ashamed), and then exposed participants to a distressing experience of sadness by letting them watch a sad film excerpt. In Study 2, they induced anxiety by informing participants that two students would be randomly selected to deliver an oral presentation in front of the class. Such a manipulation has proven to be effective in inducing anxiety (Tugade & Fredrickson, 2004). Then, in both studies, they asked participants to describe a significant personal memory that the distressing or anxious experience made them think of, along with other memories that they thought would be directly or indirectly related. Their results showed that resilience was positively associated with positive emotions before and right after the induction of sadness and anxiety. Philippe et al. also found that resilience was positively associated with positive EMN, which fully mediated the relationship between psychological resilience and the elicitation of positive emotions.

Thus, psychologically resilient individuals self-generate positive emotions in response to psychological threat by use of their positive EMN, that is, their ability to spontaneously create and generate positive emotional memories. The study emphasized

the importance of EMN in evoking positive emotions during taxing events. As nostalgia is a predominantly positive and social emotion, resilient individuals may also use nostalgic memories in response to psychological threat.

1.6. Resilience and Nostalgia

Zhou et al. (2008, Study 4) explored the role of resilience in shaping the relationship between psychological threat and nostalgia. In an investigation involving Chinese factory workers, they assessed (a) psychological resilience (Resilience Scale; Wagnild & Young, 1993), (b) loneliness (UCLA Loneliness Scale; Russell, 1996), (c) nostalgia (with Batcho's [1995] Nostalgia Inventory and Routledge et al.'s [2008] SNS), and (d) perceived social support (MSPSS; Zimet et al., 1988). They predicted that resilience would promote nostalgia in the face of aversive states such as loneliness. They also assessed whether resilience moderated the association between nostalgia and perceived social support. Indeed, evidence revealed that the positive association between loneliness and nostalgia was stronger among high (compared to low) resilience individuals (see Figure 1). However, they did not find evidence that the association between nostalgia and perceived social support was stronger for high than for low-resilience individuals. Thus, they showed that nostalgia was associated with perceived social support irrespective of resilience-related individual differences. In all, Zhou et al. showed that high-resilience individuals were more likely to experience nostalgia when lonely. This supports the idea that high-resilience individuals are particularly resourceful and employ nostalgia as a psychological weapon against threatened social connectedness, for example due to loneliness.
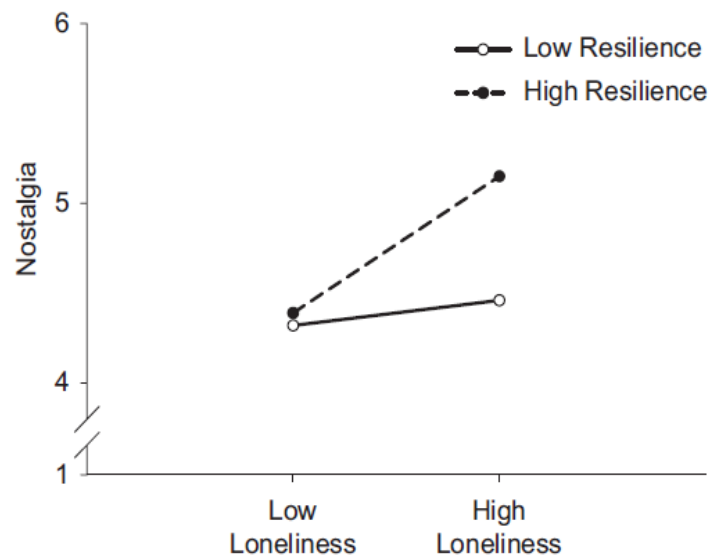
Figure 1. Level of nostalgia as a function of loneliness and resilience (Zhou et al., 2008, Study 4)

However, it is noteworthy that this research has a number of crucial limitations. First, it employed correlational methods only. This opens the door to many alternative explanations of the findings (e.g., that nostalgia increased loneliness among high-resilience individuals, or that loneliness increased nostalgia). Second, this research was conducted using Chinese participants. Whilst the functions of nostalgia are conceptually consistent across the UK, USA, China, and the Netherlands (Hart et al., 2011; Hepper, Wildschut et al., 2014; Routledge et al., 2008; Wildschut et al., 2006), it is possible that the manner in which individuals respond to psychological distress (i.e., loneliness) differs across multiple cultures. For instance, does the communal orientation of Eastern, collectivist samples shape resilience-related individual differences in response to loneliness? How might these differ to a Western, individualist culture, where an agentic orientation is central? Further research is needed to examine these questions.

1.7. Methodology

1.7.1. Experimental inductions of nostalgia

The functionality of nostalgia is often tested in the context of laboratory experiments. A number of experimental nostalgia inductions have been developed.

Event recollection task. Nostalgia has been most frequently induced with the Event Recollection Task (ERT). This induction was first introduced by Wildschut et al. (2006, Study 5), and has been used effectively in most empirical studies assessing the psychological functions of nostalgia. Participants are usually provided with a formal dictionary definition of nostalgia ("Nostalgia is defined as a sentimental longing or wistful affection for the past") and instructed to spend a few of minutes visualizing and bringing to mind a personally-experienced nostalgic event. In the control condition, participants are instructed to recall an ordinary autobiographical event. Then, participants list 4-5 key words summarizing the event, followed by a brief (5-10 minutes) written account of the event. Previous research has shown that participants who bring to mind a nostalgic event feel more nostalgic (as assessed by a manipulation check) than those in the control condition (e.g., Wildschut et al., 2006). The ERT has been validated by prior research in the US (Juhl et al., 2010; Routledge et al., 2008, 2011; Routledge, Wildschut, Sedikides, Juhl, & Arndt, 2012; Vess et al., 2012), the UK (Hepper et al., 2012; Wildschut et al., 2006, 2010), Ireland (W. A. P. van Tilburg et al., 2013), and China (Zhou et al., 2008, 2012).

Prototype induction. Hepper et al. (2012) developed a prototype-based nostalgia induction. Participants are provided with a list of 12 features that they are asked to read. These features were selected based on prior research examining lay conceptions of nostalgia (Hepper et al., 2012). In the central features (nostalgia) condition, participants receive the following words/phrases: "reminiscence," "keepsakes," "dwelling," "rose-tinted memories," "familiar smells," "wanting to return to the past," "family/friends," "longing," "feeling happy," "childhood," "emotions," and "personal." In the peripheral

features (control) condition, participants receive the following words/phrases: "daydreaming," "anxiety/pain," "wishing," "achievements," "regret," "feeling," "warm/comforted," "bittersweet," "feeling sad," "change," "aging," and "bad memories." Participants are then instructed to: "bring to mind an event in your life that is relevant to or characterized by at least five of these features… whereby at least five of the features either were *part* of the event, and/or describe your experience as you *think about* the event." Participants circle all features that were relevant to their event and write a brief description of their experience of the event as they remembered it for 8-10 min. This method is as effective as the ERT: Participants in the central prototype condition feel more nostalgic than those in the peripheral prototype condition (e.g., Hepper et al., 2012, Study 7; Zhou, Wildschut, Sedikides, Chen, & Vingerhoets, 2012). Use of the prototype manipulation has methodological advantages compared to the ERT. By discarding the label "nostalgic event," the manipulation eliminates demand characteristics (e.g., participants' expectations to feel better) and reduces dependency on familiarity with the term "nostalgia."

Songs. Researchers have capitalized on music's ability to evoke nostalgia (Barrett et al., 2010; Cheung et al., 2013; Hart et al., 2011; Routledge et al., 2010). For example, Cheung et al. (2013, Study 3) randomly presented participants with either a nostalgic song or a control song (as determined through pilot testing). The song was presented via a media player in the participants' Internet browser. As intended, participants who listened to the nostalgic song reported higher levels of nostalgia than those who listened to a control song.

Song lyrics. Cheung et al. (2013, Study 4) implemented a further music-based manipulation of nostalgia. They induced nostalgia by presenting participants with lyrics to songs that the participants had previously identified as nostalgic (compared with

control lyrics). In the preliminary session, all participants were presented with a formal dictionary definition of nostalgia and listed the titles and performing artists of three songs that made them feel nostalgic. In the experimental session three weeks later, participants in the nostalgia condition were presented with lyrics of a song that they listed previously as nostalgic. Participants in the control condition received the same lyrics as participants in the nostalgia condition after ascertaining that the relevant song was not one that they previously listed as nostalgic. Participants read the prepared lyrics (nostalgia or control) and then completed the manipulation check. Those who read the nostalgic lyrics reported significantly higher nostalgia than those in the control condition.

Nostalgia manipulation checks. Two validated state measures of personal nostalgia have been used in previous research. They are often administered immediately after the experimental induction. The most frequently used measure assesses general nostalgia and was first introduced by Wildschut et al. (2006, Study 5). The measure consists of three items designed to assess in-the-moment feelings of nostalgia (i.e., "Right now, I am feeling quite nostalgic," "Right now, I am bringing to mind nostalgic experiences," and "Right now, I am having nostalgic feelings"). The other measure is the state version of the Nostalgia Inventory (Batcho, 1995). For this measure, participants rate how nostalgic they currently feel for 20 objects from their past. The items are "my family," "not having to worry," "places," "music," "someone I loved," "my friends," "things I did," "my childhood toys," "the way people were," "feelings I had," "my school," "having someone to depend on," "holidays I went on," "the way society was," "my pets," "not knowing sad or evil things," "past TV shows, movies," and "my family house." Research has found that the two scales are strongly correlated (e.g., Wildschut et al., 2006, Study 3).

1.7.2. Measures of resilience

Resilience as a personality characteristic has been a topic of research for many years. Most studies of resilience have focused on how children growing up in adverse circumstances averted psychiatric disorders during adulthood (Garmezy, 1991; Murphy & Moriarty, 1976; Rutter, 1979; Werner, 1984, 1990). Recent years, however, have witnessed an increase in studies of resilience among adults. This research has been aimed at understanding why and how some adults successfully adapt to challenging or threatening circumstances, whereas others succumb. Three widely used measures of individual differences in resilience are: the Resilience Scale (Wagnild & Young, 1993), the Ego-Resiliency Scale (Klohnen, 1996), and the Connor-Davidson Resilience Scale (Connor & Davidson, 2003).

Resilience Scale. The 25-item Resilience Scale (RS) was developed by Wagnild and Young (1993) to identify the core components of resilience, which they considered a positive personality characteristic that enhances individual adaptation. They developed the scale from a qualitative study of 24 women who had adapted successfully following a major life event (Wagnild & Young, 1990). Initially, five interrelated components of resilience were identified: equanimity, perseverance, self-reliance, meaningfulness, and existential aloneness. Wagnild and Young (1993) evaluated the validity of the RS by administering the scale to a sample of 810 community-dwelling older adults. Factor analysis of the RS indicated that the measure represented two factors reflecting the theoretical definition of resilience. The 17 items of Factor I (labelled *personal competence)* represented self-reliance, perseverance, independence, determination, resourcefulness, mastery, and invincibility (e.g., "I can get through difficult times because I have experienced difficulty before"). The 8 items of Factor II (labelled *acceptance of self and life*) represented adaptability, flexibility, balance, and a balanced perspective of life in spite of adversity (e.g., "I do not dwell on things I can't do anything about"). Note,

however, that the scale often comprises 26 items, in which the item "I am resilient" is added to establish concurrent validity. Support for concurrent validity of the RS was shown by high correlations between the RS and validated measures of psychological functioning. For instance, the RS was positively correlated with life satisfaction, morale, and physical health, and negatively correlated with depression.

Ego-Resiliency Scale. Research has defined ego-resilience (ER) as a broad construct that combines a number of distinct personality attributes (Klohnen, 1996). Specifically, high-ER individuals hold a sense of active and meaningful engagement with the world, have a positive and energetic approach to life that is grounded in confident, autonomous, and competent functioning, and are perceptive and insightful with the capacity for warm and open relationships with others. The ER scale was developed based on these factors (Klohnen, 1996). Factor analysis of 29 scale items revealed four major components. One component of ER involves the theme of *confident optimism*. These items describe an optimistic, positive, and energetic approach to life (e.g. "I have social poise and presence"). Reverse-scored items pertain to social anxiety (e.g., "I tend to ruminate and have preoccupying thoughts"). A second component involves the theme of *productive and autonomous activity*. These items examine productivity, persistence in the face of adversity, and independence (e.g., "I am productive and get things done"). Reverse-scored items pertain to unproductivity (e.g., "I give up and withdraw from frustration, adversity"). A third component involves *interpersonal warmth and insight*. These items reflect the capacity for close relationship (e.g., I have warmth, am compassionate"). Reverse-scored items pertain to neuroticism ("I must admit I have a bad temper once I get angry"). A fourth and final component reflects *skilled expressiveness*. This component reflects an expressive interpersonal orientation, being at ease in social settings, and being skilled at interesting with other ("I am skilled in social techniques").

Reverse-scored items refer difficulty in social interactions ("It is very hard for me to tell anyone about myself"). ER is positively associated with indices of psychological wellbeing and is negatively related with depression (Alessandri, Vecchione, Caprara, & Letzring, 2011).

Connor-Davidson Resilience Scale. The 25-item Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) was developed to assess patients with anxiety, depression, and adverse stress reactions. Connor and Davidson established validity and reliability by administering the scale to community samples, primary care outpatients, general psychiatric outpatients, and clinical trials of generalized anxiety disorder and post-traumatic stress disorder. Factor analysis revealed five components of the scale. These were labelled as *personal competence, high standards, and tenancy* (e.g., "I give my best effort, no matter what"); *trust in one's instincts, tolerance of negative affect, and the strengthening effects of stress* (e.g., "I am able to adapt to change"); *positive acceptance of change and secure relationships with others (*e.g., "I have close and secure relationships"), *control* (e.g., "I feel in control of my life,") and "*spiritual influences*" (e.g., "Sometimes, fate or God can help"). Connor and Davidson found that higher CD-RISC scores were associated with greater overall clinical and global improvement, which provided support for the validity of the scale.

1.7.3. The Current Studies

In the current research, I implemented a variety of nostalgia inductions to establish convergent validity across studies. I used the RS to measure resilience, including the additional item to establish concurrent validity. The RS is among the most commonly used measures of resilience. Furthermore, the RS was used in Zhou et al. (2008, Study 4) study that forms the basis for the current research. Using the RS in the current research facilitates the integration of my findings with the prior Zhou et al. research. I also

examined both subscales of the RS (*personal competence* and *acceptance of life and self*) to offer a more comprehensive understanding of the interplay between resilience and nostalgia.

1.8. The Present Research

A body of recent studies have prompted the question as to whether psychological resilience is responsible for the promotion of nostalgia – a predominantly positive emotion – in the face of aversive states, specifically, loneliness. First, evidence suggests that nostalgia is primarily a positive emotional experience that serves to boost self-esteem, positive affect, optimism, and self-continuity, assist in the management of existential threat, and is utilized as a rich source of social connectedness. Second, nostalgia is triggered by loneliness. A series of studies demonstrated that individuals displayed higher levels of state nostalgia following an experimental loneliness induction. Moreover, evidence indicated that, whereas the direct effect of loneliness is to reduce perceived social support, the indirect effect of loneliness is to increase perceived social support via nostalgia. Third, evidence indicates that psychologically resilient individuals are skillful at drawing on positive emotions, particularly in times of stress and adversity. Related to this, prior research provides encouraging evidence that resilient individuals wax nostalgic to fend off the harmful effects of loneliness. Zhou et al. (2008, Study 4) found that the positive association between loneliness and nostalgia was significantly stronger among high (compared to low) resilient individuals. However, their evidence for a strong link between loneliness and nostalgia among high-resilience individuals was correlational. This opens the door to many alternative explanations (e.g., that nostalgia increased loneliness among high-resilience individuals). First and foremost, an experimental investigation to clarify the causal direction of this relation was warranted. Accordingly, in

Study 1, I tested the prediction that loneliness would cause a stronger increase in nostalgia for high-resilience individuals than for low-resilience individuals.

In Studies 2-3b, I examined whether resilience-related individual differences influence the functionality of nostalgia. Specifically, I tested whether nostalgia strengthens social connectedness (feeling loved, protected, connected to others, and trusting of others) to a greater extent for high-resilience individuals than for low-resilience individuals. Previous correlational findings by Zhou et al. (2008, Study 4) did not find evidence that the association between nostalgia and perceived social support was stronger for high than for low-resilience individuals. Thus, it was important to examine the possibility in a controlled laboratory setting where nostalgia was manipulated rather than measured. This was the key objective of these studies.

Finally, in Study 4, I examined in greater detail whether the beneficial effect of nostalgia on social connectedness is stronger for high-resilience (compared to low-resilience) individuals. Specifically, I tested whether high-resilience (compared to low-resilience) individuals are particularly apt at harnessing nostalgia as a source of social connectedness when they are exposed to social threat (e.g., loneliness).

Chapter 2: Nostalgia as a Function of Loneliness and Resilience (Study 1)

2.1. Introduction

Nostalgia serves many self-relevant psychological functions that are pivotal to psychological well-being. In the previous chapter, I introduced the idea that nostalgia plays a fundamental role in counteracting the harmful effects of loneliness. Specifically, prior research shows that high-resilience (compared to low-resilience) individuals are more likely to employ nostalgia as a psychological weapon against loneliness (Zhou et al., 2008, Study 4). However, this prior research has a crucial limitation: it employed correlational methods only. This opens the door to many alternative explanations of the findings (e.g., that nostalgia increased loneliness among high-resilience individuals). Thus, an experimental investigation to clarify this relationship is warranted. In this chapter, I develop and extend previous correlational findings by implementing an experimental manipulation of loneliness.

I hypothesized (1) that loneliness would increase nostalgia (replicating studies by Wildschut et al., 2006 and Zhou et al., 2008); and (2) that the effect of loneliness on nostalgia would be stronger for high-resilience (compared to low-resilience) participants. Confirmation of the latter hypothesis would corroborate and extend the correlational findings of Zhou et al., who demonstrated that the correlation between loneliness and nostalgia proneness was stronger among high-resilience (compared to low-resilience) individuals.

2.2. Method

2.2.1. Participants and Design.

Participants were 98 University of Southampton undergraduate students who received course credit (88% female; $M = 21.13$, $SD = 3.87$, $Range = 18–39$). Most were Caucasian (80%) or Asian (13%). They were randomly assigned to the high loneliness

condition ($N = 49$) or the low loneliness condition ($N = 49$). Participants were assessed individually and were thanked and debriefed at the end of the session.[1]

2.2.2. Materials and Procedure

After providing informed consent, participants first completed the 26-item Resilience Scale (RS-26; Wagnild & Young, 1993). Items on the RS-26 were rated on a 6-point scale (1 = *strongly disagree,* 6 = *strongly agree*). The measure was designed to assess overall trait resilience (e.g., "My belief in myself gets me through hard times"). The items were combined to form a single index. The RS-26 yielded a reliable measure of resilience ($\alpha = .87$, $M = 4.57$, $SD = .48$).

Next, I induced loneliness using the manipulation introduced by Wildschut et al. (2006, Study 4). Participants completed the Southampton Loneliness Scale, which consisted of 15 items drawn from the UCLA Loneliness Scale (Russell, 1996). Participants specified whether they agreed or disagreed with each of the 15 statements. Statements presented to participants in the high loneliness condition were phrased in a manner to elicit agreement (e.g., "I sometimes feel that I am 'out of tune' with the people around me"), whereas statements presented to participants in the low loneliness condition were phrased in a manner to elicit disagreement (e.g., "I always feel that I am 'out of tune' with the people around me"). After completion, participants received false feedback. They were informed that their responses would be scored by the experimenter and that they would be provided with feedback regarding their true level of loneliness. Feedback was presented on a scoring form. Participants in the high loneliness condition learned that they were in the 62nd percentile of the distribution of loneliness and were therefore

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[1] I assessed whether participants were familiar with the term "nostalgia," (1 = *not at all*, 2 = *somewhat,* 3 = *reasonably well,* 4 = *very well*) with the intention of excluding participants who were not at all familiar with nostalgia. No participants were excluded based on this criteria ($M = 3.40$, $SD = .64$),

"above average on loneliness" compared with other undergraduates at the University of Southampton. Participants in the low loneliness condition learned that they were in the 12th percentile of the distribution of loneliness and were therefore "very low on loneliness" compared with other undergraduates at the University of Southampton. Participants were then asked to provide reasons for their loneliness score on a separate sheet of paper for approximately 5 min. This was to strengthen the effectiveness of the manipulation. As intended, participants in the high loneliness condition agreed with a higher number of loneliness statements ($M = 9.02$, $SD = 1.96$) than participants in the low loneliness condition ($M = 1.43$, $SD = 3.43$), $F(1, 96) = 181.47$, $p < .0001$, $\eta^2 = .65$.

Participants next completed a manipulation check ($\alpha = .92$) consisting of three items that were rated on a 6-point scale (1 = *strongly disagree,* 6 = *strongly agree*). The measure was designed to assess state loneliness ("Right now, I feel somewhat alone", "Right now, I feel a bit left out", and "Right now, I feel a bit lonely"). The three responses were subsequently combined to form a loneliness index ($\alpha = .93$, $M = 2.34$, $SD = 1.26$).

Participants then completed two measures of nostalgia. The first measure was Batcho's (1995) Nostalgia Inventory (NI). The NI consists of 20 items that measure how nostalgic participants feel about individual aspects of their past "right now" (1 = *strongly disagree,* 6 = *strongly agree*). The items included "my family," "vacations I went on," "places," "music," "someone I loved," "my friends," "things I did," "my childhood toys," "the way people were," "my heroes/heroines," "feelings I had," "my school," "having someone to depend on," "not having to worry," "the way society was," "my pets," "not knowing sad or evil things," "TV shows, movies," "my family house," and "my church/religion". The 20 responses were subsequently combined to form a nostalgia index ($M = 2.77$, $SD = 0.77$; $\alpha = .88$). Participants next completed a three-item nostalgia

measure (1 = *strongly disagree,* 6 = *strongly agree*) that was designed to directly assess in-the-moment feelings of nostalgia ("Right now, I am feeling quite nostalgic", "Right now, I am bringing to mind nostalgic experiences", and "Right now, I am having nostalgic feelings"). The three responses were subsequently combined to form a second nostalgia index (α = .93, *M* = 3.98, *SD* = 1.08). Finally, the scores from the two nostalgia scales were standardized (z-scores) and then averaged to form an overall composite measure of state nostalgia (*r* = .46, *p* < .001). The two scales produced very similar results when considered individually.

2.3. Results

Manipulation check. As intended, participants in the high loneliness condition (*M* = 3.27, *SD* = 1.06) reported higher levels of loneliness compared to participants in the low loneliness condition (*M* = 1.41, *SD* = 0.60), $F(1, 96) = 114.00$, *p* < .0001, η^2 = .57. Next, I examined whether the loneliness manipulation was effective for both high-resilience and low-resilience participants. I entered state loneliness into a Loneliness (contrast coded) × Resilience (mean-centered) regression analysis. As intended, results revealed a non-significant Loneliness × Resilience interaction, *B* = -0.29, *SE* = 0.17, $F(1, 94) = 2.77$, *p* = .10, η^2 = .01, R^2 = .60, which indicated that the effectiveness of the loneliness manipulation was not significantly influenced by resilience.

Loneliness and Nostalgia. Analyses revealed that there was a significant effect of the loneliness condition on the nostalgia composite, indicating higher nostalgia in the high loneliness condition (*M* = 3.75, *SD* = 0.56) compared to the low loneliness condition (*M* = 3.00, *SD* = 0.56), $F(1, 96) = 30.42$, *p* < .0001, η^2 = .34. Table 2a presents means and standard deviations for dependent variables assessed in Study 1.

Table 2a. *Means and Standard Deviations of Dependent Variables in Study 1*

	Induced loneliness			
	Low		High	
	M	SD	M	SD
No. items agreed on loneliness manipulation (15 items)	1.43	3.43	9.02	1.96
State loneliness (3 items)	1.41	.60	3.27	1.06
Batcho's nostalgia inventory (20 items)	2.40	.69	3.14	.68
State nostalgia (3 items)	3.61	.85	4.36	1.17
Nostalgia composite score	3.00	.84	3.75	.56

Next, I conducted a multiple regression analysis to test whether resilience moderated the effect of loneliness on the nostalgia composite. Nostalgia was regressed onto the Loneliness × Resilience interaction (and constituent main effects). A significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia, $B = 0.34$, $SE = 0.14$, $F(1, 94) = 5.41$, $p = .022$, $\eta^2 = .03$, $R^2 = .28$. I depicted the interaction in Figure 2a. Tests of simple slopes revealed a significant effect of loneliness on nostalgia when resilience was high (+1 SD), $B = 0.54$, $SE = 0.09$, $F(1, 94) = 31.27$, $p < .0001$, $\eta^2 = .24$. When resilience was low (-1 SD), the effect of loneliness on nostalgia was also significant but smaller than when resilience was high, $B = 0.21$, $SE = 0.10$, $F(1, 94) = 4.61$, $p = .034$, $\eta^2 = .04$. I carried out further tests to examine whether there were differences between high and low-resilience participants in each condition. Analyses revealed that there was a marginally significant negative association between resilience and nostalgia when loneliness was low, $B = -0.38$, $SE = 0.22$, $F(1, 94) = 2.92$, $p = .090$, $\eta^2 = .02$. When loneliness was high, the association between resilience and nostalgia was positive but non-significant, $B = 0.29$, $SE = 0.18$, $F(1, 94) = 2.51$, $p = .11$, $\eta^2 = .02$.
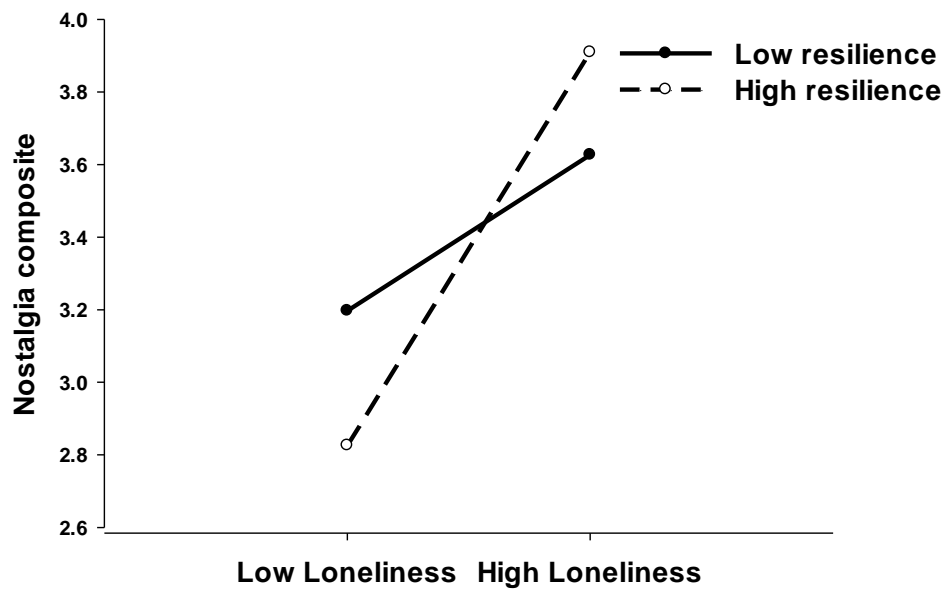
Figure 2a. Level of nostalgia as a function of induced loneliness and resilience

Next, I examined the subscales of the RS-26. First, I examined the 17 items of Factor I (*personal competence*). I conducted a multiple regression analysis to test whether this factor moderated the effect of loneliness on the nostalgia composite. Nostalgia was regressed onto the Loneliness × Resilience interaction (and constituent main effects). A significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia, $B = 0.33$, $SE = 0.14$, $F(1, 94) = 5.23$, $p = .024$, $\eta^2 = .04$, $R^2 = .28$. I depicted the interaction in Figure 2b. Tests of simple slopes revealed a significant effect of loneliness on nostalgia when resilience was high (+1 SD), $B = 0.54$, $SE = 0.10$, $F(1, 94) = 31.23$, $p < .0001$, $\eta^2 = .24$. When resilience was low (-1 SD), the effect of loneliness on nostalgia was also significant but smaller than when resilience was high, $B = 0.22$, $SE = 0.10$, $F(1, 94) = 5.24$, $p = .024$, $\eta^2 = .04$. I carried out further tests to examine whether there were differences between high and low-resilience participants in each condition. Analyses revealed that there was a marginally significant negative association between resilience and nostalgia when loneliness was low, $B = -0.39$, $SE =$

0.22, $F(1, 94) = 3.09$, $p = .082$, $\eta^2 = .02$. When loneliness was high, the association

between resilience and nostalgia was positive but non-significant, $B = 0.27$, $SE = 0.18$,

$F(1, 94) = 2.15$, $p = .14$, $\eta^2 = .02$.

Figure 2b. Level of nostalgia as a function of induced loneliness and resilience (Factor I –

personal competence)

Finally, I examined the 8 items of Factor II (*acceptance of self and life*). Nostalgia

was regressed onto the Loneliness $\times$ Resilience interaction (and constituent main effects).

A marginally significant Loneliness $\times$ Resilience interaction indicated that resilience

moderated the effect of loneliness on nostalgia, $B = 0.19$, $SE = 0.11$, $F(1, 94) = 2.97$, $p =$

.088, $\eta^2 = .02$, $R^2 = .26$. I depicted the interaction in Figure 2c. Tests of simple slopes

revealed a significant effect of loneliness on nostalgia when resilience was high (+1 SD),

$B = 0.48$, $SE = 0.88$, $F(1, 94) = 29.33$, $p < .0001$, $\eta^2 = .23$. When resilience was low (-1

SD), the effect of loneliness on nostalgia was also significant but smaller than when

resilience was high, $B = 0.29$, $SE = 0.89$, $F(1, 94) = 10.83$, $p < .001$, $\eta^2 = .08$. I carried out

further tests to examine whether there were differences between high and low-resilience

participants in each condition. Analyses revealed that there was non-significant association between resilience and nostalgia when loneliness was low, $B = -0.17$, $SE = 0.16$, $F(1, 94) = 1.13$, $p = .29$, $\eta^2 = .01$, and when loneliness was high, $B = 0.21$, $SE = 0.15$, $F(1, 94) = 1.93$, $p = .16$, $\eta^2 = .02$.

Figure 2c. Level of nostalgia as a function of induced loneliness and resilience (Factor II – acceptance of life and self)

2.3.1. Objects of Nostalgia

To gain a more fine-grained understanding of which facets of nostalgia increased as a function of loneliness in high-resilience participants, I repeated multiple regression analyses separately for each of the 20 items of Batcho's Nostalgia Inventory. I regressed all 20 items of the Nostalgia Inventory onto loneliness (contrast coded), resilience (centered), and the Loneliness × Resilience interaction. Results revealed a significant Loneliness × Resilience interaction for five objects of nostalgia. Each of these objects had a strong social aspect (i.e., was associated with, or involved the presence of, close others).

Friends. A significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia for "friends," $B = 0.54$, $SE = 0.26$, $F(1, 94)$ $= 4.24$, $p = .042$, $\eta^2 = .04$, $R^2 = .12$ (see Figure 2d). Tests of simple slopes revealed a significant effect of loneliness on "friends" when resilience was high (+1 SD), $B = 0.63$, $SE = 0.18$, $F(1, 94) = 12.69$, $p < .0001$, $\eta^2 = .12$, but not when resilience was low (-1 SD), $B = 0.10$, $SE = 0.18$, $F(1, 94) = 0.31$, $p = .57$, $\eta^2 = .00$. I also carried out further tests to examine whether there were differences between high and low-resilience participants in each condition. Analyses revealed that there was a non-significant positive association between resilience and "friends" when loneliness was high, $B = 0.49$, $SE = 0.34$, $F(1, 94)$ $= 2.16$, $p = .15$, $\eta^2 = .02$, and a non-significant negative association when loneliness was low, $B = -0.60$, $SE = 0.41$, $F(1, 94) = 2.12$, $p = .15$, $\eta^2 = .02$.

Figure 2d. Level of nostalgia for "friends" as a function of induced loneliness and resilience

Next, I examined the subscales of the RS-26. First, I examined the 17 items of Factor I (*personal competence*). A significant Loneliness × Resilience interaction

indicated that resilience moderated the effect of loneliness on nostalgia for "friends," $B = 0.37$, $SE = 0.12$, $F(1, 94) = 8.72$, $p < .001$, $\eta^2 = .08$, $R^2 = .11$ (see Figure 2e). Tests of simple slopes revealed a significant effect of loneliness on "friends" when resilience was high (+1 SD), $B = 0.57$, $SE = 0.17$, $F(1, 94) = 10.45$, $p < .001$, $\eta^2 = .10$, but not when resilience was low (-1 SD), $B = 0.17$, $SE = 0.18$, $F(1, 94) = 0.93$, $p = .33$, $\eta^2 = .01$. I also carried out further tests to examine whether there were differences between high and low-resilience participants in each condition. Analyses revealed that there was a non-significant positive association between resilience and "friends" when loneliness was high, $B = 0.44$, $SE = 0.33$, $F(1, 94) = 1.75$, $p = .19$, $\eta^2 = .02$, and a non-significant association when loneliness was low, $B = -0.38$, $SE = 0.40$, $F(1, 94) = 0.91$, $p = .34$, $\eta^2 = .01$.

Figure 2e. Level of nostalgia for "friends" as a function of induced loneliness and resilience (Factor I – personal competence)

Finally, I examined the 8 items of Factor II (*acceptance of self and life*). A significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia for "friends," $B = 0.43$, $SE = 0.20$, $F(1, 94) = 4.82$, p

= .030, η^2 = .04, R^2 = .13 (see Figure 2f). Tests of simple slopes revealed a significant effect of loneliness on "friends" when resilience was high (+1 SD), B = 0.56, SE = 0.16, $F(1, 94)$ = 12.90, $p < .0001$, η^2 = .12, but not when resilience was low (-1 SD), B = 0.15, SE = 0.16, $F(1, 94)$ = 0.88, p = .35, η^2 = .01. I also carried out further tests to examine whether there were differences between high and low-resilience participants in each condition. Analyses revealed that there was a non-significant association between resilience and "friends" when loneliness was high, B = -0.50, SE = 0.29, $F(1, 94)$ = 3.03, p = .084, η^2 = .02, and a marginally negative association when loneliness was low, B = -0.60, SE = 0.41, $F(1, 94)$ = 2.12, p = .15, η^2 = .03.

Figure 2f. Level of nostalgia for "friends" as a function of induced loneliness and resilience (Factor II - acceptance of life and self)

Things I did. A marginally significant Loneliness × Resilience interaction also indicated that resilience moderated the effect of loneliness on nostalgia for "things I did," B = 0.55, SE = 0.28, $F(1, 94)$ = 3.85, p =. 052, η^2 = .03, R^2 = .15 (see Figure 2g). Tests of simple slopes revealed a significant effect of loneliness on "things I did" when resilience

was high (+1 SD), $B = 0.72$, $SE = 0.19$, $F(1, 94) = 14.71$, $p < .001$, $\eta^2 = .13$, but not when resilience was low (-1 SD), $B = 0.18$, $SE = 0.19$, $F(1, 94) = 0.92$, $p = .34$, $\eta^2 = .01$. Further tests revealed that there was a non-significant positive association between resilience and "things I did" when loneliness was high, $B = 0.44$, $SE = 0.36$, $F(1, 94) = 1.53$, $p = .22$, $\eta^2 = .01$, and a non-significant negative association when loneliness was low, $B = -0.66$, $SE = 0.44$, $F(1, 94) = 2.32$, $p = .13$, $\eta^2 = .02$.
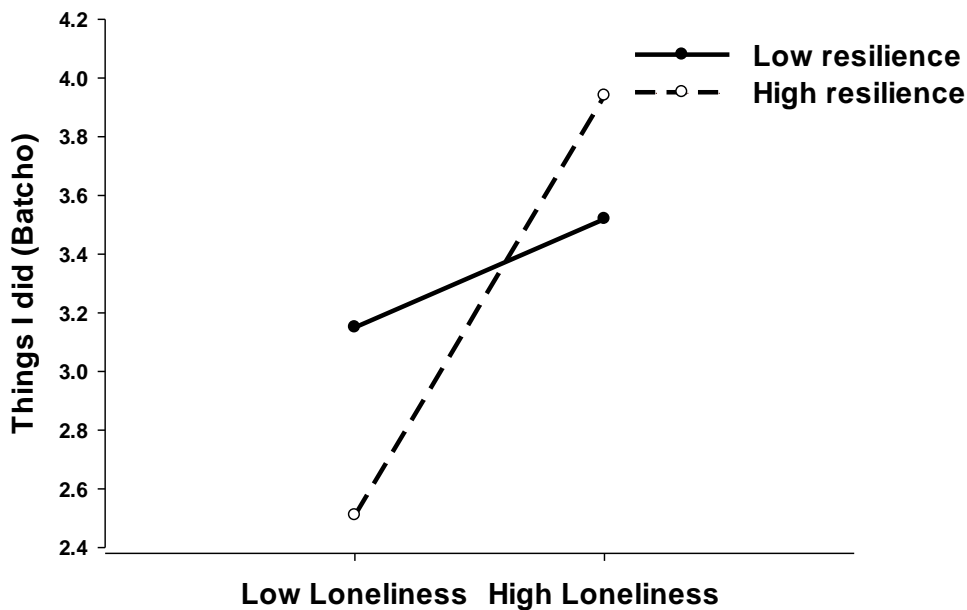
Figure 2g. Level of nostalgia for "things I did" as a function of induced loneliness and resilience

Next, I examined the 17 items of Factor I (*personal competence*). A marginally significant Loneliness × Resilience interaction also indicated that resilience moderated the effect of loneliness on nostalgia for "things I did," $B = 0.48$, $SE = 0.28$, $F(1, 94) = 3.05$, $p = .084$, $\eta^2 = .03$, $R^2 = .14$ (see Figure 2h). Tests of simple slopes revealed a significant effect of loneliness on "things I did" when resilience was high (+1 SD), $B = 0.69$, $SE = 0.19$, $F(1, 94) = 13.79$, $p < .0001$, $\eta^2 = .13$, but not when resilience was low (-1 SD), $B = 0.23$, $SE = 0.19$, $F(1, 94) = 1.45$, $p = .23$, $\eta^2 = .01$. Further tests revealed that there was a

non-significant positive association between resilience and "things I did" when loneliness was high, $B = 0.44$, $SE = 0.35$, $F(1, 94) = 1.57$, $p = .21$, $\eta^2 = .01$, and a non-significant negative association when loneliness was low, $B = -0.52$, $SE = 0.42$, $F(1, 94) = 1.51$, $p = .22$, $\eta^2 = .01$.
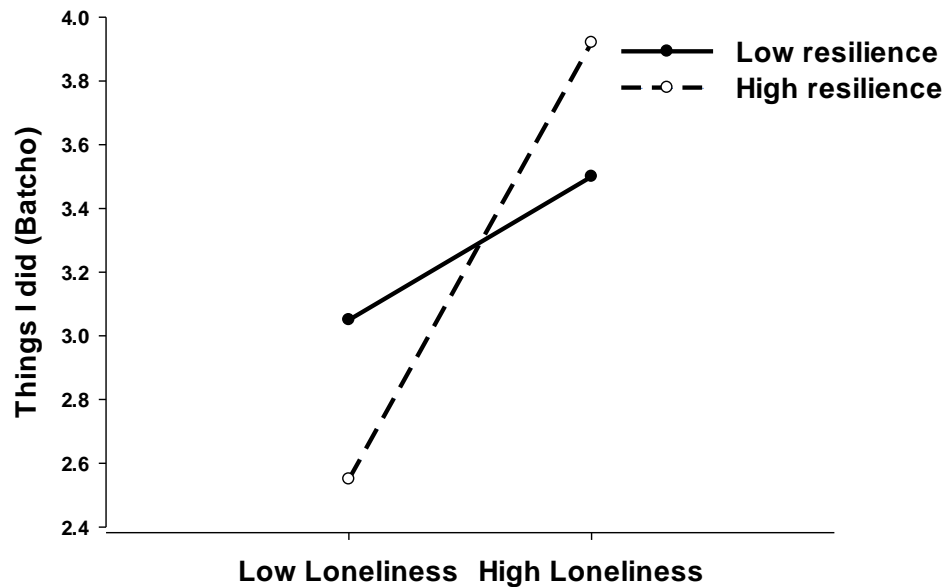
Figure 2h. Level of nostalgia for "things I did" as a function of induced loneliness and resilience (Factor I – personal competence)

Finally, I examined the 8 items of Factor II (*acceptance of self and life*). A non-significant Loneliness × Resilience interaction indicated that resilience did not moderate the effect of loneliness on nostalgia for "things I did," $B = 0.35$, $SE = 0.21$, $F(1, 94) = 2.79$, $p = .10$, $\eta^2 = .03$, $R^2 = .14$.

Family house. Next, a significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia for "family house," $B = 0.66$, $SE = 0.32$, $F(1, 94) = 4.21$, $p = .043$, $\eta^2 = .04$, $R^2 = .13$ (see Figure 2i). Tests of simple slopes revealed a significant effect of loneliness on "family house" when resilience was high (+1 SD), $B = 0.76$, $SE = 0.21$, $F(1, 94) = 12.58$, $p < .0001$, $\eta^2 = .12$, but not when resilience

was low (-1 SD), $B = 0.12$, $SE = 0.22$, $F(1, 94) = .31$, $p = .58$, $\eta^2 = .00$. In addition, analyses revealed that there was a non-significant positive association between resilience and "family house" when loneliness was high, $B = 0.45$, $SE = 0.41$, $F(1, 94) = 1.22$, $p = .27$, $\eta^2 = .01$, and a marginally significant negative association when loneliness was low, $B = -0.88$, $SE = 0.50$, $F(1, 94) = 3.06$, $p = .08$, $\eta^2 = .03$.
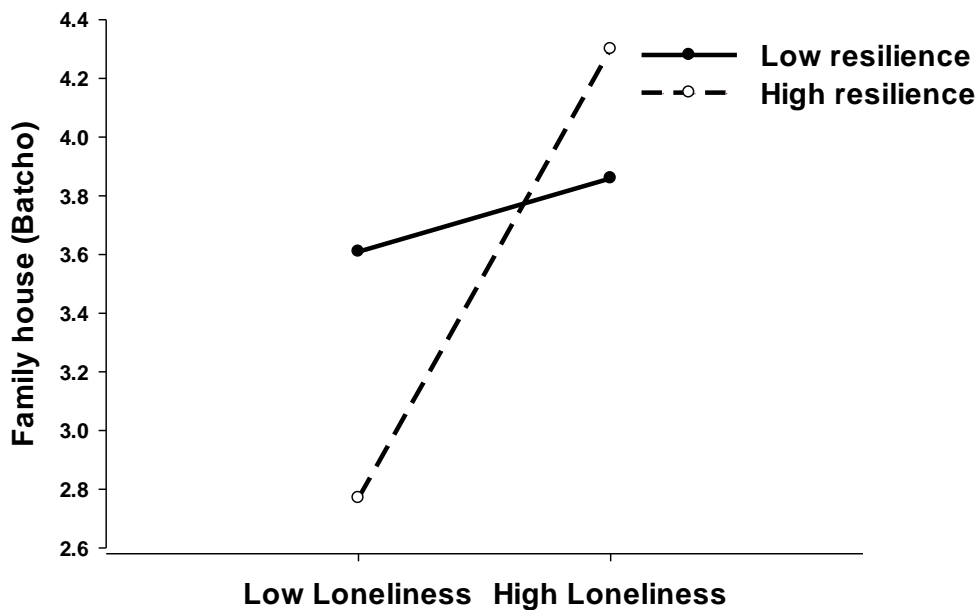
Figure 2i. Level of nostalgia for "family house" as a function of induced loneliness and resilience

I examined the 17-items if Factor I (*personal competence*). A significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia for "family house," $B = 0.72$, $SE = 0.31$, $F(1, 94) = 5.38$, $p = .022$, $\eta^2 = .05$, $R^2 = .14$ (see Figure 2j). Tests of simple slopes revealed a significant effect of loneliness on "family house" when resilience was high (+1 SD), $B = 0.80$, $SE = 0.21$, $F(1, 94) = 14.42$, $p < .0001$, $\eta^2 = .13$, but not when resilience was low (-1 SD), $B = 0.10$, $SE = 0.21$, $F(1, 94) = .23$, $p = .63$, $\eta^2 = .00$. In addition, analyses revealed that there was a non-significant positive association between resilience and "family house" when loneliness was high, $B = $

0.58, $SE = 0.40$, $F(1, 94) = 2.08$, $p = .15$, $\eta^2 = .02$, and a marginally significant negative association when loneliness was low, $B = -0.87$, $SE = 0.48$, $F(1, 94) = 3.30$, $p = .072$, $\eta^2 = .03$.
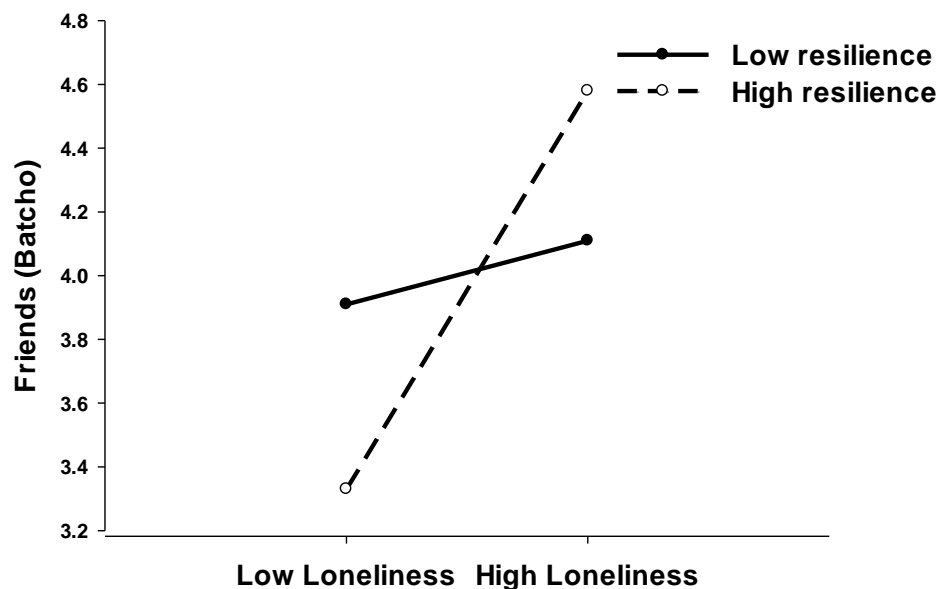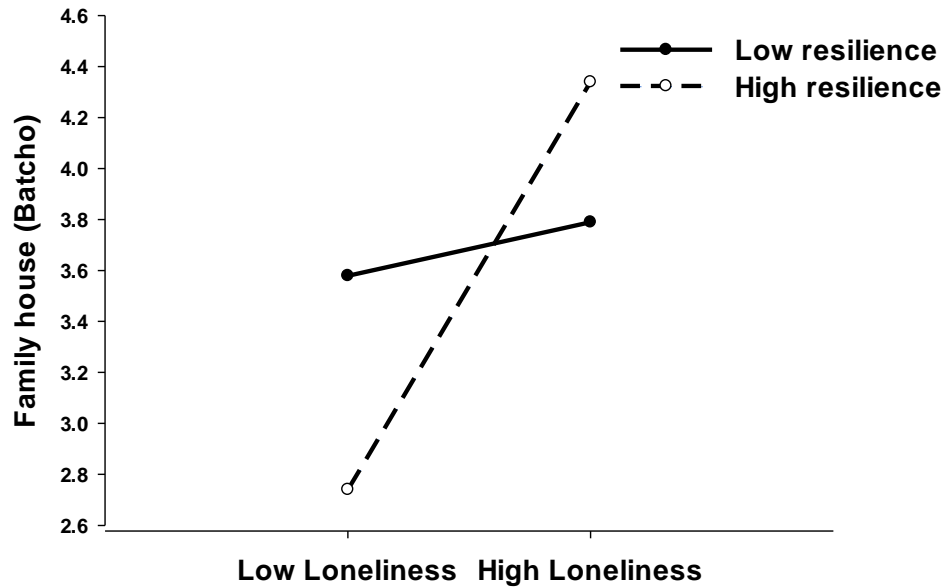

Figure 2i. Level of nostalgia for "family house" as a function of induced loneliness and resilience (Factor I – personal competence)

Finally, I examined the 8 items of Factor II (*acceptance of self and life*). A non-significant Loneliness × Resilience interaction indicated that resilience did not moderate the effect of loneliness on nostalgia for "family house," $B = 0.23$, $SE = 0.25$, $F(1, 94) = 0.89$, $p = .35$, $\eta^2 = .01$, $R^2 = .11$.

My church and religion. A significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia for "my church and religion," $B = 0.54$, $SE = 0.18$, $F(1, 94) = 9.03$, $p < .001$, $\eta^2 = .09$, $R^2 = .10$ (see Figure 2k). Tests of simple slopes revealed a significant effect of loneliness on "my church and religion" when resilience was high (+1 SD), $B = 0.31$, $SE = 0.12$, $F(1, 94) = 7.04$, $p < .01$, $\eta^2 = .07$, but not when resilience was low (-1 SD), $B = -0.20$, $SE = 0.12$, $F(1, 94) = 2.73$, p

= .10, η^2 = .03. Analyses also revealed that there was a non-significant positive association between resilience and "my church and religion" when loneliness was high, B = 0.34, SE = 0.23, $F(1, 94)$ = 2.31, p = .13, η^2 = .02. However, there was a significant negative association between resilience and "my church and religion" when loneliness was low, B = -0.73, SE = 0.28, $F(1, 94)$ = 6.98, $p < .01$, η^2 = .07.
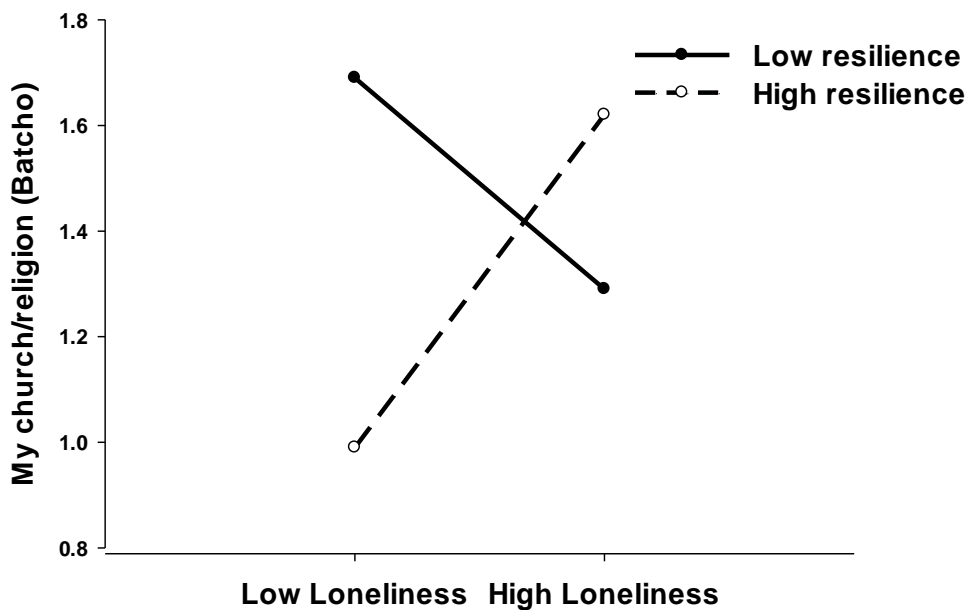
Figure 2k. Level of nostalgia for "my church/religion" as a function of induced loneliness and resilience

Then, I examined the 17 items of Factor 1 (*personal competence*). A significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia for "my church and religion," B = 0.47, SE = 0.18, $F(1, 94)$ = 7.07, $p < .001$, η^2 = .07, R^2 = .08 (see Figure 2l). Tests of simple slopes revealed a significant effect of loneliness on "my church and religion" when resilience was high (+1 SD), B = 0.29, SE = 0.12, $F(1, 94)$ = 5.95, p = .016, η^2 = .06, but not when resilience was low (-1 SD), B = -0.16, SE = 0.12, $F(1, 94)$ = 1.76, p = .19, η^2 = .02. Analyses also revealed that there was a non-significant positive association between resilience and "my church and

religion" when loneliness was high, $B = 0.30$, $SE = 0.22$, $F(1, 94) = 1.80$, $p = .18$, $\eta^2 = .02$.

However, there was a significant negative association between resilience and "my church

and religion" when loneliness was low, $B = -0.63$, $SE = 0.27$, $F(1, 94) = 5.48$, $p = .021$, η^2
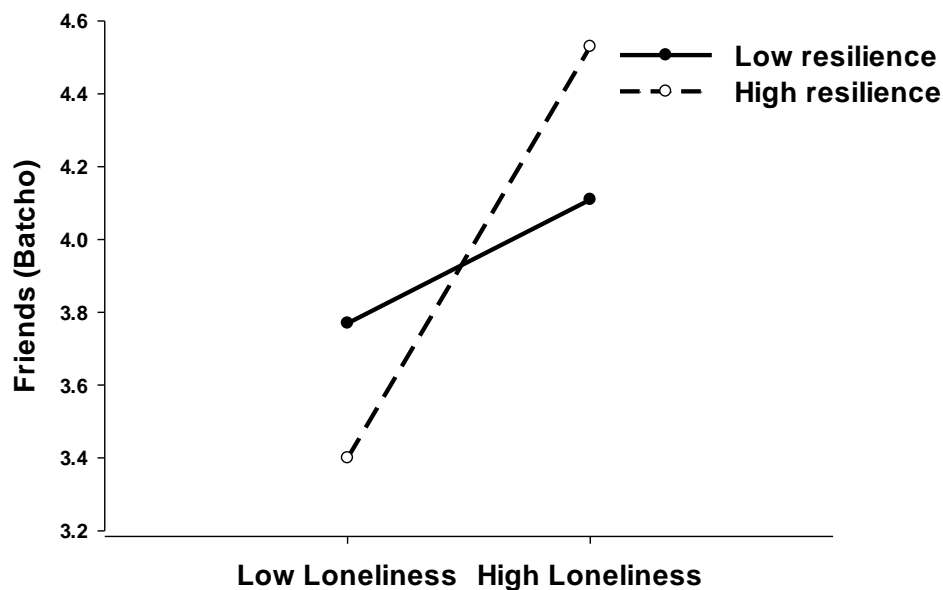
$= .05$.
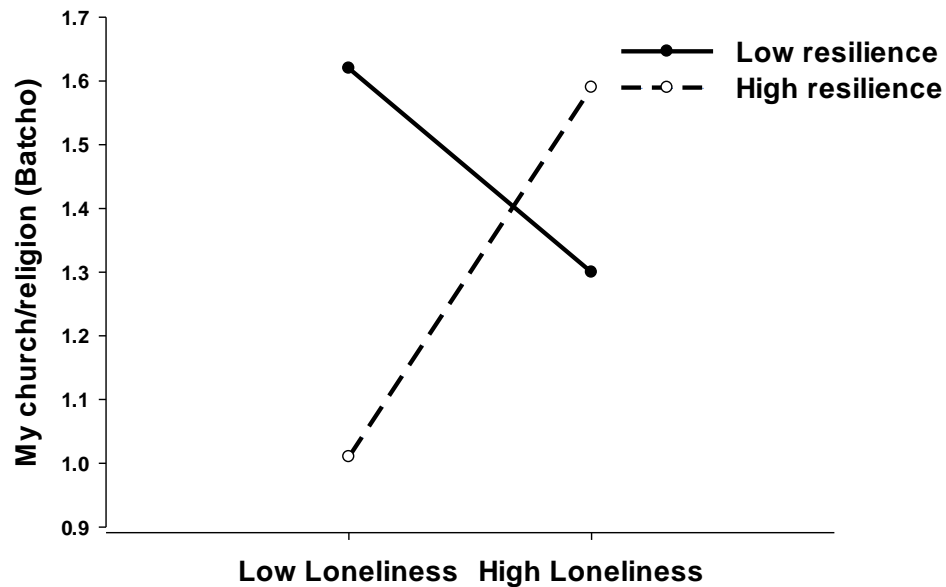
Figure 2l. Level of nostalgia for "my church/religion" as a function of induced loneliness

and resilience (Factor I – personal competence)

Finally, I examined the 8 items of Factor II (*acceptance of life and self*). A

significant Loneliness × Resilience interaction indicated that resilience moderated the

effect of loneliness on nostalgia for "my church and religion," $B = 0.34$, $SE = 0.13$, $F(1,$

$94) = 6.39$, $p = .013$, $\eta^2 = .09$, $R^2 = .07$ (see Figure 2m). Tests of simple slopes revealed a

significant effect of loneliness on "my church and religion" when resilience was high (+1

SD), $B = 0.22$, $SE = 0.11$, $F(1, 94) = 4.27$, $p = .041$, $\eta^2 = .04$, but not when resilience was

low (-1 SD), $B = -0.10$, $SE = 0.11$, $F(1, 94) = 0.92$, $p = .34$, $\eta^2 = .01$. Analyses also

revealed that there was a non-significant positive association between resilience and "my

church and religion" when loneliness was high, $B = 0.26$, $SE = 0.18$, $F(1, 94) = 2.01$, p

= .16, η^2 = .02. However, there was a significant negative association between resilience and "my church and religion" when loneliness was low, B = -0.42, SE = 0.20, $F(1, 94)$ = 4.56, p = .035, η^2 = .05.
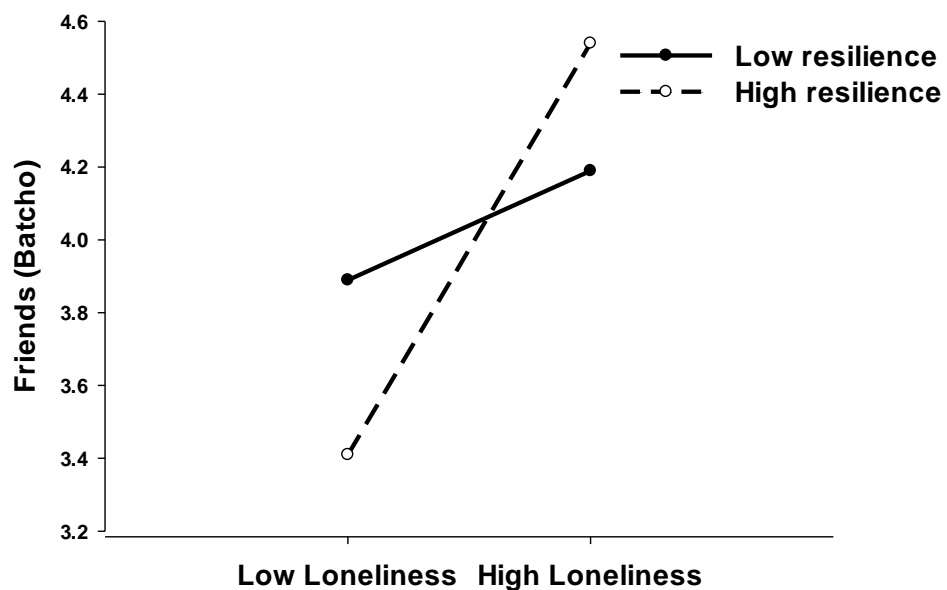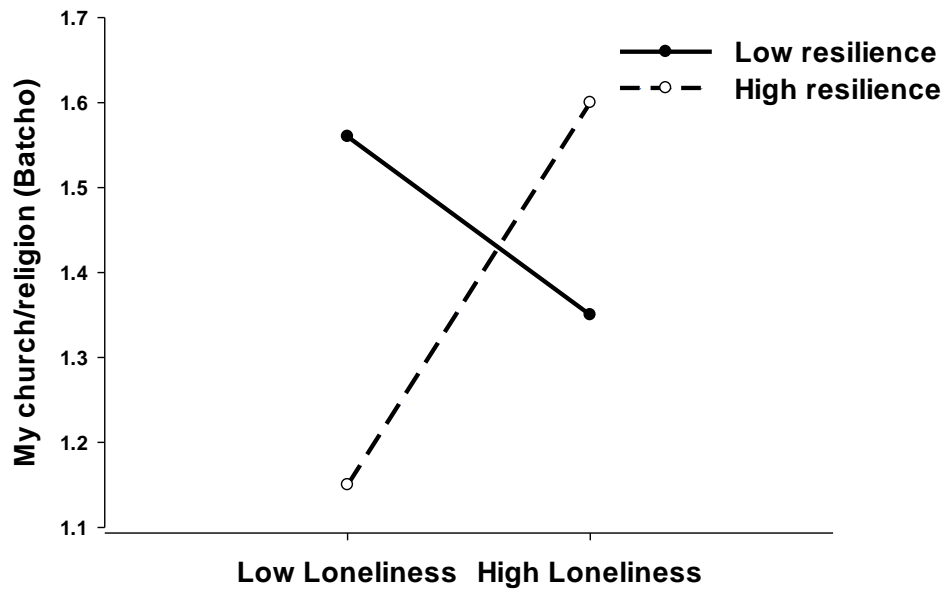

Figure 2m. Level of nostalgia for "my church/religion" as a function of induced loneliness and resilience (Factor II – acceptance of life and self)

Heroes. A marginally significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia for "heroes," B = 0.32, SE = 0.16, $F(1, 94)$ = 3.62, p = .060, η^2 = .03, R^2 = .10 (see Figure 2m). Tests of simple slopes revealed a significant effect of loneliness on "heroes" when resilience was high (+1 SD), B = 0.35, SE = 0.11, $F(1, 94)$ = 9.69, p < .01, η^2 = .09, but not when resilience was low (-1 SD), B = 0.40, SE = 0.12, $F(1, 94)$ = 0.12, p = .73, η^2 = .00. Further analyses revealed that there was a significant positive association between resilience and nostalgia for "heroes" when loneliness was high, B = 0.44, SE = 0.21, $F(1, 94)$ = 4.26, p = .041, η^2 = .04. When loneliness was low, there was a non-significant negative association between

resilience and nostalgia for "heroes", $B = -0.20$, $SE = 0.26$, $F(1, 94) = 0.59$, $p = .45$, η^2 $= .01$.
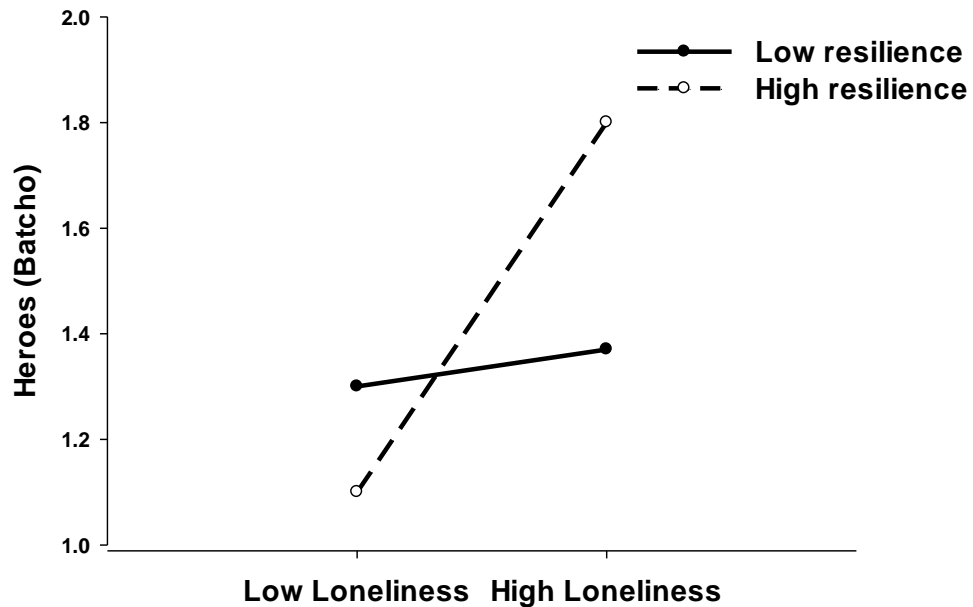
Figure 2n. Level of nostalgia for "heroes" as a function of induced loneliness and resilience

Next, I examined the 17 items of Factor 1 (*personal competence*). A non-significant Loneliness × Resilience interaction indicated that resilience did not moderate the effect of loneliness on nostalgia for "heroes," $B = 0.23$, $SE = 0.17$, $F(1, 94) = 1.92$, $p = .16$, $\eta^2 = .02$, $R^2 = .07$.

Finally, I examined the 8 items of Factor II (*acceptance of life and self*). A significant Loneliness × Resilience interaction indicated that resilience moderated the effect of loneliness on nostalgia for "heroes," $B = 0.30$, $SE = 0.12$, $F(1, 94) = 5.91$, $p = .017$, $\eta^2 = .05$, $R^2 = .14$ (see Figure 2n). Tests of simple slopes revealed a significant effect of loneliness on "heroes" when resilience was high (+1 SD), $B = 0.36$, $SE = 0.10$, $F(1, 94) = 13.57$, $p < .001$, $\eta^2 = .12$, but not when resilience was low (-1 SD), $B = 0.07$, $SE = 0.10$, $F(1, 94) = 0.56$, $p = .45$, $\eta^2 = .01$. Further analyses revealed that there was a significant

positive association between resilience and nostalgia for "heroes" when loneliness was high, $B = 0.50$, $SE = 0.17$, $F(1, 94) = 9.15$, $p < .001$, $\eta^2 = .08$. When loneliness was low, there was a non-significant negative association between resilience and nostalgia for "heroes", $B = -0.08$, $SE = 0.18$, $F(1, 94) = 0.25$, $p = .62$, $\eta^2 = .00$.
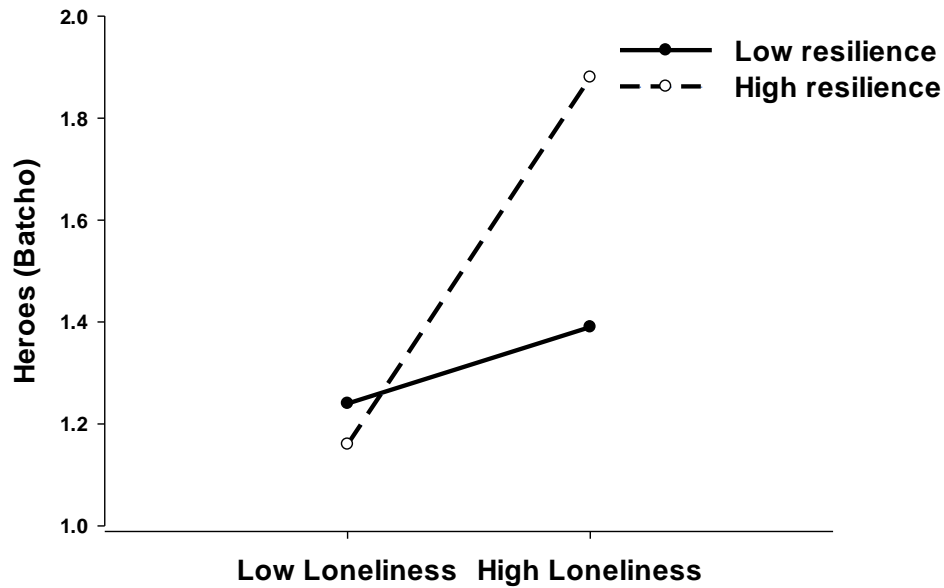
Figure 2o. Level of nostalgia for "heroes" as a function of induced loneliness and resilience (Factor II – acceptance of life and self)

Table 2b. *Means and Standard Errors (in Parentheses) for Batcho's (1995) Nostalgia Inventory, State Nostalgia, and the Five Objects of Nostalgia for*

High vs. Low Resilience Participants as a Function of Manipulated Loneliness

	Mean (SE)							
	Batcho	State nostalgia	Composite	Friends	Things I did	My heroes	Family house	My church
Low-resilience								
Low lonely	2.60 (.16)	3.79 (.23)	3.20 (.16)	3.91 (.29)	3.15 (.31)	1.30 (.18)	3.61 (.35)	1.69 (.19)
High lonely	3.07 (.12)	4.19 (.17)	3.63 (.12)	4.11 (.22)	3.52 (.23)	1.37 (.14)	3.86 (.27)	1.29 (.15)
High-resilience								
Low lonely	2.26 (.13)	3.40 (.19)	2.83 (.13)	3.33 (.24)	2.51 (.25)	1.10 (.15)	2.77 (.29)	0.99 (.16)
High lonely	3.24 (.14)	4.57 (.20)	3.91 (.14)	4.58 (.26)	3.94 (.27)	1.80 (.16)	4.30 (.31)	1.62 (.17)

Table 2c. *Means and Standard Errors (in Parentheses) for Batcho's (1995) Nostalgia Inventory, State Nostalgia, and the Five Objects of Nostalgia for*

High vs. Low Resilience (Factor I – Acceptance of Life and Self) Participants as a Function of Manipulated Loneliness

	Mean (SE)							
	Batcho	State nostalgia	Composite	Friends	Things I did	My heroes	Family house	My church
Low-resilience								
Low lonely	2.58 (.15)	3.78 (.21)	3.18 (.15)	3.77 (.27)	3.05 (.29)	1.29 (.17)	3.58 (.33)	1.62 (.18)
High lonely	3.06 (.13)	4.20 (.18)	3.63 (.12)	4.11 (.23)	3.50 (.24)	1.44 (.15)	3.79 (.28)	1.30 (.15)
High-resilience								
Low lonely	2.25 (.14)	3.37 (.19)	2.81 (.14)	3.40 (.25)	2.55 (.26)	1.10 (.16)	2.74 (.30)	1.01 (.17)
High lonely	3.25 (.14)	4.52 (.19)	3.88 (.14)	4.53 (.25)	3.92 (.26)	1.69 (.16)	4.34 (.30)	1.59 (.17)

Table 2d. *Means and Standard Errors (in Parentheses) for Batcho's (1995) Nostalgia Inventory, State Nostalgia, and the Five Objects of Nostalgia for High vs. Low Resilience (Factor II – Personal Competence) Participants as a Function of Manipulated Loneliness*

	Mean (SE)							
	Batcho	State nostalgia	Composite	Friends	Things I did	My heroes	Family house	My church
Low-resilience								
Low lonely	2.51 (.14)	3.67 (.20)	3.09 (.14)	3.89 (.25)	3.06 (.27)	1.24 (.16)	3.36 (.32)	1.56 (.17)
High lonely	3.11 (.11)	4.24 (.15)	3.68 (.11)	4.19 (.19)	3.61 (.21)	1.39 (.12)	4.01 (.24)	1.35 (.13)
High-resilience								
Low lonely	2.34 (.11)	3.51 (.16)	2.93 (.11)	3.41 (.20)	2.63 (.21)	1.16 (.12)	3.00 (.25)	1.15 (.13)
High lonely	3.20 (.14)	4.56 (.19)	3.88 (.14)	4.54 (.24)	3.86 (.26)	1.88 (.15)	4.10 (.31)	1.60 (.17)

2.4. Discussion

The key objective of this study was to develop a fine-grained picture of the effect of loneliness on nostalgia. Specifically, I examined whether the tendency to respond to loneliness by seeking refuge in nostalgic reverie is influenced by resilience. To achieve this, I measured resilience with the validated RS-26 and then manipulated loneliness using a procedure developed by Wildschut et al. (2006, Study 4). Next, I tapped state nostalgia with two convergent assessments.

2.4.1. Is the Relationship between Loneliness and Nostalgia Shaped by Resilience?

Previous research has found that nostalgia acts to counteract the adverse effects of loneliness (Wildschut et al., 2006, Study 4). Building on this prior research, I hypothesized that loneliness would increase feelings of nostalgia. Results revealed that nostalgia was higher for participants in the high-loneliness condition compared to participants in the low-loneliness condition. Second, I hypothesized that the effect of loneliness on nostalgia would be stronger for high-resilience (compared to low-resilience) individuals. I found that high (compared to low) loneliness increased nostalgia for high-resilience and low-resilience individuals. However, as predicted, the effect of loneliness on nostalgia was stronger when resilience was high (compared to low). This extends and corroborates previous correlational findings that the association between loneliness and nostalgia is stronger among high-resilience individuals than among low-resilience individuals (Zhou et al., 2008, Study 4).

Still, high (compared to low) loneliness also increased feelings of nostalgia among low-resilience individuals. Thus, although high-resilience individuals were better able to utilize nostalgia when confronted with feelings of loneliness, low-resilience individuals were still able to regulate deficiencies by recruiting nostalgia. These findings highlight the utility of nostalgia even among individuals who are psychologically vulnerable to distress.

These findings, however, are not consistent with previous correlational findings by Zhou et al. (2008), who found that the positive association between loneliness and nostalgia was significant only among high (but not low) resilience individuals. Zhou et al.'s research, however, was conducted using Chinese participants. Although the functions of nostalgia are consistent across the UK, USA, China, and the Netherlands (Hart et al., 2011; Hepper, Wildschut et al., 2014; Routledge et al., 2008; Wildschut et al., 2006), it is possible that the manner in which individuals respond to psychological distress (i.e., loneliness) differs across multiple cultures. For instance, does the communal orientation of Eastern, collectivist samples shape resilience-related individual differences in response to loneliness? Does this help to explain the discrepancies with the present findings among Western, individualist participants? Further research is needed to investigate these questions.

2.4.3. Which Objects of Nostalgia do High-Resilience Individuals Utilize?

Study 1 also identified specific objects of nostalgia that high-resilience (compared to low-resilience) individuals experience when loneliness is high (compared to low). These objects included: "friends," "things I did," "heroes," "family house," and "my church and religion." Each of these facets contain strong social components that are associated with, or involve the presence of, important close others. Whereas "friends" and "my church and religion" may relate to positive experiences involving important close others (including spiritual or historical figures), I propose that individuals who brought to mind "things I did" are also likely to involve fond memories of trips or momentous events that involve significant close others from the past (i.e., family members, friends, relationship partners). Moreover, "heroes" may apply not only to fictional TV characters, but also to role models that are likely to be close to the individual (i.e., a family member,

teacher). Finally, "family house" may relate to the presence of family members and warm-hearted memories that it holds for the individual.

These findings suggest that, when lonely, high-resilience (compared to low-resilience) individuals recruit and experience nostalgia in an attempt to rekindle meaningful relationship structures and fortify feelings of social connectedness. Whereas these findings substantiate the idea that high-resilience individuals are resourceful in drawing on positive emotions to boost wellbeing, it highlights the potential utility of nostalgia for low-resilience individuals as well. In particular, it highlights nostalgia's capacity to fulfil sociality needs and promote a sense of social connectedness even amongst individuals who are psychologically vulnerable. Overall, these findings underscore the ability of high-resilience and low-resilience to harness the benefits of nostalgia as a source of social connection and proximity.

Chapter 3: Nostalgia, Resilience, and Social Connectedness (Study 2)

3.1. Introduction

In the previous chapter, I demonstrated that the effect of loneliness on nostalgia was stronger for high-resilience (compared to low-resilience) individuals. In the present study, I examined whether the psychological significance of nostalgia resides partly in its capacity to strengthen perceptions of social bonds, and how this role is shaped by resilience-related individual differences. Gardner et al. (2005) posited a distinction between direct and indirect relational strategies to increase social connectedness and intimacy. Individuals often use direct relational strategies when a suitable interaction partner is physically available with the purpose of forming or repairing a relationship with them. For example, ostracized individuals demonstrated more effort on a subsequent collective task to compensate and regain their sense of belonging to the group (Williams & Sommer, 1997). Conversely, individuals use indirect relational strategies when a suitable interaction partner is unavailable. In these instances, individuals rely on mental representations of relational bonds as a source of social connectedness and intimacy (Gardner et al., 2005; George & Solomon, 1999). For example, Knowles and Gardner (2008) found that participants who recalled a rejection (compared to an acceptance) experience demonstrated increased accessibility of their group memberships, as accessed by word completion and lexical decision tasks. Nostalgia also constitutes an indirect relational strategy for maintaining perceptions of social connectedness (Wildschut et al., 2006). For instance, Wildschut et al. (2006, Studies 1-2) found that nostalgic narratives typically featured the self in a social context and focused often on close others (e.g., family, friends). They also found that participants who recalled a nostalgic (vs. ordinary) event scored higher on a measure of social connectedness.

In Study 2, I measured resilience and then experimentally manipulated nostalgia. Next, I assessed state feelings of social connectedness, which I operationalized as feeling "loved," "protected," "connected to others," and "trusting of others" (Hepper et al., 2012, Study 7; Wildschut et al., 2006, Studies 5-7). First, I predicted that nostalgia would strengthen social connectedness (replicating extensive prior research). Second, I predicted that there would be an interaction effect, in that nostalgia would foster social connectedness more strongly among high-resilience (compared to low-resilience) individuals. Thus, I proposed that nostalgia would entail greater benefits for high-resilience (compared to low-resilience) individuals. High-resilience individuals are skilful at capitalizing on positive emotions to boost and maintain psychological functioning, whereas low-resilience individuals lack the capacity to capitalize on positive emotions and are vulnerable to lasting psychological distress (Block & Kremen, 1996; Bonanno, 2004). I predicted that high-resilience individuals may be better able to utilize nostalgia in bolstering a sense of social connectedness. Note, however, that a previous correlational study by Zhou et al. (2008, Study 4) did not find evidence that the association between nostalgia and perceived social support was stronger for high than for low-resilience individuals. It was important to examine the hypothesis in a controlled laboratory setting where nostalgia is manipulated rather than measured. This was the key objective of Study 2.

3.2. Method

3.2.1. Participants and Design

British college students and their parents ($N = 310$; 72.9% female; $M = 30.47$, $SD = 16.36$, $Range = 16-79$) participated on visit days at the University of Southampton. They were randomly assigned to the nostalgia condition ($N = 159$) or the control condition ($N = 151$).

3.2.2. Materials and Procedure

Participants completed the 26-item Resilience Scale (RS-26; Wagnild & Young, 1993; see Study 1). Items on the RS-26 were rated on a 6-point scale (1 = *strongly disagree,* 6 = *strongly agree*). The items were combined to form a single index. The RS-26 yielded a reliable measure of resilience (α = .85, M = 4.75, SD = 0.57).

Next, I introduced the nostalgia manipulation developed by Wildschut et al. (2006). In the nostalgia condition, participants were provided with a brief definition of nostalgia ("Nostalgia is defined as a sentimental longing for the past."). They were then instructed to "take a minute or two to think of a nostalgic event in your life. Specifically, try to think of a past event that makes you feel most nostalgic. Bring this nostalgic experience to mind. Immerse yourself in the nostalgic experience. How does it make you feel?" In the control condition, participants were instructed to "take a minute or two to think of an ordinary event in your life. Specifically, try to think of a past event that is ordinary. Bring this ordinary experience to mind. Immerse yourself in the ordinary experience. How does it make you feel?" Participants were then asked to write down four keywords relevant to the event. Participants then completed a nostalgia manipulation check (α = .89, M = 3.60, SD = 1.35) consisting of three items that were rated on a 6-point scale (1 = *strongly disagree,* 6 = *strongly agree*). The measure was designed to assess state nostalgia (e.g., "Right now, I am feeling quite nostalgic"; Wildschut et al., 2006). The responses were subsequently combined to form a mean score.

Participants finally rated on a 6-point scale (1 = *strongly disagree,* 6 = *strongly agree*) the extent to which thinking about the nostalgic or ordinary event made them feel "loved," "protected," "connected to loved ones," and "trusting of others" (to measure social connectedness; α = .90, M = 4.32, SD = 1.17).

3.3. Results

Manipulation check. As intended, participants in the nostalgia condition felt significantly more nostalgic ($M = 4.07$, $SD = 1.15$) than participants in the control condition ($M = 3.11$, $SD = 1.38$), $F = (1, 308) = 44.21$, $p < .0001$, $\eta^2 = .13$. Next, I examined whether the nostalgia manipulation was effective for high- and low-resilience participants, I entered state nostalgia into a Nostalgia versus Control (contrast coded) × Resilience (mean-centered) regression analysis. As intended, results revealed a non-significant Nostalgia versus Control × Resilience interaction, $B = 0.06$, $SE = 0.14$, $F(1, 306) = .14$, $p = .70$, $\eta^2 = 0.00$, $R^2 = .13$, which indicated that the effectiveness of the nostalgia manipulation did not vary as a function of resilience.

Nostalgia and social connectedness. Analyses revealed a significant main effect of nostalgia on social connectedness, indicating higher social connectedness in the nostalgia condition ($M = 4.57$, $SD = 1.08$) compared to the control condition ($M = 4.06$, $SD = 1.22$), $F(1, 308) = 15.47$, $p < .001$, $\eta^2 = .05$. Next, I conducted a multiple regression analysis to test whether resilience moderated the relation between nostalgia and social connectedness. I regressed social connectedness onto nostalgia (contrast coded), resilience (centered), and the Nostalgia versus Control × Resilience interaction. Results revealed a significant main effect of nostalgia on social connectedness, $B = 0.51$, $SE = 0.12$, $F(1, 305) = 17.04$, $p < .0001$, $\eta^2 = .05$, and a significant main effect of resilience on social connectedness, $B = 0.27$, $SE = 0.09$, $F(1, 305) = 28.08$, $< .0001$, $\eta^2 = .08$. However, a non-significant Nostalgia versus Control × Resilience interaction indicated that resilience did not moderate the effect of nostalgia on social connectedness, $B = 0.12$, $SE = 0.13$, $F(1, 305) = 0.93$, $p = .33$, $\eta^2 = .00$, $R^2 = .13$. It is also noteworthy that these results were not qualified by age ($B = 0.01$, $SE = 0.01$, $F(1, 297) = 0.57$, $p = .45$, $\eta^2 = .00$, $R^2 = .14$), nor were there any main age effects on nostalgia ($B = 0.01$, $SE = 0.01$, $F(1, 297) = $

0.96, $p = .33$, $\eta^2 = .00$, $R^2 = .14$) or resilience ($B = -0.01$, $SE = 0.01$, $F(1, 297) = 0.39$, $p = .53$, $\eta^2 = .00$, $R^2 = .14$).

Next, I examined the subscales of the RS-26. Firstly, I examined the 17 items of Factor I (*personal competence*). I conducted a multiple regression analysis to test whether resilience moderated the relation between nostalgia and social connectedness. I regressed social connectedness onto nostalgia (contrast coded), resilience (centered), and the Nostalgia versus Control × Resilience interaction. Results revealed a significant main effect of nostalgia on social connectedness, $B = 0.51$, $SE = 0.13$, $F(1, 305) = 16.30$, $p < .0001$, $\eta^2 = .05$, and a significant main effect of resilience on social connectedness, $B = 0.20$, $SE = 0.09$, $F(1, 305) = 21.34$, $< .0001$, $\eta^2 = .06$. However, a non-significant Nostalgia versus Control × Resilience interaction indicated that resilience did not moderate the effect of nostalgia on social connectedness, $B = 0.19$, $SE = 0.13$, $F(1, 305) = 2.18$, $p = .14$, $\eta^2 = .01$, $R^2 = .11$. These results were not qualified by age ($B = 0.01$, $SE = 0.01$, $F(1, 297) = 0.72$, $p = .39$, $\eta^2 = .00$, $R^2 = .13$), nor were there any main age effects on nostalgia ($B = 0.01$, $SE = 0.01$, $F(1, 297) = 0.68$, $p = .41$, $\eta^2 = .00$, $R^2 = .13$) or resilience ($B = -0.01$, $SE = 0.01$, $F(1, 297) = 0.32$, $p = .56$, $\eta^2 = .00$, $R^2 = .13$).

Finally, I examined the 8 items of Factor II (*acceptance of self and life*). I conducted a multiple regression analysis to test whether resilience moderated the relation between nostalgia and social connectedness. I regressed social connectedness onto nostalgia (contrast coded), resilience (centered), and the Nostalgia versus Control × Resilience interaction. Results revealed a significant main effect of nostalgia on social connectedness, $B = 0.53$, $SE = 0.13$, $F(1, 305) = 17.94$, $p < .0001$, $\eta^2 = .05$, and a significant main effect of resilience on social connectedness, $B = 0.35$, $SE = 0.09$, $F(1, 305) = 27.44$, $< .0001$, $\eta^2 = .08$. However, a non-significant Nostalgia versus Control × Resilience interaction indicated that resilience did not moderate the effect of nostalgia on

social connectedness, $B = -0.03$, $SE = 0.13$, $F(1, 305) = 0.06$, $p = .80$, $\eta^2 = .00$, $R^2 = .13$.

These results were not qualified by age ($B = 0.01$, $SE = 0.01$, $F(1, 297) = 0.72$, $p = .39$, $\eta^2 = .00$, $R^2 = .14$), nor were there any main age effects on nostalgia ($B = 0.01$, $SE = 0.01$, $F(1, 297) = 2.41$, $p = .12$, $\eta^2 = .01$, $R^2 = .14$) or resilience ($B = -0.01$, $SE = 0.01$, $F(1, 297) = 0.20$, $p = .65$, $\eta^2 = .00$, $R^2 = .14$).

3.4. Discussion

Study 2 showed that recalling a nostalgic (compared to an ordinary) event bolstered feelings of social connectedness irrespective of resilience-related individual differences. Thus, for both high and low-resilience individuals, nostalgia increased perceived social connectedness. Study 1 demonstrated that the effect of loneliness on nostalgia is stronger for high-resilience (compared to low-resilience) individuals, whereas Study 2 found no evidence that the subsequent effect of nostalgia on social connectedness is also stronger for high-resilience (compared to low-resilience) individuals. These findings replicate prior correlational findings by Zhou et al. (2008, Study 4), who found that the association between nostalgia and perceived social support was not moderated by resilience. Thus, Study 3 was designed to corroborate and explore further the findings of Study 2.

Chapter 4: Nostalgia, Resilience, and Social Connectedness (Studies 3a and 3b)

4.1. Introduction

The results of Study 2 demonstrated that nostalgia bolstered social connectedness irrespective of resilience-related individual difference. In Study 3a, I aimed to corroborate and explore these findings further by implementing an alternative induction of nostalgia. In this study, I capitalized on music's capacity to induce nostalgia (Barrett et al., 2012; Cheung et al., 2013; Hart et al., 2011; Routledge et al., 2010). Specifically, I evoked nostalgia by presenting participants with a nostalgic (versus control) song (as determined by pre-testing in prior research; Cheung et al., Study 3). First, I predicted that listening to the nostalgic (compared to control) song would boost social connectedness. Second, I again explored the possibility that there would be an interaction effect, such that the nostalgic (compared to the control) song would boost social connectedness more strongly among high-resilience (compared to low-resilience) individuals.

4.2. Study 3a

4.2.1. Method

Participants. Six hundred and sixty-four volunteers (345 females, 319 males) completed the experiment online. Participants were members of the general public in The Netherlands. Their ages ranged from 14-67 years ($M = 36.58$, $SD = 13.18$). Nine percent of participants were aged 14-19 years; 29% were aged 20-29; 17% were aged 30-39; 22% were aged 40-49; 20% were aged 50-59; and 2% were aged 60 and over.

Materials and Procedure. Participants visited a website for "Top 2000," a popular Dutch radio and television station that is aired annually in December. The data I report here were collected in December 2012. First, I measured resilience with the 25-item Resilience Scale (RS-25; Wagnild & Young, 1993). The RS-25 assessed resilience using the same items as in Studies 1-2, but without the item "I am resilient." The RS-25 yielded

a reliable measure of resilience (α = .85, M = 2.59, SD = 0.46). Items on the RS-25 were rated on a 4-point scale (1 = *does not describe me at all,* 4 = *describes me very well*). The measure was designed to assess overall resilience (e.g., "I can usually look at a situation in a number of ways").

Next, participants were randomly assigned to listen either to a nostalgic song or control song. Participants were presented with songs via a media player in their Internet browser. Both songs were performed by Wim Sonneveld, an artist well-known in The Netherlands. The nostalgic song was titled "Het Dorp" ["The Village"] (released 1974) and the control song was titled "Nikkelen Nelis" ["Nickeled Nelis"] (released 1965). In a pretest experiment, 519 "Top 2000" listeners rated the extent to which these songs induced nostalgia and positive affect. As intended, the nostalgic song produced more nostalgia than the control song, but did not produce significantly more positive affect than the control song. After listening to the song, participants rated on a 5-point scale (1 = *not at all,* 5 = *very much*) the extent in which listening to the assigned song elicited nostalgia ("feel nostalgia" and "longing for the past"; $r(664)$ = .67, $p < .0001$, M = 3.03, SD = 1.29) and social connectedness ("loved" and "connected to loved ones"; $r(664)$ = .77, $p < .0001$, M = 2.62, SD = 1.18).[2]

4.2.2. Results and Discussion

Preliminary analyses revealed that there was a significant main effect of gender on state nostalgia, $F(1, 662)$ = 5.80, $p < .01$. Females (M = 3.14, SD = 1.32) reported feeling significantly more nostalgic than males (M = 2.90, SD = 1.25). However, gender did not qualify any of the findings reported below, so was therefore omitted from the analyses.

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[2] The data reported in this chapter come from a larger dataset. This larger dataset was based on a large online study among members of the Dutch general public. My collaborators and I included in this survey a battery of measures that were relevant to various different research projects, including the present one. Findings from this larger dataset were also reported in Cheung et al. (2013), Study 3.

Manipulation checks. As intended, participants who listened to the nostalgic song ($M = 3.44$, $SD = 1.26$) reported significantly higher levels of song-evoked nostalgia than those who listened to the control song ($M = 2.58$, $SD = 1.17$), $F(1, 662) = 81.14$, $p < .0001$, $\eta^2 = .10$. Next, I tested whether the nostalgia induction was effective for high-resilience and low-resilience individuals. I entered state nostalgia as a dependent variable in a Nostalgia vs. Control $\times$ Resilience multiple regression analysis. As intended, results revealed a non-significant Nostalgia versus Control $\times$ Resilience interaction, $B = 0.20$, $SE = 0.21$, $F(1, 646) = .93$, $p = .33$, $\eta^2 = .00$, $R^2 = .12$, which indicated that the effectiveness of the nostalgia manipulation did not vary as a function of resilience.

Nostalgia and social connectedness. Replicating previous findings (e.g., Wildschut et al., 2006, 2010), participants in the nostalgia condition ($M = 2.88$, $SD = 1.67$) reported significantly higher social connectedness than those in the control condition ($M = 2.32$, $SD = 1.13$), $F(1, 646) = 39.04$, $p < .001$, $\eta^2 = .06$. With social connectedness entered as a dependent variable, I conducted a multiple regression analysis with nostalgic versus control song (contrast coded), resilience (centered), and the Nostalgia vs. Control $\times$ Resilience interaction as independent variables. Results revealed a significant main effect of nostalgia on social connectedness, $B = 0.57$, $SE = 0.09$, $F(1, 646) = 39.71$, $p < .001$, $\eta^2 = .06$, and a significant main effect of resilience on social connectedness, $B = 0.11$, $SE = 0.07$, $F(1, 646) = 7.77$, $p < .01$, $\eta^2 = 0.01$. However, analyses revealed a non-significant Nostalgia vs. Control $\times$ Resilience two-way interaction, $B = 0.02$, $SE = 0.09$, $F(1, 646) = 0.06$, $p = .80$, $\eta^2 = .00$, $R^2 = .07$. These results were not qualified by age ($B = -0.00$, $SE = 0.01$, $F(1, 642) = 0.44$, $p = .51$, $\eta^2 = .00$, $R^2 = .08$), nor were there any main age effects on nostalgia ($B = -0.01$, $SE = 0.01$, $F(1, 642) = 1.92$, $p = .17$, $\eta^2 = .00$, $R^2 = .08$) or resilience ($B = 0.00$, $SE = 0.00$, $F(1, 642) = 0.17$, $p = .68$, $\eta^2 = .00$, $R^2 = .08$).

Next, I examined the subscales of the RS-25. Firstly, I examined 17 items of Factor I (*personal competence*). I conducted a multiple regression analysis to test whether resilience moderated the relation between nostalgia and social connectedness. I regressed social connectedness onto nostalgia (contrast coded), resilience (centered), and the Nostalgia versus Control × Resilience interaction. Results revealed a significant main effect of nostalgia on social connectedness, $B = 0.57$, $SE = 0.09$, $F(1, 646) = 39.63$, $p < .0001$, $\eta^2 = .06$, and a significant main effect of resilience on social connectedness, $B = 0.11$, $SE = 0.07$, $F(1, 646) = 8.38$, $< .001$, $\eta^2 = .01$. However, a non-significant Nostalgia versus Control × Resilience interaction indicated that resilience did not moderate the effect of nostalgia on social connectedness, $B = 0.05$, $SE = 0.09$, $F(1, 646) = 0.28$, $p = .60$, $\eta^2 = .01$, $R^2 = .07$. These results were not qualified by age ($B = -0.01$, $SE = 0.01$, $F(1, 642) = 2.55$, $p = .11$, $\eta^2 = .00$, $R^2 = .08$), nor were there any main age effects on nostalgia ($B = -0.01$, $SE = 0.01$, $F(1, 642) = 1.97$, $p = .16$, $\eta^2 = .00$, $R^2 = .08$) or resilience ($B = 0.00$, $SE = 0.00$, $F(1, 642) = 0.37$, $p = .54$, $\eta^2 = .00$, $R^2 = .08$).

Finally, I examined the 8 items of Factor II (*acceptance of self and life*). I conducted a multiple regression analysis to test whether resilience moderated the relation between nostalgia and social connectedness. I regressed social connectedness onto nostalgia (contrast coded), resilience (centered), and the Nostalgia versus Control × Resilience interaction. Results revealed a significant main effect of nostalgia on social connectedness, $B = 0.57$, $SE = 0.09$, $F(1, 646) = 40.41$, $p < .0001$, $\eta^2 = .06$, and a non-significant main effect of resilience on social connectedness, $B = 0.09$, $SE = 0.06$, $F(1, 646) = 2.83$, $= .093$, $\eta^2 = .00$. A non-significant Nostalgia versus Control × Resilience interaction also indicated that resilience did not moderate the effect of nostalgia on social connectedness, $B = -0.03$, $SE = 0.09$, $F(1, 646) = 0.12$, $p = .73$, $\eta^2 = .00$, $R^2 = .06$. These results were not qualified by age ($B = 0.01$, $SE = 0.01$, $F(1, 642) = 1.28$, $p = .25$, $\eta^2 = .00$,

$R^2 = .08$), nor were there any main age effects on nostalgia ($B = -0.01$, $SE = 0.00$, $F(1,$

$642) = 1.52$, $p = .21$, $\eta^2 = .00$, $R^2 = .08$) or resilience ($B = -0.00$, $SE = 0.00$, $F(1, 642) =$

0.00, $p = .98$, $\eta^2 = .00$, $R^2 = .08$).

Consistent with Study 2, Study 3a demonstrated that listening to a nostalgic

(compared to control) song bolstered perceived social connectedness irrespective of

resilience-related individual differences. Because of space restrictions in the larger online

study that this experiment was part of, social connectedness was measured with only two

items. Study 3b was thus designed to replicate the findings of Study 3a with a better,

validated measure of social connectedness.

4.3. Study 3b

4.3.1. Method

Participants. One hundred and thirty nine (70 males, 69 females) volunteers

completed the experiment online. Participants were members of the general public in The

Netherlands. Their ages ranged from 16-66 years ($M = 37.57$, $SD = 13.64$). Fourteen

percent of participants were aged 16-19 years; 22% were aged 20-29; 13% were aged 30-

39; 26% were aged 40-49; 23% were aged 50-59; and 2% were aged 60 and over.

Materials and Procedure. The study was conducted in December 2013. The

materials and procedure were nearly identical to those of Study 3. I measured resilience

with the 25-item Resilience Scale (RS-25; Wagnild & Young, 1993). The RS-25 yielded a

reliable measure of resilience ($\alpha = .89$, $M = 2.68$, $SD = 0.55$). Items on the RS-25 were

rated on a 4-point scale (1 = *does not describe me at all,* 4 = *describes me very well*). The

measure was designed to assess overall resilience (e.g., "I can usually find things to laugh

about").

Next, participants were randomly assigned to listen either to a nostalgic or control

song. As before, the nostalgic song was titled "Het Dorp" ["The Village"] (released 1974)

and the control song was titled "Nikkelen Nelis" ["Nickeled Nelis"] (released 1965).

After listening to the song, participants rated on a 5-point scale (1 = *not at all, 5 = very much*) the extent to which listening to the assigned song induced nostalgia ("feel nostalgia" and "longing for the past"; $r(139) = .69$, $p < .0001$, $M = 3.09$, $SD = 1.30$) and social connectedness. I assessed social connectedness with the 4-item scale validated by Hepper et al. (2012; "loved," "connected to loved ones," "I can trust others," and "protected"; $\alpha = .95$, $M = 2.62$, $SD = 1.18$).

4.3.2. Results and Discussion

Preliminary analyses revealed that there was a significant main effect of gender on state nostalgia, $F(1, 137) = 4.76$, $p < .05$. In contrast to Study 3, males ($M = 3.33$, $SD = 1.32$) reported feeling significantly more nostalgic than females ($M = 2.86$, $SD = 1.23$). However, gender did not qualify any of the findings reported below, so was therefore omitted from the analyses.

Manipulation checks. As intended, participants who listened to the nostalgic song ($M = 3.46$, $SD = 1.24$) reported significantly higher levels of song-evoked nostalgia than those who listened to the control song ($M = 2.74$, $SD = 1.25$), $F(1, 137) = 11.57$, $p < .001$, $\eta^2 = .08$. Next, I tested whether the nostalgia induction was effective for high-resilience and low-resilience participants. I entered state nostalgia as a dependent variable in a regression analysis with nostalgia versus control song (contrast coded), resilience (centered), and the Nostalgia vs. Control × Resilience interaction as independent variables. As intended, results revealed a non-significant Nostalgia versus Control × Resilience interaction, $B = -0.09$, $SE = 0.40$, $F(1, 135) = 0.06$, $p = .81$, $\eta^2 = .00$, $R^2 = .09$, which indicated that the effectiveness of the nostalgia manipulation did not vary as a function of resilience.

Nostalgia and social connectedness. Participants in the nostalgia condition (M = 2.83, SD = 1.10) reported significantly higher levels of social connectedness than those in the control condition (M = 2.41, SD = 1.23), $F(1, 137)$ = 4.53, p = .035, η^2 = .03. With social connectedness entered as a dependent variable, I conducted a multiple regression analysis with nostalgic versus control song (contrast coded), resilience (centered), and the Nostalgia vs. Control × Resilience interaction as independent variables. Results revealed a significant main effect of nostalgia on social connectedness, B = 0.45, SE = 0.20, $F(1, 135)$ = 5.03, p = .026, η^2 = .04. However, analyses revealed a non-significant main effect of resilience on social connectedness, B = 0.08, SE = 0.13, $F(1, 135)$ = 2.31, p = .13, η^2 = .02. The analysis also revealed a non-significant Nostalgia vs. Control × Resilience two-way interaction, B = 0.15, SE = 0.20, $F(1, 135)$ = 0.51, p = .47, η^2 = .00, R^2 = .05. These findings were not qualified by age (B = -0.01, SE = 0.02, $F(1, 131)$ = 0.19, p = .66, η^2 = .00, R^2 = .09), nor were there any significant age effects on nostalgia (B = 0.02, SE = 0.01, $F(1,131)$ = 0.13, p = .71, η^2 = .00, R^2 = .09) or resilience (B = 0.02, SE = 0.01, $F(1, 131)$ = 3.00, p = .09, η^2 = .02, R^2 = .09).

Next, I examined the subscales of the RS-25. Firstly, I examined 17 items of Factor I (*personal competence*). I conducted a multiple regression analysis to test whether resilience moderated the relation between nostalgia and social connectedness. I regressed social connectedness onto nostalgia (contrast coded), resilience (centered), and the Nostalgia versus Control × Resilience interaction. Results revealed a significant main effect of nostalgia on social connectedness, B = 0.43, SE = 0.20, $F(1, 135)$ = 4.69, p = .032, η^2 = .03, and a non-significant main effect of resilience on social connectedness, B = 0.43, SE = 0.13, $F(1, 135)$ = .47, p = .49, η^2 = .05. A non-significant Nostalgia versus Control × Resilience interaction also indicated that resilience did not moderate the effect of nostalgia on social connectedness, B = 0.55, SE = 0.21, $F(1, 135)$ = 0.07, p = .79, η^2 =

.00, $R^2 = .04$. These findings were not qualified by age (B = -0.01, SE = 0.02, $F(1, 131)$ = 0.34, p = .56, η^2 = .00, R^2 = .08), nor were there any significant age effects on nostalgia (B = 0.02, SE = 0.01, $F(1,131)$ = 0.12, p = .73, η^2 = .00, R^2 = .08) or resilience (B = 0.02, SE = 0.01, $F(1, 131)$ = 2.76, p = .09, η^2 = .02, R^2 = .08).

Finally, I examined the 8 items of Factor II (*acceptance of self and life*). I conducted a multiple regression analysis to test whether resilience moderated the relation between nostalgia and social connectedness. I regressed social connectedness onto nostalgia (contrast coded), resilience (centered), and the Nostalgia versus Control × Resilience interaction. Results revealed a significant main effect of nostalgia on social connectedness, B = 0.45, SE = 0.19, $F(1, 135)$ = 5.25, p = .024, η^2 = .04, and a significant main effect of resilience on social connectedness, B = 0.13, SE = 0.13, $F(1, 135)$ = 7.01, < .001, η^2 = .05. However, a non-significant Nostalgia versus Control × Resilience interaction indicated that resilience did not moderate the effect of nostalgia on social connectedness, B = 0.28, SE = 0.20, $F(1, 135)$ = 1.83, p = .17, η^2 = .01, R^2 = .08. These findings were not qualified by age (B = 0.01, SE = 0.01, $F(1, 131)$ = 0.12, p = .72, η^2 = .00, R^2 = .12), nor were there any significant age effects on nostalgia (B = -0.01, SE = 0.01, $F(1,131)$ = 0.21, p = .64, η^2 = .00, R^2 = .12) or resilience (B = 0.01, SE = 0.01, $F(1, 131)$ = 2.77, p = .09, η^2 = .02, R^2 = .12).

4.4. General Discussion

Nostalgia strengthens perceptions of social bonds (Batcho, 1998; Sedikides et al., 2004; Wildschut et al., 2006). The key objective of Studies 2, 3a, and 3b was to examine whether this beneficial effect of nostalgia is moderated by resilience. High-resilience (compared to low-resilience) individuals are psychologically equipped to capitalize on positive emotions to increase psychological functioning (Bonnano, 2004). I hypothesized

that nostalgia should increase perceived social connectedness more strongly among high-resilience (compared to low-resilience) individuals.

Across three experimental studies, results demonstrated that nostalgia (compared to control) bolstered perceived social connectedness irrespective of resilience-related individual differences. Thus, there was no experimental evidence that the effect of nostalgia on social connectedness is stronger for high-resilience (compared to low-resilience) individuals. Whereas these findings substantiate the idea that high-resilience individuals are resourceful in drawing on positive emotions to boost wellbeing, it highlights the potential utility of nostalgia for low-resilience individuals as well. In particular, it highlights nostalgia's capacity to fulfil sociality needs and promote a sense of social connectedness even amongst individuals who are psychologically vulnerable. Overall, these findings underscore the ability of high-resilience and low-resilience to harness the benefits of nostalgia as a source of social connection and proximity. These findings also replicate prior correlational findings by Zhou et al. (2008, Study 4), who found that the association between nostalgia and perceived social support was not moderated by resilience.

Chapter 5: Nostalgia Replenishes Deficits in Social Connectedness (Study 4)

5.1. Introduction

The results of Studies 2-3b provide evidence that nostalgia fosters social connectedness irrespective of resilience-related individual differences. Thus, for both high- and low-resilience individuals, recalling nostalgic experiences or listening to nostalgic songs (compared to recalling ordinary autobiographical experiences or listening to cheerful songs) increases a sense of social connection. In the current study, I attempted to expand on these findings by implementing experimental manipulations of loneliness and nostalgia. I assessed whether nostalgia sustains social networks and boosts social connectedness when social threat is present (compared to when social threat is absent), and whether these effects are shaped by resilience-related individual differences. Perhaps high-resilience (compared to low-resilience) individuals are more apt to harness the benefits of nostalgia under psychological threat (i.e., loneliness). Prior research on resilience and the self-generation of emotional memories suggests that this might be the case. Philippe et al. (2009), for example, found that resilience was associated with positive emotions following the induction of sadness and anxiety. Further, resilience was associated with positive emotional memories, which fully mediated the relationship between resilience and the elicitation of positive emotions. Thus, high-resilience (compared to low-resilience) individuals are skilful at self-generating positive emotional memories in response to psychological threat. As nostalgia is a predominantly positive and social emotion, high-resilience individuals may also utilize nostalgic memories to combat sources of threat (Wildschut et al., 2006, Zhou et al., 2008). Study 4 will test this idea by manipulating loneliness and examining whether nostalgia has a stronger effect on social connectedness among high-resilience (compared to low-resilience) individuals when loneliness is present (vs. absent).

I proposed that: (1) when loneliness is low, nostalgia would increase social connectedness irrespective of resilience, therefore replicating the findings of Studies 2-3b; and (2) that the positive relationship between loneliness and nostalgia would only be found for high-resilience (compared to low-resilience) individuals. Thus, I hypothesized that high-resilience individuals would be better able to utilize nostalgia to maintain a sense of social connectedness in the presence of psychological threat (i.e., high loneliness). This would support and extend results in Study 1, which demonstrated that the positive relationship between loneliness and nostalgia was only found for high-resilience (compared to low-resilience) individuals

Also, I addressed a potential limitation relating to the phrasing of the nostalgia manipulation check. Participants in Studies 2-3b completed self-report assessments of state nostalgia (e.g., "Right now, I am feeling nostalgic"). It is possible that the phrasing of these manipulation checks presented experimental demand. Specifically, participants who were instructed to recall a "nostalgic event" from their past may have felt compelled to endorse the manipulation-check items even when they did not experience feelings of nostalgia (this limitation does not apply to Studies 3a-3b where nostalgia was induced via songs). To address this limitation in Study 4, I did not present self-report ratings of state nostalgia. Instead, participants generated autobiographical narratives of a nostalgic (or control) experience and judges coded the narratives for intensity of expressed nostalgia.

5.2. Method

5.2.1. Participants and Design

Participants were 151 University of Southampton undergraduate students who received course credit (86% female; $M = 20.26$, $SD = 4.04$, $Range = 18–50$). Most were Caucasian (78%) or Asian (14%). I randomly assigned participants to experimental conditions in a 2 (nostalgia: central vs. peripheral) $\times$ 2 (loneliness: high vs. low) between-

subjects design. Participants were assessed individually and were thanked and debriefed at the end of the session.[3]

5.2.2. Materials and Procedure

Participants completed the 26-item Resilience Scale (RS-26; Wagnild & Young, 1993) at the start of to the experimental session. Items on the RS-26 were rated on a 6-point scale (1 = *strongly disagree,* 6 = *strongly agree*). The measure was designed to assess overall resilience (e.g., "I can get through difficult times because I have experienced difficulty before"). I averaged the items to form a single index. The RS-26 yielded a reliable measure of resilience (α = .88, M = 4.51, SD = .53).

Next, I induced loneliness using the manipulation established by Wildschut et al. (2006, Study 4) and also used in Study 1. Participants completed the Southampton Loneliness Scale, which consisted of 15 items drawn from the UCLA Loneliness Scale (Russell, 1996). Participants specified whether they agreed or disagreed with each of the 15 statements. Statements presented to participants in the high loneliness condition were phrased in a manner to elicit agreement (e.g., "I sometimes feel that I am "out of tune" with the people around me"), whereas statements presented to participants in the low loneliness condition were phrased in a manner to elicit disagreement (e.g., "I always feel that I am "out of tune" with the people around me"). After completion of the loneliness scale, participants received false feedback. They were informed that the experimenter would score their responses and that they would receive feedback regarding their level of loneliness. Feedback was presented on a scoring form. Participants in the high loneliness condition learned that they were in the 62nd percentile of the distribution of loneliness

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[3] I assessed whether participants were familiar they were with the term "nostalgia," (1 = *not at all*, 2 = *somewhat,* 3 = *reasonably well,* 4 = *very well*) with the intention of excluding participants who were not at all familiar with nostalgia. Three participants were excluded based on this criteria (M = 3.47, SD = .67), which resulted in a final sample size of 148.

and were therefore "above average on loneliness" compared with other undergraduates at the University of Southampton. Participants in the low loneliness condition learned that they were in the 12th percentile of the distribution of loneliness and were therefore "very low on loneliness" compared with other undergraduates at the University of Southampton. I then instructed participants to provide reasons for their loneliness score on a separate sheet of paper for approximately 5 min. I took this step to strengthen the effectiveness of the manipulation. As intended, participants in the high-loneliness condition agreed with a higher number of statements ($M = 9.15$, $SD = 2.99$) compared to participants in the low-loneliness condition ($M = 2.25$, $SD = 2.14$), $F(1, 146) = 260.72$, $p < .0001$, $\eta^2 = .64$.

Next, I implemented the nostalgia prototype manipulation developed by Hepper et al. (2012). Participants were randomly assigned to the central- or the peripheral-prototype condition and read: "Below are listed several features that might describe or characterize experiences and memories that we have in our lives. Please take a minute or two to read through the features." In the central-prototype (nostalgia) condition, participants received the following features: reminiscence, keepsakes, dwelling, rose-tinted memories, familiar smells, wanting to return to the past, family/friends, longing, feeling happy, childhood, emotions, and personal. In the peripheral-prototype (control) condition, participants received the following features: daydreaming, anxiety/pain, wishing, achievements, regret, feeling, warm/comforted, loneliness, bittersweet, feeling sad, change, aging, and bad memories. All participants were then instructed to: "bring to mind an event in your life that is relevant to or characterized by at least five of these features… whereby at least five of the features either were *part* of the event, and/or describe your experience as you *think about* the event." Participants circled all the features that were relevant to their event. Participants then wrote a brief description of their experience of the event for 8-10 min.

Participants then completed a loneliness manipulation check (α = .91, *M* = 2.64, *SD* = 1.36) consisting of 3 items that were rated on a 6-point scale (1 = *strongly disagree, 6 = strongly agree*). The measure was designed to assess state loneliness (e.g., "Right now, I feel somewhat "alone"). I subsequently combined the items to form a single index. Participants finally rated on a 6-point scale (1 = *strongly disagree, 6 = strongly agree*) the extent to which thinking about the recalled event made them feel "connected to loved ones", "protected", "loved", and "that I can trust others" (to measure social connectedness; α = .86, *M* = 4.60, *SD* = 1.46).

5.3. Results

Preliminary analyses revealed that there were no significant or marginal gender differences on any of the dependent measures. Gender was therefore omitted from the analyses reported below.

Manipulation checks. As intended, participants in the high-loneliness condition (*M* = 3.60, *SD* = 1.05) reported significantly higher levels of loneliness compared to participants in the low-loneliness condition (*M* = 1.70, *SD* = 0.88), $F(1, 146) = 142.46$, $p < .0001$, $\eta^2 = .49$. I transcribed the participant-generated autobiographical narratives. Two judges (unaware of experimental condition) coded these narratives for intensity of expressed nostalgia ("How much nostalgia did this narrative experience?"; 1 = *very little*, 6 = *very much*; interrater reliability: α = .85). As intended, narratives written by participants in the central-prototype condition (*M* = 4.96, *SD* = 1.20) expressed significantly more nostalgia than narratives written by participants in the peripheral-prototype condition (*M* = 1.99, *SD* = 1.03), $F(1, 146) = 262.36$, $p < .0001$, $\eta^2 = .64$.

Next, I examined whether the loneliness and nostalgia manipulations were effective for high-resilience and low-resilience participants. First, I entered state loneliness into a 2 (loneliness: high, low) × 2 (resilience: high, low) multiple regression analysis. Analyses

revealed a significant effect of the loneliness manipulation on state loneliness, $F(1, 144) = 132.27$, $p < .0001$, $\eta^2 = .42$, and a negative association of resilience with state loneliness, $B = -0.18$, $SE = 0.11$, $F(1, 144) = 12.58$, $p < .001$, $\eta^2 = .04$. Analyses also revealed a non-significant Loneliness $\times$ Resilience interaction, $B = 0.19$, $SE = 0.16$, $F(1, 144) = 1.57$, $p = .21$, $\eta^2 = .00$, $R^2 = .54$, which indicated that the effectiveness of the loneliness manipulation was not influenced by resilience. Second, I entered intensity of expressed nostalgia into a 2 (features: central, peripheral) $\times$ 2 (resilience: high, low) multiple regression analysis. Analyses revealed a significant effect of the central (nostalgia) manipulation on felt nostalgia, $F(1, 144) = 265.27$, $p < .0001$, $\eta^2 = .64$, and a non-significant association of resilience with expressed nostalgia, $B = -0.22$, $SE = 0.13$, $F(1, 144) = 0.57$, $p = .45$, $\eta^2 = .00$. A non-significant Central vs. Peripheral $\times$ Resilience interaction, $F(1, 144) = 2.72$, $p = .10$, $\eta^2 = .01$, $R^2 = .65$, indicated that the effectiveness of the central nostalgia manipulation was not influenced by resilience.

Nostalgia and social connectedness. Next, I entered social connectedness as a dependent variable into a 2 (feature type: central, peripheral) $\times$ 2 (loneliness: high, low) $\times$ 2 (resilience: high, low) multiple regression analysis. Results revealed a significant main effect of nostalgia on social connectedness, $B = 0.27$, $SE = 0.12$, $F(1, 140) = 5.34$, $p = .022$, $\eta^2 = .03$, a significant main effect of resilience on social connectedness, $B = 0.43$, $SE = 0.12$, $F(1, 140) = 12.99$, $p < .001$, $\eta^2 = 0.08$, and a marginally significant main effect of loneliness on social connectedness, $B = -0.21$, $SE = 0.12$, $F(1, 140) = 3.28$, $p = .072$, $\eta^2 = 0.02$. Results also yielded a non-significant Central vs. Peripheral $\times$ Loneliness interaction, $B = 0.03$, $SE = 0.12$, $F(1, 140) = 0.05$, $p = .82$, $\eta^2 = .00$, $R^2 = .16$, a non-significant Central vs. Peripheral $\times$ Resilience interaction, $B = -0.05$, $SE = 0.12$, $F(1, 140) = 0.15$, $p = .70$, $\eta^2 = .00$, $R^2 = .16$, and a non-significant Loneliness $\times$ Resilience interaction, $B = 0.10$, $SE = 0.12$, $F(1, 140) = 0.68$, $p = .41$, $\eta^2 = .00$, $R^2 = .16$. However,

results revealed a significant Central vs. Peripheral × Loneliness × Resilience three-way interaction, $B = 0.27$, $SE = 0.12$, $F(1, 140) = 5.11$, $p = .025$, $\eta^2 = .03$, $R^2 = .16$. This pattern is presented in Figure 5a and means presented in Table 5a. To explore this three-way interaction pattern, I conducted simple slope analyses as proposed by Aiken and West (1991). For participants in the high-loneliness condition, there was a significant effect of the central-prototype on social connectedness when resilience was high ($B = 0.51$, $SE = 0.25$, $F(1, 140) = 4.19$, $p = .043$, $\eta^2 = .03$), but there was no effect of the central-prototype on social connectedness when resilience was low ($B = -0.07$, $SE = 0.22$, $F(1, 140) = 0.11$, $p = .73$, $\eta^2 = .00$). Further analyses revealed that there was no association between resilience and social connectedness in the peripheral-prototype condition ($B = 0.30$, $SE = 0.20$, $F(1, 140) = 2.19$, $p = .14$, $\eta^2 = .01$, but there was a significant association between resilience and social connectedness in the central-prototype condition ($B = 0.74$, $SE = 0.25$, $F(1, 140) = 9.15$, $p < .001$, $\eta^2 = .05$).

For participants in the low-loneliness condition, tests of simple slopes revealed that there was a significant positive effect of the central-prototype on social connectedness when resilience was low, $B = 0.55$, $SE = 0.26$, $F(1, 140) = 4.59$, $p = .033$, $\eta^2 = .03$, but there was no effect of the central-prototype on social connectedness when resilience was high, $B = -0.07$, $SE = 0.22$, $F(1, 140) = 0.11$, $p = .74$, $\eta^2 = .00$. Further analyses revealed that there was a significant positive association between resilience and social connectedness in the peripheral-prototype condition, $B = 0.64$ $SE = 0.27$, $F(1, 140) = 5.79$, $p = .017$, $\eta^2 = .03$, but there was no association between resilience and social connectedness in the central-prototype condition, $B = 0.02$, $SE = 0.22$, $F(1, 140) = 0.00$, $p = .94$, $\eta^2 = .00$.

Figure 5a. Level of social connectedness as a function of resilience and manipulated

loneliness and nostalgia.

Table 5a. *Predicted Means and Standard Errors (in Parentheses) for Social*

Connectedness for High vs. Low Resilience Participants as a Function of Manipulated

Loneliness and Nostalgia

	Mean (SE)	
	Low-resilience	High-resilience
Low-lonely		
Peripheral	3.97 (.36)	5.25 (.34)
Central	5.08 (.37)	5.11 (.27)
High-lonely		
Peripheral	3.84 (.28)	4.45 (.33)
Central	3.98 (.30)	5.47 (.38)

Next, I examined the subscales of the RS-26. Firstly, I examined 17 items of Factor

I (*personal competence*). I entered social connectedness as a dependent variable into a 2

(feature type: central, peripheral) $\times$ 2 (loneliness: high, low) $\times$ 2 (resilience: high, low)

multiple regression analysis. Results revealed a significant main effect of nostalgia on social connectedness, $B = 0.26$, $SE = 0.12$, $F(1, 140) = 4.83$, $p = .029$, $\eta^2 = .03$, a significant main effect of resilience on social connectedness, $B = 0.32$, $SE = 0.12$, $F(1, 140) = 7.39$, $p < .001$, $\eta^2 = .05$, and a significant main effect of loneliness on social connectedness, $B = -0.24$, $SE = 0.12$, $F(1, 140) = 4.19$, $p = .042$, $\eta^2 = 0.03$. Results also revealed a non-significant Central vs. Peripheral $\times$ Loneliness interaction, $B = 0.02$, $SE = 0.12$, $F(1, 140) = 0.03$, $p = .86$, $\eta^2 = .00$, $R^2 = .13$, a non-significant Central vs. Peripheral $\times$ Resilience interaction, $B = -0.08$, $SE = 0.12$, $F(1, 140) = 0.49$, $p = .49$, $\eta^2 = .00$, $R^2 = .13$, and a non-significant Loneliness $\times$ Resilience interaction, $B = 0.06$, $SE = 0.12$, $F(1, 140) = 0.25$, $p = .62$, $\eta^2 = .00$, $R^2 = .13$. However, results revealed a significant Central vs. Peripheral $\times$ Loneliness $\times$ Resilience three-way interaction, $B = 0.24$, $SE = 0.12$, $F(1, 140) = 3.90$, $p = .050$, $\eta^2 = .02$, $R^2 = .13$. This pattern is presented in Figure 5b and means presented in Table 5b. For participants in the high-loneliness condition, there was no effect of the central-prototype on social connectedness when resilience was high ($B = 0.43$, $SE = 0.26$, $F(1, 140) = 2.86$, $p = .093$, $\eta^2 = .02$), and when resilience was low ($B = 0.13$, $SE = 0.21$, $F(1, 140) = 0.36$, $p = .55$, $\eta^2 = .00$). Further analyses revealed that there was no association between resilience and social connectedness in the peripheral-prototype condition ($B = 0.23$, $SE = 0.21$, $F(1, 140) = 1.24$, $p = .27$, $\eta^2 = .01$, but there was a significant association between resilience and social connectedness in the central-prototype condition ($B = 0.54$, $SE = 0.26$, $F(1, 140) = 4.39$, $p = .038$, $\eta^2 = .03$.

For participants in the low-loneliness condition, tests of simple slopes revealed that there was a significant positive effect of the central-prototype on social connectedness when resilience was low, $B = 0.56$, $SE = 0.26$, $F(1, 140) = 4.69$, $p = .032$, $\eta^2 = .03$, but there was no effect of the central-prototype on social connectedness when resilience was high, $B = -0.08$, $SE = 0.22$, $F(1, 140) = 0.14$, $p = .71$, $\eta^2 = .00$. Further analyses revealed

that there was a significant positive association between resilience and social connectedness in the peripheral-prototype condition, $B = 0.58$ $SE = 0.26$, $F(1, 140) = 5.17$, $p = .024$, $\eta^2 = .03$, but there was no association between resilience and social connectedness in the central-prototype condition, $B = -0.05$, $SE = 0.23$, $F(1, 140) = 0.06$, $p = .81$, $\eta^2 = .00$.

Low lonely

High lonely
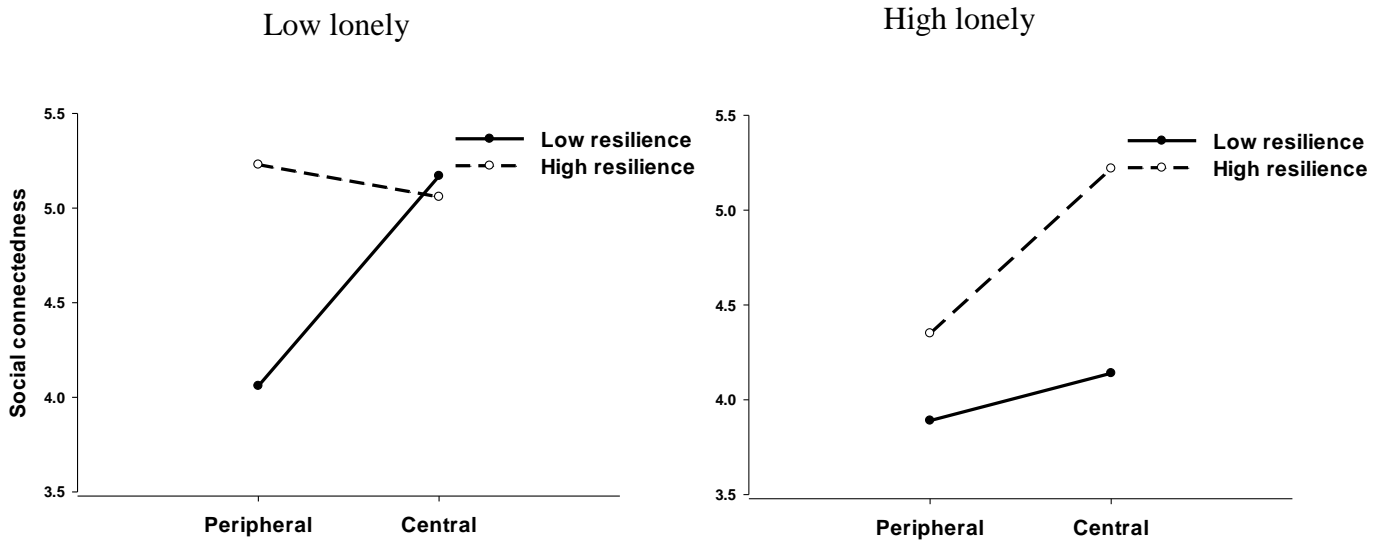
Figure 5b. Level of social connectedness as a function of resilience (Factor I – personal competence) and induced loneliness and nostalgia

Table 5b. *Predicted Means and Standard Errors (in Parentheses) for Social Connectedness for High vs. Low Resilience (Factor I – Personal Competence) Participants as a Function of Manipulated Loneliness and Nostalgia*

	Mean (SE)	
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	Low-resilience	High-resilience
Low-lonely		
Peripheral	4.06 (.34)	5.23 (.34)
Central	5.17 (.38)	5.06 (.27)
High-lonely		
Peripheral	3.89 (.29)	4.35 (.33)
Central	4.14 (.31)	5.22 (.39)

Finally, I examined the 8 items of Factor II (*acceptance of self and life*). I entered social connectedness as a dependent variable into a 2 (feature type: central, peripheral) × 2 (loneliness: high, low) × 2 (resilience: high, low) multiple regression analysis. Results revealed a significant main effect of nostalgia on social connectedness, $B = 0.25$, $SE = 0.11$, $F(1, 140) = 5.03$, $p = .027$, $\eta^2 = .03$, a significant main effect of resilience on social connectedness, $B = 0.46$, $SE = 0.11$, $F(1, 140) = 15.30$, $p < .0001$, $\eta^2 = 0.09$, and a marginally significant main effect of loneliness on social connectedness, $B = -0.19$, $SE = 0.11$, $F(1, 140) = 2.92$, $p = .089$, $\eta^2 = 0.02$. Results also yielded a non-significant Central vs. Peripheral × Loneliness interaction, $B = -0.00$, $SE = 0.11$, $F(1, 140) = 0.00$, $p = .99$, $\eta^2 = .00$, $R^2 = .18$, a non-significant Central vs. Peripheral × Resilience interaction, $B = -0.03$, $SE = 0.12$, $F(1, 140) = 0.05$, $p = .82$, $\eta^2 = .00$, $R^2 = .18$, and a non-significant Loneliness × Resilience interaction, $B = 0.09$, $SE = 0.12$, $F(1, 140) = 0.55$, $p = .046$, $\eta^2 = .00$, $R^2 = .18$. However, results revealed a marginally significant Central vs. Peripheral × Loneliness × Resilience three-way interaction, $B = 0.21$, $SE = 0.12$, $F(1, 140) = 3.09$, $p = .080$, $\eta^2 = .02$, $R^2 = .18$. This pattern is presented in Figure 5c and means presented in Table 5c.

For participants in the high-loneliness condition, there was a marginally significant effect of the central-prototype on social connectedness when resilience was high ($B = 0.43$, $SE = 0.23$, $F(1, 140) = 3.44$, $p = .065$, $\eta^2 = .02$), but there was no effect of the central-prototype on social connectedness when resilience was low ($B = 0.07$, $SE = 0.20$, $F(1, 140) = 0.13$, $p = .71$, $\eta^2 = .00$). Further analyses revealed that there was a marginal association between resilience and social connectedness in the peripheral-prototype condition ($B = 0.37$, $SE = 0.20$, $F(1, 140) = 3.31$, $p = .071$, $\eta^2 = .02$, and a significant association between resilience and social connectedness in the central-prototype condition ($B = 0.73$, $SE = 0.21$, $F(1, 140) = 12.50$, $p < .001$, $\eta^2 = .07$.

For participants in the low-loneliness condition, tests of simple slopes revealed that there was a marginally significant positive effect of the central-prototype on social connectedness when resilience was low, $B = 0.49$, $SE = 0.27$, $F(1, 140) = 3.30$, $p = .071$, $\eta^2 = .02$, but there was no effect of the central-prototype on social connectedness when resilience was high, $B = 0.02$, $SE = 0.22$, $F(1, 140) = 0.01$, $p = .93$, $\eta^2 = .00$. Further analyses revealed that there was a significant positive association between resilience and social connectedness in the peripheral-prototype condition, $B = 0.61$ $SE = 0.29$, $F(1, 140) = 4.31$, $p = .039$, $\eta^2 = .03$, but there was no association between resilience and social connectedness in the central-prototype condition, $B = 0.14$, $SE = 0.23$, $F(1, 140) = 0.37$, $p = .55$, $\eta^2 = .00$.
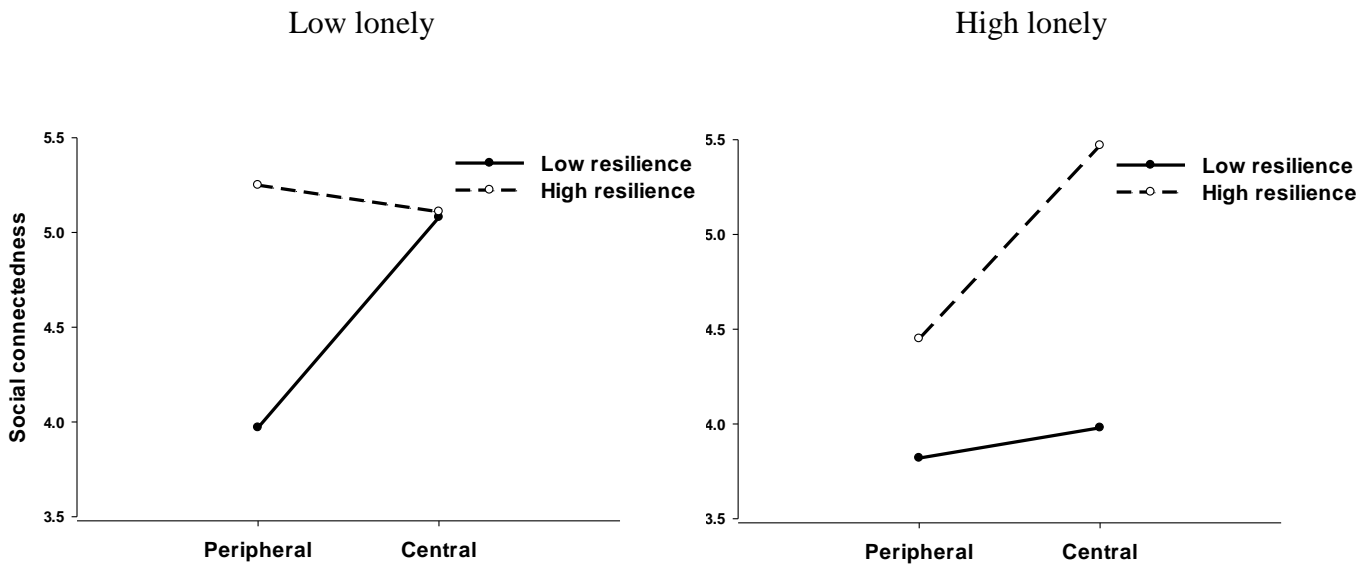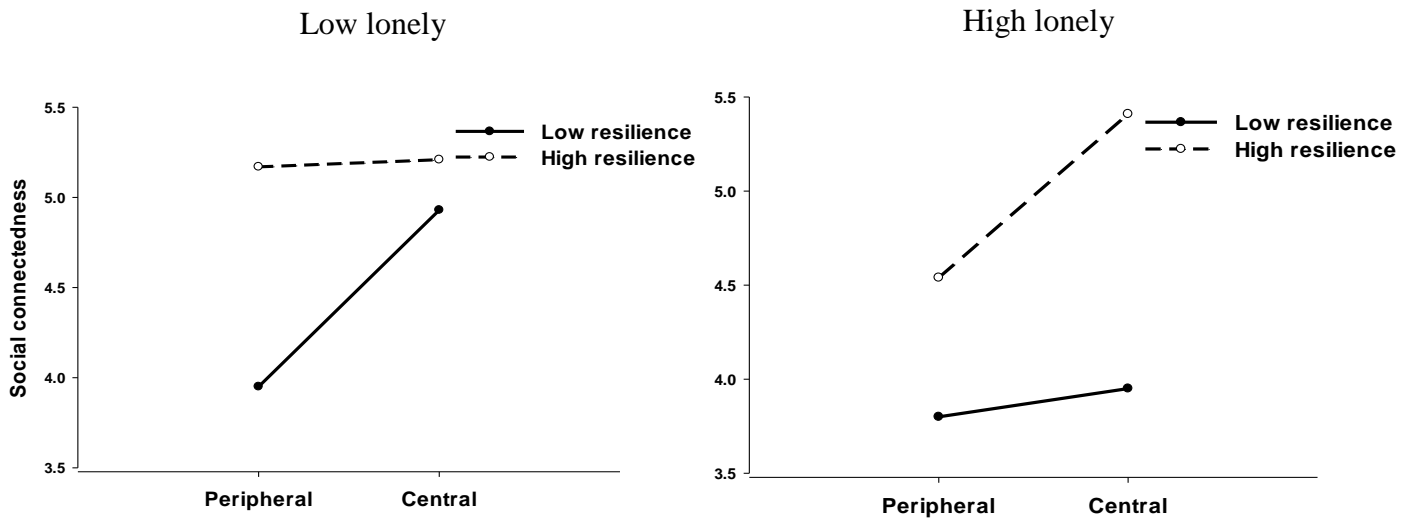
*Figure 5c. L*evel of social connectedness as a function of resilience (Factor II – acceptance of life and self) and induced loneliness and nostalgia

Table 5c. *Predicted Means and Standard Errors (in Parentheses) for Social Connectedness for High vs. Low Resilience (Factor II – Acceptance of Life and Self) Participants as a Function of Manipulated Loneliness and Nostalgia*

	Mean (SE)	
	Low-resilience	High-resilience
Low-lonely		
Peripheral	3.95 (.40)	5.17 (.34)
Central	4.93 (.36)	5.21 (.28)
High-lonely		
Peripheral	3.80 (.27)	4.54 (.33)
Central	3.95 (.39)	5.41 (.33)

5.4. Discussion

The key objective of Study 4 was to assess whether nostalgia replenished deficits in social connectedness when social threat was present (compared to when social threat was absent), and whether these effects are shaped by resilience-related individual differences. To achieve this, I implemented experimental manipulations of loneliness and nostalgia. Consistent with my hypotheses, Study 4 found that when loneliness was high,

recalling the central-prototype (compared to the peripheral-prototype) event increased

feelings of social connectedness among participants who were high (compared to low) in

resilience. When lonely, high-resilience (compared to low-resilience) participants utilized

nostalgia as a psychological resource to replenish feelings of social connectedness. This

extends and corroborates findings by Philippe et al. (2009), who found that resilience is

associated with positive emotions following the induction of sadness and anxiety.

Study 4 also found that, when loneliness was low, nostalgia increased social

connectedness among low-resilience (compared to high-resilience) participants. One

possible explanation for this finding is that, in the low-loneliness condition, receiving

reassurance regarding one's connection to close others (i.e., being informed by an

experimenter that one is very low on loneliness) increased nostalgia's capacity to boost

perceptions of social connectedness among low-resilience participants. Perhaps providing

reassurance to low-resilience individuals regarding their capacity to be a good friend,

partner, or family member, primed attachment-related security. For instance, attachment

security priming – the symbolic equivalent to exposure to an attachment figure – typically

involves asking participants to visualize or write about memories of feeling supported by

an attachment figure (Carnelley & Rowe, 2007). The effects of attachment security

priming have been found to increase positive mood, self-views, and relationship

expectations, and bolster felt security (Carnelley & Rowe, 2007; Luke, Sedikides, &

Carnelley, 2010; Rowe & Carnelley, 2003). Thus, being offered reassurance regarding

one's level of social inclusion may have led participants to retrieve highly social nostalgic

memories (i.e., involving close others, family members), which consequently boosted

feelings of social connectedness. This, combined with a ceiling effect among high-

resilience participants (who experienced high social connectedness regardless of whether

they recalled a central or peripheral event), could explain why nostalgia increased social

connectedness only for low-resilience (but not high-resilience) participants when loneliness was low. However, this finding was not expected and I therefore interpret it with caution. Future research should content-analyse nostalgic narratives to determine whether, after being provided with reassurance regarding their sociality, low-resilience is associated with more social-related words, and whether this is associated with greater perceived social connectedness.

This study has several limitations, which should be addressed in future work. For instance, there are possible implications of manipulating loneliness before nostalgia. As stated above, loneliness increases feelings of nostalgia (Wildschut et al., 2006, Study 4; Zhou et al., 2008, Study 2). It is possible that high (compared to low) loneliness participants felt nostalgic before nostalgia was manipulated. This might explain why the results demonstrated such a strong effect of nostalgia on social connectedness for high (compared to low) resilience participants when loneliness was high (vs. low). Future research should counterbalance the order of the nostalgia and loneliness manipulations, which would allow an examination of the potential of nostalgia to act as a psychological resource (when it follows loneliness, as in the present study), as well as a buffer (when it precedes loneliness), against loneliness for high (compared to low) resilience individuals. Further, the effect sizes of the documented interaction effects are relatively small. Thus, these results must be interpreted with caution. It is possible that the inclusion of mediator variables may help to explain some of the unexplained variance. For instance, Cheung et al. (2013) tested the indirect effects of nostalgia on feelings of optimism. They found that nostalgia fostered social connectedness, which subsequently increased self-esteem, which then bolstered optimism. Thus, further research should test for the indirect effects of nostalgia on perceived social connectedness, and assess potential mediators that may help to explain some of the unexplained variance. Finally, the construct validity of the 4-item

measure of social connectedness requires further support. Although confirmation of the predicted loneliness and nostalgia effects on measures of social connectedness can be regarded as evidence for construct validity (Cronbach & Meehl, 1955), it would be desirable to replicate these results with a longer and well-established measure of social connectedness.

Chapter 6: Overall Implications and Directions for Future Research

Nostalgia is an adaptive psychological resource that bolsters and replenishes deficits in social connectedness (Wildschut et al., 2006; Zhou et al., 2008). Researchers have begun to recognize that resilience-related individual differences shape how nostalgia is utilized to combat sources of threat (Zhou et al., 2008). The present research assessed the possibility that the adaptive benefits of nostalgia are greatest for high-resilience (compared to low-resilience) individuals, particularly when confronted with threatened social connectedness. In addition, I investigated whether the psychological significance of nostalgia resided in its capacity to strengthen social connectedness, and how this role of nostalgia is shaped by resilience.

6.1. Summary of Findings

6.1.1. Is the link between loneliness and nostalgia shaped by resilience? High-resilience (compared to low-resilience) individuals are skilful at generating positive emotions in times of threat (Bonanno & Keltner, 1997; Feldman-Barrett & Gross, 2001; Ong et al., 2006). Previous correlational findings showed that high-resilience (compared to low-resilience) individuals are more likely to recruit nostalgia when feeling lonely (Zhou et al., 2008, Study 4). In Study 1, I aimed to corroborate and extend the correlational findings of Zhou et al. I implemented an experimental manipulation of loneliness and examined whether the tendency to respond to loneliness by seeking refuge in nostalgic reverie is influenced by resilience-related individual differences. I predicted that the effect of loneliness on nostalgia should be stronger among high-resilience (compared to low-resilience) participants. The results revealed that high (compared to low) loneliness increased nostalgia for high-resilience and low-resilience participants. However, as predicted, the effect of loneliness on nostalgia was stronger when resilience was high (compared to low). These findings are consistent with evidence that high-

resilience individuals possess the psychological capacity to recruit and experience positive emotions in response to threat (Bonnano & Keltner, 1997).

High (compared to low) loneliness increased nostalgia among low-resilience (as well as high-resilience) individuals. These findings are not consistent with previous correlational findings by Zhou et al. (2008), who found that the positive relationship between loneliness and nostalgia was significant only among high (but not low) resilience individuals. Thus, in the present research, low-resilience individuals were still able to regulate deficiencies by recruiting nostalgia. These findings highlight the potential utility of nostalgia even amongst individuals who are psychologically vulnerable to lasting psychological distress.

6.1.2. Does nostalgia increase social connectedness in high or low-resilience individuals? Next, I assessed whether resilience-related individual differences influenced the capacity of nostalgia to strengthen perceived social connectedness (Studies 2-3b). Specifically, I tested whether nostalgia strengthens social connectedness to a greater extent for high-resilience individuals than for low-resilience individuals. High-resilience individuals are skilful at capitalizing on positive emotions to boost and maintain psychological functioning, whereas low-resilience individuals lack the capacity to capitalize on positive emotions and are vulnerable to lasting psychological distress (Block & Kremen, 1996; Bonanno, 2004). Across three studies, I predicted that high-resilience (compared to low-resilience) individuals would be better able to utilize nostalgia to boost social connectedness. Study 2 revealed, however, that recalling a nostalgic (vs. ordinary) event bolstered social connectedness irrespective of resilience-related individual differences. Further, Studies 3a-3b demonstrated that listening to a nostalgic (vs. control) song also bolstered social connectedness irrespective of resilience-related individual differences. Whereas these findings substantiate the idea that high-resilience individuals

are resourceful in utilizing nostalgia to boost social connectedness, it also highlights the potential utility of nostalgia for low-resilience individuals. In particular, it highlights nostalgia's capacity to fulfil sociality needs and promote a sense of social connectedness even amongst individuals who are psychologically vulnerable. In all, these findings underscore the ability of high-resilience and low-resilience to harness the benefits of nostalgia as a source of social connection and proximity. These findings are consistent with prior correlational research by Zhou et al. (2008, Study 4), who did not find evidence that the association between nostalgia and perceived social support was stronger for high-than for low-resilience individuals.

6.1.3. Does nostalgia replenish deficits in social connectedness in the presence (vs. the absence) of social threat? In Study 4, I implemented experimental manipulations of loneliness and nostalgia. I assessed whether nostalgia increased social connectedness when social threat was present (compared to when social threat was absent), and whether these effects were shaped by resilience-related individual differences. I predicted that high-resilience (compared to low-resilience) individuals would be more apt to harness the benefits of nostalgia under psychological threat. This would extend and support prior research by Philippe et al. (2009), who found that high-resilience (compared to low-resilience) individuals are skillful at self-generating positive emotional memories in response to psychological threat. Thus, I hypothesized that when loneliness was high, nostalgia would bolster perceived social connectedness for high-resilience (compared to low-resilience) individuals. Further, I predicted that when loneliness was low, nostalgia would increase social connectedness irrespective of resilience-related individual differences, therefore replicating Studies 2-3b and Zhou et al. (2008, Study 4) which found that the association between nostalgia and perceived social support was not moderated by resilience. Indeed, results revealed that when loneliness was high, nostalgia

increased feelings of social connectedness among participants who were high (compared to low) in resilience. Nostalgia acted as a potent psychological resource that was utilized by high-resilience participants in the presence of social threat. Thus, when lonely, high-resilience (compared to low-resilience) individuals recruit nostalgia in an urgent attempt to rekindle meaningful relationship structures and fortify feelings of social connectedness. For low-resilience participants, however, loneliness interfered with their capacity to harness the social benefits of nostalgia.

Results also revealed that when loneliness was low, nostalgia increased social connectedness more strongly among low-resilience than among high-resilience participants. This finding was not expected and must be interpreted with caution. Perhaps, in the low-loneliness condition, receiving reassurance by the experimenter regarding one's sense of connection to close others primed attachment-related security. Attachment-security priming has been found to increase positive mood, self-views, and relationship expectations, and bolster felt security (Carnelley & Rowe, 2007; Rowe & Carnelley, 2003). Thus, being offered reassurance regarding one's level of social inclusion may have led participants to retrieve highly social nostalgic memories (i.e., involving close others, family members), which consequently boosted feelings of social connectedness. This, combined with a ceiling effect observed among high-resilience participants (who experienced high social connectedness regardless of whether they recalled a nostalgic or ordinary autobiographical event), may explain why nostalgia increased perceptions of social connectedness only for low-resilience participants when loneliness was low. It is possible that providing reassurance to low-resilience individuals regarding their capacity to be a friend, partner, or family member primed highly social nostalgic memories (i.e., involving close others, family members). Further research is needed to test this idea.

6.2. Implications and Future Research

These findings contribute to the existing literature by extending previous correlational studies on the joint influence of resilience and nostalgia on loneliness (Zhou et al., 2008). The present findings therefore carry theoretical and practical implications that can inform future research. For instance, might nostalgia be evoked as a coping strategy in the face of other psychological threats (in addition to loneliness), such as social exclusion and rejection (Williams, 2001)? As discussed previously, high (compared to low) resilience participants were significantly more likely to recruit nostalgia in response to loneliness (Study 1). Moreover, when loneliness was high, nostalgia increased social connectedness among high (compared to low) resilience participants (Study 4). These findings provide suggestive evidence for a potential role of nostalgia in counteracting the deleterious consequences of social exclusion (Wildschut et al., 2006; Zhou et al., 2008). For example, Knowles and Gardner (2008) found that participants who wrote about a rejection (compared with an acceptance) exhibited heightened activation of group constructs in a word completion task (Study 1) and group memberships in a lexical decision task (Study 2). Thus, meaningful group membership served as a social buffer against rejection-induced self-esteem loss. Moreover, a recent meta-analysis by Blackhart, Nelson, Knowles, and Baumeister (2009) explored reactions to social exclusion across almost 200 studies. They found that socially excluded participants reported significantly higher negative affect compared to all other conditions. However, socially excluded participants did not report significantly lower levels of self-esteem than those in control groups, although accepted participants reported higher self-esteem. It is possible that individuals turn toward nostalgia to compensate for the negative effects of social exclusion. Evidence indicates that individual differences influence the extent to which individuals rely on nostalgia to cope with social exclusion. Wildschut et al., (2010, Study 3), for example, provided participants with bogus personality feedback suggesting that

they would not (future alone) or that they would (future belonging) have lasting friendships or marriages (Twenge, Baumeister, Tice, & Stucke, 2001). Social exclusion (i.e., future alone) compared to social inclusion (i.e., future belonging) significantly increased nostalgia among low (but not high) avoidance participants. Moreover, low (but not high) avoidance individuals were better able to utilize nostalgia when confronted with social exclusion. They regulated relational deficiencies more effectively by recruiting nostalgia. High-resilience (compared to low-resilience) individuals are more psychologically equipped to capitalize on positive emotions in the face of social threat (Bonnano, 2004; Wildschut et al., 2006, 2010; Zhou et al., 2008). Thus, it is possible that nostalgia acts as a coping strategy for these individuals in regulating relational deficiencies stemming from social exclusion

It also raises questions whether there are additional individual differences variables that thwart the negative effects of loneliness. For instance, it is possible that individuals with greater levels of hardiness (Kobasa, Maddi, & Kahn, 1982), self-enhancement (Bonanno, Field, Kovocevic, & Kaltman., 2002; Bonanno, Rennicke, Dekel, & Rosen, 2003; Paulhus, 1998), and self-compassion (Leary, Tate, Adams, Allen, & Hancock, 2007) would also experience significantly higher levels of nostalgia when social support is lacking or is perceived to be so.

Nostalgia may serve as a protective role for physical and mental health. First, nostalgia may assist to boost social connectedness in the presence of chronic distress (i.e., loneliness). As a result, nostalgia could be employed as a technique to help older adults, children, and adolescents cope with the harmful ramifications of loneliness. Second, nostalgia interventions may benefit low-resilience individuals who lack the capacity to deal with life's setbacks. For instance, Study 1 suggests that loneliness increased nostalgia among low-resilience (as well as high-resilience) individuals. Whilst further

research is needed to validate this unexpected finding, it suggests that low-resilience individuals could be trained to benefit from the restorative functions of nostalgia when lonely. This may also apply in the absence of social threat (as implied by Studies 2-3b). Such interventions could inject and increase a variety of facets that augment wellbeing. For example, there is a wealth of evidence that strong social bonds are associated with high psychological and physical health (Berkman, 1995; Sarason, Sarason, & Gurung, 1997). Low-resilience individuals could be trained to redress deficiencies in wellbeing by augmenting social connectedness via nostalgia (as suggested by Study 4).

Future research should also assess whether nostalgia replenishes other indices of psychological wellbeing. For example, high-resilience (compared to low-resilience) individuals utilize nostalgia when lonely in order to replenish feelings of social connectedness (Study 4). I predict that waxing nostalgic when loneliness threat is present should also bolster other indices of wellbeing, for example positive affect, self-esteem, and optimism (Cheung et al., 2013; Wildschut et al., 2006, Study 5). High-resilience individuals are characterized by their sense of positivity, high self-esteem, and their ability to think optimistically (Block & Kremen, 1996; Bonanno, 2005). It is likely, then, that high-resilience individuals would also utilize nostalgia as a coping mechanism to replenish these deficits when loneliness threat is present.

Finally, it is important to consider the psychological effects of other security primes in addition to the experimental inductions of nostalgia. For instance, attachment-security priming has been found to increase positive mood, self-views, and relationship expectations; and bolster felt security (Carnelley & Rowe, 2010; Luke, Sedikides, & Carnelley, 2010; Rowe & Carnelley, 2003). Carnelley and Rowe (2010) analysed the content of attachment-security primes. They primed individuals with attachment relational schemas (secure, anxious, or avoidant; Study 1), and analysed the written

narratives using a Linguistic Inquiry and Word Count program (LIWC; Pennebaker, Booth, & Francis, 2007). The text-analysis program examined the frequency of themes to emerge in participants' written narratives (e.g., frequency of nostalgia). Carnelley and Rowe found that individuals primed with attachment security exhibited higher levels of nostalgia compared to individuals primed with either anxious or avoidant attachment. Nostalgia contains themes of social relationships and positive memories (Wildschut et al., 2006). Thus, reflecting on secure relationships is likely to conjure up positive memories and views of other people, and lead to greater feelings of nostalgia. Future research should compare the effects of experimental nostalgia inductions and security priming to explore similarities and differences in more detail, and to assess whether they bolster social connectedness for high (vs. low) resilience individuals in the same way when faced with loneliness threat.

6.3. Limitations

Before generalizing from the findings, one must consider that participants were predominantly young female university students. I did not find any consistent effects involving gender across the five studies. However, tests of gender effects may have had insufficient statistical power due to the small number of male participants. In addition, whereas both young and older adults possess resilience-related coping skills, research has shown that older (compared to younger) adults are more resilient and better-equipped to harness social support in the face of ill physical and psychological health (Gooding, Hurst, Johnson, & Tarrier, 2011). Moreover, socioemotional selectivity theory proposes that older adults are more likely to enjoy intimate friendships and express a desire to find meaning in life (Carstensen, Isaacowitz, & Charles, 1999). Physical frailty and bereavement suggests that older adults become more susceptible to loneliness (Victor, Scambler, Bowling, & Bond, 2005). Nostalgia, then, may be a vital resource for older

adults in sustaining social networks and re-establishing symbolic connections with significant others in efforts to increase social connectedness (Batcho, 1998; Baldwin et al., 1996; Hepper, Robertson, Wildschut, Sedikides, & Routledge, 2014). Future research should examine whether age-related changes in resilience have a significant bearing on nostalgia. It would be interesting, for example, to differentiate between high-resilience and low-resilience older adults and younger adults with regards to how nostalgia is utilized in response to loneliness.

I treated loneliness as a unitary construct. However, research has found that individuals conceptualize their social relationships (or lack of) as multifaceted. For example, Hawkley, Browne, and Cacioppo (2005) examined individuals' representations of their social relationships by factor analyzing the UCLA Loneliness Scale. Their results supported the idea that loneliness contains three separable facets that are subordinate to a single overarching loneliness construct. These facets include isolation, reflecting feelings of aloneness and withdrawal; relational connectedness, relating to familiarity, intimacy, and support; and collective connectedness, corresponding to group familiarity. By differentiating between these facets, future research could seek to attain a more specific explanation of the association between loneliness and nostalgia, and observe whether this association is influenced by resilience. The present findings raise the possibility that high-resilience (compared to low-resilience) individuals would be most likely to redress deficiencies in social connectedness – particularly those relating to aloneness and withdrawal (isolation), and lack of familiarity, intimacy, and support (relational connectedness) – by drawing upon nostalgia. Thus, these individuals may be more likely to replenish such deficiencies using indirect compensatory strategies, such as nostalgia, that rely on mental representations of social bonds. This may not be the case, however,

for collective connectedness, which can easily be replenished by direct compensatory strategies (e.g., joining a new sports club).

6.4. Concluding Remarks

In this research, I have corroborated that nostalgia is a psychological weapon that acts to counteract the harmful repercussions of loneliness. Most immediately, the findings indicate that nostalgia surges in times of need. Participants who were made to feel lonely (compared to non-lonely) subsequently experienced more nostalgia, in particular when they were high in resilience (Study 1). Nostalgia, in turn, increased feelings of social connectedness and did so for both high- and low-resilience individuals (Study 2-3b). However, when participants experienced psychological threat in the form of high loneliness, only high-resilience individuals were capable of harnessing nostalgia to increase social connectedness (Study 4). Taken together, these findings provide encouraging evidence supporting the far-reaching benefits of nostalgia, and lay the groundwork for future research to offer integrative insights for nostalgia's contribution to adaptive human functioning.

APPENDICES

Appendix A

Materials used in Study 1

Social Experiences and Emotions
Consent Form for Research Participants

I am Kenny Brackstone, a psychology Ph.D. student at the University of Southampton. I am requesting your participation in a study regarding your experiences of social experiences and emotions. It should take about 35-40 minutes. You will be asked to complete a series of short questionnaires about your social experiences and emotions.

Your responses are treated as **confidential**. Personal information will not be released to or viewed by anyone other than researchers involved in this project. If you know any of the researchers personally then they will not be informed of which data is from you. Results of this study will not include your name or any other identifying characteristics.

Your participation is voluntary and you may withdraw your participation at any time. If you have any questions please ask them now, or email kb14v07@soton.ac.uk at any time.

Many thanks for your participation.

Statement of Consent

I have read the above informed consent form. I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentiality. In signing this consent letter, I am not waiving my legal claims, rights, or remedies.

Circle Yes or No for each statement:

I give consent to participate in the above study   **Yes   No**

Signature: _____   Date: _____

Name (print): _____   Email Address: _____

I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, tel: 023 8059 5578.

Resilience Scale (RS-26)

Please indicate your agreement or disagreement with each of the 26 statements listed below by placing a number in the blank space preceding each statement. The number should be anywhere from 1 to 6, according to the following scale:

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

1. _____ When I make plans, I follow through with them

2. _____ I usually manage one way or another

3. _____ I am able to depend on myself more than anyone else

4. _____ Keeping interested in things is important to me

5. _____ I can be on my own if I have to

6. _____ I feel proud that I have accomplished things in life

7. _____ I usually take things in my stride

8. _____ I am friends with my self

9. _____ I feel that I can handle many things at a time

10. _____ I am determined

11. _____ I seldom wonder what the point of it all is

12. _____ I take things one day at a time

13. _____ I can get through difficult times because I've experienced difficulty before

14. _____ I have self-discipline

15. _____ I keep interested in things

16. _____ I can usually find things to laugh about

17. _____ My belief in myself gets me through hard times

18. _____ In an emergency, I'm someone people can generally rely on

19. _____ I can usually look at a situation in a number of ways

20. _____ Sometimes I make myself do things whether I want to or not

21. _____ My life has meaning

22. _____ I do not dwell on things that I can't do anything about

23. _____ When I'm in a difficult situation, I can usually find my way out of it

24. _____ I have enough energy to do what I have to do

25. _____ It is okay if there are people who don't like me

26. _____ I am resilient

Loneliness scale (high-loneliness condition)

Please indicate whether you **<u>AGREE</u>** or **<u>DISAGREE</u>** with each of the statements shown below by circling the appropriate option.

1. I sometimes feel that I am "out of tune" with the people around me.

AGREE   DISAGREE

2. I am sometimes a bit short of companionship.

AGREE   DISAGREE

3. I sometimes feel alone.

AGREE   DISAGREE

4. I sometimes feel that I am distant from some groups of friends.

AGREE   DISAGREE

5. I sometimes feel that I have little in common with people around me.

AGREE   DISAGREE

6. I sometimes feel that I am no longer close to old friends.

AGREE   DISAGREE

7. I sometimes feel I want to be left alone.

AGREE   DISAGREE

8. I sometimes feel distant from other people.

AGREE   DISAGREE

9. I sometimes feel left out.

AGREE   DISAGREE

10. I sometimes feel that no one really knows me.

AGREE   DISAGREE

11. I sometimes feel isolated from others.

AGREE   DISAGREE

12. I sometimes feel that I can't ever find companionship when I want it.

AGREE   DISAGREE

13. I sometimes feel best when I am by myself.

AGREE   DISAGREE

14. I sometimes feel people are around me but not with me.

AGREE   DISAGREE

15. I sometimes feel that there are only few people who I can talk to.

AGREE   DISAGREE

Loneliness scale (low-loneliness condition)

Please indicate whether you **<u>AGREE</u>** or **<u>DISAGREE</u>** with each of the statements shown below by circling the appropriate option.

1. I always feel that I am "out of tune" with the people around me.

AGREE   DISAGREE

2. I am always a bit short of companionship.

AGREE   DISAGREE

3. I always feel alone.

AGREE   DISAGREE

4. I always feel that I am distant from some groups of friends.

AGREE   DISAGREE

5. I always feel that I have little in common with people around me.

AGREE   DISAGREE

6. I always feel that I am no longer close to old friends.

AGREE   DISAGREE

7. I always feel I want to be left alone.

AGREE   DISAGREE

8. I always feel distant from other people.

AGREE   DISAGREE

9. I always feel left out.

AGREE   DISAGREE

10. I always feel that no one really knows me.

AGREE   DISAGREE

11. I always feel isolated from others.

AGREE   DISAGREE

12. I always feel that I can't ever find companionship when I want it.

AGREE   DISAGREE

13. I always feel best when I am by myself.

AGREE   DISAGREE

14. I always feel people are around me but not with me.

AGREE   DISAGREE

15. I always feel that there are only few people who I can talk to.

AGREE   DISAGREE

Reasons for high/low loneliness

Your score on the questionnaire indicates that compared to other students at the University of Southampton you are above average on loneliness. In other words, you are somewhat lonely. Please take some time to think why you are lonely. Now, please use the space below to write down your thoughts.

Your score on the questionnaire indicates that compared to other students at the University of Southampton you are very low on loneliness. In other words, you are not lonely at all. Please take some time to think why you are not lonely. Now, please use the space below to write down your thoughts.

_____

_____

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Loneliness manipulation check

The following statements refer to how you feel **<u>right now</u>,** that is, at the present moment**.** You should indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number could be anywhere from 1 to 6, according to the following scale:

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

1. _____ Right now, I feel somewhat "alone."

2. _____ Right now, I feel a bit left out

3. _____ Right now, I feel a bit lonely

Batcho's (1995) Nostalgia Inventory (NI)

Please indicate how much you feel nostalgia about each of the 20 persons, situations, or events below, **right now.**

1	2	3	4	5	6
Not at all	A little	Moderately	Somewhat	Quite a lot	Very much

Right now, I feel nostalgic about …

1. _____ my family

2. _____ vacations I went on

3. _____ places

4. _____ music

5. _____ someone I loved

6. _____ my friends

7. _____ things I did

8. _____ my childhood toys

9. _____ the way people were

10. _____ my heroes/heroines

11. _____ feelings I had

12. _____ my school

13. _____ having someone to depend on

14. _____ not having to worry

15. _____ the way society was

16. _____ my pets

17. _____ not knowing sad or evil things

18. _____ TV shows, movies

19. _____ my family house

20. _____ my church/religion

Three-item nostalgia scale

The following statements refers to how you feel **<u>right</u> <u>now,</u>** that is, at the present moment. You should indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number could be anywhere from 1 to 6, according to the following scale:

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

1. _____ Right now, I am feeling quite nostalgic

2. _____ Right now, I am bringing to mind nostalgic experiences.

3. _____ Right now, I am having nostalgic feelings.

Debriefing form

Social Experiences and Emotions
Debriefing Statement

The aim of this research programme is to develop a greater understanding of the nature and operation of nostalgia, by inspecting its functions in relation to loneliness. Previous research shows that loneliness triggers nostalgia and that, in turn, nostalgia helps people to cope better with loneliness.

So, based on our current understanding that negative emotional contexts (i.e., loneliness) is associated with increased experiences of nostalgia, I aim to establish whether high loneliness produces particularly strong feelings of nostalgia, and whether this is influenced by resilience-related individual differences.

To manipulate loneliness, we gave you **FALSE** feedback from the loneliness questionnaire; if you were in the high loneliness condition, we told you that your scores are "above average on loneliness" compared with other undergraduates. If you were in the low-loneliness condition, we told you that your scores are "very low on loneliness" compared with other undergraduates. **PLEASE NOTE THAT THE FEEDBACK YOU RECEIVED WAS DETERMINED BY THE EXPERIMENTER BEFORE YOU COMPLETED THE QUESTIONNAIRE. THEREFORE, THE FEEDBACK IS COMPLETELY UNRELATED TO YOUR TRUE LEVEL OF LONELINESS.**

I expect to find that when high-resilience individuals experience a sense of loneliness, they are more likely to resort to nostalgia in an attempt to alleviate these undesirable feelings. This research will be able to provide us with a greater understanding of *how* and *why* nostalgia typically tends to occur.

Once again, let us remind you that results of this study will not include any identifying details and that your data are confidential and anonymous. If you are interested in finding out more, there are some references below that you will find useful. If you have any questions, please contact me at kb14v07@soton.ac.uk.

We have tried to ensure that this study is not distressing in any way. However, if participation has raised any concerns, we recommend that you contact one of the following:
- Your GP
- University of Southampton Nightline: http://nline.susu.org

Thank you for your participation in this study!

Appendix B

Materials used in Study 2

Social Experiences and Human Emotions – Online Survey
(Version number: 1.1; 01/12/11)

Welcome to the study!

This research has been approved by the Ethics Committee (known as IRB, ref: 1148) of the School of Psychology, University of Southampton.

Investigators
Kenny Brackstone
Ph.D. student at the University of Southampton

What is the research about?
I am Kenny Brackstone, a psychology Ph.D. student at the University of Southampton. I am requesting your participation in a survey regarding your social experiences and emotions. You will be asked some questions about your experiences and your daily emotions.

The study will take approximately **15 minutes.** Remember that **there are no right or wrong answers** – so feel free to provide completely **open and honest** responses.

Risks and Benefits
There are **no significant risks** to participation in this study. There is a possibility some participants may experience mild discomfort when answering one of the questionnaires in this survey. However, you are free to leave any questions blank if you wish.

You may **benefit** from participating because at the end you will learn about our specific research aims, as well as what scientists currently know about human emotions. You will also be told where to go for more information on this area of psychology. In addition, you will contribute to psychological science and our understanding of emotion.

Anonymity
Your participation in this study is **anonymous.** All data are treated as **confidential.**

Contact
You may contact Kenny Brackstone if you have any questions or concerns about the study on K.Brackstone@soton.ac.uk.

What happens if something goes wrong?
Please contact the Chair of Ethics Committee, School of Psychology, University of Southampton, tel: 023 8059 5578, or Dr Martina Prude, Head of Research Governance (02380 595058, mad4@soton.ac.uk).

Participation in this study is **fully voluntary** and you have the **right to withdraw** at any time with no penalty.

Consent form

Statement of Consent
(01/12/11) Version No: 1.1.

This research has been approved by the Ethics Committee (known as IRB, ref: 1148) of the School of Psychology, University of Southampton.

I have read the information sheet provided and I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentiality.

In signing this consent letter, I am not waiving my legal claims, rights, or remedies.

Circle Yes or No for each statement:

I give consent to participate in the above study   **Yes   No**

I understand my participation is voluntary and I may withdraw at any   **Yes**
No
time without my legal rights being affected

I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.

Signature: _____   Date: _____

Name (print): _____

I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, +44 (0)23 8059 4663

Resilience Scale (RS-26)

Please indicate your agreement or disagreement with each of the 26 statements listed below by placing a number in the blank space preceding each statement. The number should be anywhere from 1 to 6, according to the following scale:

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

1. _____ When I make plans, I follow through with them

2. _____ I usually manage one way or another

3. _____ I am able to depend on myself more than anyone else

4. _____ Keeping interested in things is important to me

5. _____ I can be on my own if I have to

6. _____ I feel proud that I have accomplished things in life

7. _____ I usually take things in my stride

8. _____ I am friends with my self

9. _____ I feel that I can handle many things at a time

10. _____ I am determined

11. _____ I seldom wonder what the point of it all is

12. _____ I take things one day at a time

13. _____ I can get through difficult times because I've experienced difficulty before

14. _____ I have self-discipline

15. _____ I keep interested in things

16. _____ I can usually find things to laugh about

17. _____ My belief in myself gets me through hard times

18. _____ In an emergency, I'm someone people can generally rely on

19. _____ I can usually look at a situation in a number of ways

20. _____ Sometimes I make myself do things whether I want to or not

21. _____ My life has meaning

22. _____ I do not dwell on things that I can't do anything about

23. _____ When I'm in a difficult situation, I can usually find my way out of it

24. _____ I have enough energy to do what I have to do

25. _____ It is okay if there are people who don't like me

26. _____ I am resilient

Nostalgia manipulation (nostalgia vs. ordinary)

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

Please take a minute to think of a **nostalgic** event in your life. Specifically, try to think of a past event that makes you feel most nostalgic. Bring this nostalgic experience to mind. Immerse yourself in the nostalgic experience. How does it make you feel?

Please write down **four** keywords relevant to this nostalgic event (i.e., words that describe the experience).

Keywords that describe my nostalgic experience:

_____

_____

_____

_____

Please take a minute to think of an **ordinary** event that occurs in your life. Specifically, try to think of a past event that is ordinary. Bring this ordinary experience to mind. Immerse yourself in the ordinary experience. How does it make you feel?

Please write down **four** keywords relevant to this ordinary event (i.e., words that describe the experience).

Keywords that describe my ordinary experience:

_____

_____

_____

_____

Three-item nostalgia manipulation check

The following statements refers to how you feel **right now,** that is, at the present moment. You should indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number could be anywhere from 1 to 6, according to the following scale:

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

1. _____ Right now, I am feeling quite nostalgic

2. _____ Right now, I am bringing to mind nostalgic experiences.

3. _____ Right now, I am having nostalgic feelings.

Assessment of social connectedness

The following statements refers to how you feel **right now,** that is, at the present moment. You should indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number could be anywhere from 1 to 6, according to the following scale:

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

Now that I have this nostalgic/ordinary event in mind, I feel …

5. ____ connected to loved ones

6. ____ protected

7. ____ loved

8. ____ I can trust others

Debriefing form

Social Experiences and Human Emotions - Online Survey
Debriefing Statement for Research Participants
(Version number: 1.1; 01/12/11)

Thank you for your participation in the Social Experiences and Human Emotions survey!

You have just completed some questionnaires related to your emotions. The purpose of the survey is to identify the individual differences underlying proneness to nostalgia, a fascinating emotion that is not yet well understood. In this survey, you completed a questionnaire measuring how prone you are to feeling nostalgic. You also completed questionnaires which measured variables that may be related to proneness to nostalgia. These variables include: social isolation (loneliness), mood (positive and negative), and psychological resilience.

Identifying these variables is important because it will deepen our understanding of the motivational and regulatory functions of nostalgia. It is hypothesized that people who are high in levels of loneliness will be low in positive mood. However, loneliness will actually increase positive mood in individuals who are prone to nostalgia. It is expected that this relationship will be stronger for people who are high (compared to low) in resilience. This research aims to reinforce the notion that nostalgia is a psychological resource which restores and protects against the harmful repercussions of loneliness.

Remember, your data are treated as confidential and anonymous. Results of this research will not include your name or any other identifying characteristics. Data will only be shared with researchers involved in this specific research project.

We have tried to ensure that the questions in this study do not cause any distress. However, it is not uncommon to experience some anxieties or concerns when completing questionnaires about emotions, and support is available. If participating in this study raises any issues for you, we recommend that you contact one of the following resources:

- University of Southampton: the University Counselling Service, Nightline, on 023 8059 5236 (free from halls on (78)25236) or visit http://nline.susu.org/

- UK participants: find a counsellor at www.bacp.org

If you have any further questions, feel free to contact Kenny Brackstone on K.Brackstone@soton.ac.uk. Further reading options have been suggested below.

If you have questions about your rights as a participant, or feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, Southampton SO17 1BJ, +44 (0)23 8059 5578.

Further Reading:

Wildschut, T., Sedikides, C., Arndt, J., & Routledge, C. (2006). Nostalgia: Content, triggers, functions. *Journal of Personality and Social Psychology, 91,* 975-993.

Zhou, X, Sedikides, C., Wildschut, C., & Gao, D.-G. (2008). Counteracting loneliness: On the restorative function of nostalgia. *Psychological Science, 19*, 1023-1029.

Appendix C

Materials used in Study 3a
Resilience Scale (RS-25)

Please indicate your agreement or disagreement with each of the 25 statements listed below. The number should be anywhere from 1 to 4, according to the following scale:

1	2	3	4
Does not describe me at all			Describes me well

1. _____ When I make plans, I follow through with them

2. _____ I usually manage one way or another

3. _____ I am able to depend on myself more than anyone else

4. _____ Keeping interested in things is important to me

5. _____ I can be on my own if I have to

6. _____ I feel proud that I have accomplished things in life

7. _____ I usually take things in my stride

8. _____ I am friends with my self

9. _____ I feel that I can handle many things at a time

10. _____ I am determined

11. _____ I seldom wonder what the point of it all is

12. _____ I take things one day at a time

13. _____ I can get through difficult times because I've experienced difficulty before

14. _____ I have self-discipline

15. _____ I keep interested in things

16. _____ I can usually find things to laugh about

17. _____ My belief in myself gets me through hard times

18. _____ In an emergency, I'm someone people can generally rely on

19. _____ I can usually look at a situation in a number of ways

20. _____ Sometimes I make myself do things whether I want to or not

21. _____ My life has meaning

22. _____ I do not dwell on things that I can't do anything about

23. _____ When I'm in a difficult situation, I can usually find my way out of it

24. _____ I have enough energy to do what I have to do

25. _____ It is okay if there are people who don't like me

Nostalgia manipulation check and 2-item assessment of social connectedness

The following statements refers to how you feel **<u>right</u> <u>now,</u>** that is, at the present moment. You should indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number could be anywhere from 1 to 5, according to the following scale:

1	2	3	4	5
Not at all	Somewhat disagree	Slightly disagree	Slightly agree	Very much

Now that I have listened to this song, I feel…

1. ____ nostalgia

2. ____ longing for the past

3. ____ loved

4. ____ connected to loved ones

Appendix D

Materials used in Study 3b
Resilience Scale (RS-25)

Please indicate your agreement or disagreement with each of the 25 statements listed below. The number should be anywhere from 1 to 4, according to the following scale:

1	2	3	4
Does not describe me at all			Describes me well

1. _____ When I make plans, I follow through with them

2. _____ I usually manage one way or another

3. _____ I am able to depend on myself more than anyone else

4. _____ Keeping interested in things is important to me

5. _____ I can be on my own if I have to

6. _____ I feel proud that I have accomplished things in life

7. _____ I usually take things in my stride

8. _____ I am friends with my self

9. _____ I feel that I can handle many things at a time

10. _____ I am determined

11. _____ I seldom wonder what the point of it all is

12. _____ I take things one day at a time

13. _____ I can get through difficult times because I've experienced difficulty before

14. _____ I have self-discipline

15. _____ I keep interested in things

16. _____ I can usually find things to laugh about

17. _____ My belief in myself gets me through hard times

18. _____ In an emergency, I'm someone people can generally rely on

19. _____ I can usually look at a situation in a number of ways

20. _____ Sometimes I make myself do things whether I want to or not

21. _____ My life has meaning

22. _____ I do not dwell on things that I can't do anything about

23. _____ When I'm in a difficult situation, I can usually find my way out of it

24. _____ I have enough energy to do what I have to do

25. _____ It is okay if there are people who don't like me

Nostalgia manipulation check and 4-item assessment of social connectedness

The following statements refers to how you feel **<u>right</u> <u>now,</u>** that is, at the present moment. You should indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number could be anywhere from 1 to 5, according to the following scale:

1	2	3	4	5
Not at all	Somewhat disagree	Slightly disagree	Slightly agree	Very much

Now that I have listened to this song, I feel…

1. _____ nostalgia

2. _____ longing for the past

3. _____ loved

4. _____ connected to loved ones

5. _____ I can trust others

6. _____ protected

Appendix E

Materials used in Study 4

Social Experiences and Emotions
Consent Form for Research Participants

I am Kenny Brackstone, a psychology Ph.D. student at the University of Southampton. I am requesting your participation in a study regarding your experiences of social situations and emotions. It should take about 35-45 minutes. You will be asked to complete a series of short questionnaires about your social experiences and emotions.

Your responses are treated as **confidential**. Personal information will not be released to or viewed by anyone other than researchers involved in this project. If you know any of the researchers personally then they will not be informed of which data is from you. Results of this study will not include your name or any other identifying characteristics.

Your participation is voluntary and you may withdraw your participation at any time. If you have any questions please ask them now, or email kb14v07@soton.ac.uk at any time.

Many thanks for your participation.

Statement of Consent

I have read the above informed consent form. I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentiality. In signing this consent letter, I am not waiving my legal claims, rights, or remedies.

Circle Yes or No for each statement:

I give consent to participate in the above study   **Yes   No**

Signature: _____   Date: _____

Name (print): _____   Email Address: _____

I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, tel: 023 8059 4663

Resilience Scale (RS-26)

Please indicate your agreement or disagreement with each of the 26 statements listed below by placing a number in the blank space preceding each statement. The number should be anywhere from 1 to 6, according to the following scale:

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

1. _____ When I make plans, I follow through with them

2. _____ I usually manage one way or another

3. _____ I am able to depend on myself more than anyone else

4. _____ Keeping interested in things is important to me

5. _____ I can be on my own if I have to

6. _____ I feel proud that I have accomplished things in life

7. _____ I usually take things in my stride

8. _____ I am friends with my self

9. _____ I feel that I can handle many things at a time

10. _____ I am determined

11. _____ I seldom wonder what the point of it all is

12. _____ I take things one day at a time

13. _____ I can get through difficult times because I've experienced difficulty before

14. _____ I have self-discipline

15. _____ I keep interested in things

16. _____ I can usually find things to laugh about

17. _____ My belief in myself gets me through hard times

18. _____ In an emergency, I'm someone people can generally rely on

19. _____ I can usually look at a situation in a number of ways

20. _____ Sometimes I make myself do things whether I want to or not

21. _____ My life has meaning

22. _____ I do not dwell on things that I can't do anything about

23. _____ When I'm in a difficult situation, I can usually find my way out of it

24. _____ I have enough energy to do what I have to do

25. _____ It is okay if there are people who don't like me

26. _____ I am resilient

Loneliness scale (high-loneliness condition)

Please indicate whether you **<u>AGREE</u>** or **<u>DISAGREE</u>** with each of the statements shown below by circling the appropriate option.

1. I sometimes feel that I am "out of tune" with the people around me.

AGREE   DISAGREE

2. I am sometimes a bit short of companionship.

AGREE   DISAGREE

3. I sometimes feel alone.

AGREE   DISAGREE

4. I sometimes feel that I am distant from some groups of friends.

AGREE   DISAGREE

5. I sometimes feel that I have little in common with people around me.

AGREE   DISAGREE

6. I sometimes feel that I am no longer close to old friends.

AGREE   DISAGREE

7. I sometimes feel I want to be left alone.

AGREE   DISAGREE

8. I sometimes feel distant from other people.

AGREE   DISAGREE

9. I sometimes feel left out.

AGREE   DISAGREE

10. I sometimes feel that no one really knows me.

AGREE   DISAGREE

11. I sometimes feel isolated from others.

AGREE   DISAGREE

12. I sometimes feel that I can't ever find companionship when I want it.

AGREE   DISAGREE

13. I sometimes feel best when I am by myself.

AGREE   DISAGREE

14. I sometimes feel people are around me but not with me.

AGREE   DISAGREE

15. I sometimes feel that there are only few people who I can talk to.

AGREE   DISAGREE

Loneliness scale (low-loneliness condition)

Please indicate whether you **<u>AGREE</u>** or **<u>DISAGREE</u>** with each of the statements shown below by circling the appropriate option.

1. I always feel that I am "out of tune" with the people around me.

AGREE   DISAGREE

2. I am always a bit short of companionship.

AGREE   DISAGREE

3. I always feel alone.

AGREE   DISAGREE

4. I always feel that I am distant from some groups of friends.

AGREE   DISAGREE

5. I always feel that I have little in common with people around me.

AGREE   DISAGREE

6. I always feel that I am no longer close to old friends.

AGREE   DISAGREE

7. I always feel I want to be left alone.

AGREE   DISAGREE

8. I always feel distant from other people.

AGREE   DISAGREE

9. I always feel left out.

AGREE   DISAGREE

10. I always feel that no one really knows me.

AGREE   DISAGREE

11. I always feel isolated from others.

AGREE   DISAGREE

12. I always feel that I can't ever find companionship when I want it.

AGREE   DISAGREE

13. I always feel best when I am by myself.

AGREE   DISAGREE

14. I always feel people are around me but not with me.

AGREE   DISAGREE

15. I always feel that there are only few people who I can talk to.

AGREE   DISAGREE

Reasons for high/low loneliness

Your score on the questionnaire indicates that compared to other students at the University of Southampton you are above average on loneliness. In other words, you are somewhat lonely. Please take some time to think why you are lonely. Now, please use the space below to write down your thoughts.

Your score on the questionnaire indicates that compared to other students at the University of Southampton you are very low on loneliness. In other words, you are not lonely at all. Please take some time to think why you are not lonely. Now, please use the space below to write down your thoughts.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Nostalgia manipulation (central features)

Social Experiences

Below are listed several features that might describe or characterise experiences and memories that we have in our lives.

reminiscence   **keepsakes**   **dwelling**   **rose-tinted memories**

familiar smells   **family/friends**   **longing**

feeling happy   **childhood**   **personal**

1) Please take a minute or two to read through the features above.

2) Now bring to mind an event in your life that is relevant to or characterised by **at least five** of these features.

   Specifically, try to think of a past event whereby at least five of the features either were *part* of the event, and/or describe your experience as you *think about* the event. This event can be a recent experience or it could relate back to the earlier years of your life.

3) Circle **all** of the features above that are relevant to this event (at least five).

Now in the space below please take a few minutes to recall and write a brief description of (a) the event, and (b) your experience as you remember the event.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Nostalgia manipulation (peripheral features)

Social Experiences

Below are listed several features that might describe or characterise experiences and memories that we have in our lives.

daydreaming   **anxiety/pain**   **wishing**
                        achievements

         regret   **change**   **bittersweet**

    feeling sad   **feeling warm/comforted**   **ageing**

1) Please take a minute or two to read through the features above.

2) Now bring to mind an event in your life that is relevant to or characterised by **at least five** of these features.

   Specifically, try to think of a past event whereby at least five of the features either were *part* of the event, and/or describe your experience as you *think about* the event. This event can be a recent experience or it could relate back to the earlier years of your life.

3) Circle **all** of the features above that are relevant to this event (at least five).

Now in the space below please take a few minutes to recall and write a brief description of (a) the event, and (b) your experience as you remember the event.

_____

_____

_____

_____

_____

_____

_____

_____

_____

Loneliness manipulation check

The following statements refer to how you feel **right now,** that is, at the present moment**.** You should indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number could be anywhere from 1 to 6, according to the following scale:

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

1. _____ Right now, I feel somewhat "alone."

2. _____ Right now, I feel a bit left out

3. _____ Right now, I feel a bit lonely

Assessment of social connectedness

The following statements refers to how you feel **right now,** that is, at the present moment. You should indicate your agreement or disagreement by placing a number in the blank space preceding each statement. The number could be anywhere from 1 to 6, according to the following scale:

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

Now that I have this ordinary event in mind, I feel …

5. ____ connected to loved ones

6. ____ protected

7. ____ loved

8. ____ I can trust others

Debriefing form

Social Experiences and Emotions
Debriefing Statement

The aim of this research programme is to develop a greater understanding of the nature and operation of nostalgia, by inspecting its functions in relation to loneliness. Previous research shows that loneliness triggers nostalgia and that, in turn, nostalgia helps people to cope better with loneliness.

So, based on our current understanding that negative emotional contexts (i.e., loneliness) is associated with increased experiences of nostalgia, I aim to establish whether high loneliness produces particularly strong feelings of nostalgia, and whether this is influenced by resilience-related individual differences.

To manipulate loneliness, we gave you **FALSE** feedback from the loneliness questionnaire; if you were in the high loneliness condition, we told you that your scores are "above average on loneliness" compared with other undergraduates. If you were in the low-loneliness condition, we told you that your scores are "very low on loneliness" compared with other undergraduates. **PLEASE NOTE THAT THE FEEDBACK YOU RECEIVED WAS DETERMINED BY THE EXPERIMENTER BEFORE YOU COMPLETED THE QUESTIONNAIRE. THEREFORE, THE FEEDBACK IS COMPLETELY UNRELATED TO YOUR TRUE LEVEL OF LONELINESS.**

I expect to find that when high-resilience individuals experience a sense of loneliness, they are more likely to resort to nostalgia in an attempt to alleviate these undesirable feelings. This research will be able to provide us with a greater understanding of *how* and *why* nostalgia typically tends to occur.

Once again, let us remind you that results of this study will not include any identifying details and that your data are confidential and anonymous. If you are interested in finding out more, there are some references below that you will find useful. If you have any questions, please contact me at kb14v07@soton.ac.uk.

We have tried to ensure that this study is not distressing in any way. However, if participation has raised any concerns, we recommend that you contact one of the following:
- Your GP
- University of Southampton Nightline: http://nline.susu.org

Thank you for your participation in this study!

Appendix F

Data on other functions of nostalgia (Study 4)

Method

Materials and Procedure

Participants also rated on a 6-point scale (1 = *strongly disagree,* 6 = *strongly agree*) the extent to which thinking about the recalled event made them feel "life is meaningful", "life has a purpose", "there is a greater purpose to life", and "that life is worth living" (to measure perceptions of meaning in life; α = .88, M = 4.65, SD = 1.02).

Results

Nostalgia and meaning. I entered meaning as a dependent variable into a 2 (feature type: central, peripheral) × 2 (loneliness: high, low) × 2 (resilience: high, low) multiple regression analysis. Results revealed a significant main effect of nostalgia on meaning, B = 0.16, SE = 0.07, $F(1, 140)$ = 5.20, p = .024, η^2 = .02, a significant positive association of resilience with meaning, B = 0.46, SE = 0.07, $F(1, 140)$ = 40.02, p < .0001, η^2 = 0.18, and a significant main effect of loneliness on meaning, B = -0.24, SE = 0.07, $F(1, 140)$ = 11.03, p < .01, η^2 = 0.05. Results also yielded a significant Central vs. Peripheral × Loneliness interaction, B = -0.14, SE = 0.07, $F(1, 140)$ = 3.94, p = .049, η^2 = .02, R^2 = .35, a significant Central vs. Peripheral × Resilience interaction, B = -0.17, SE = 0.07, $F(1, 140)$ = 5.75, p = .017, η^2 = .03, R^2 = .35, and a non-significant Loneliness × Resilience interaction, B = 0.04, SE = 0.07, $F(1, 140)$ = 0.30, p = .58, η^2 = .00, R^2 = .35. However, results revealed a marginally significant Central vs. Peripheral × Loneliness × Resilience three-way interaction, B = -0.27, SE = 0.15, $F(1, 147)$ = 3.39, p = .057, η^2 = .02, R^2 = .35. This pattern is presented in Figure 5d and means presented in Table 5d.

For participants in the high-loneliness condition, tests of simple slopes revealed that there was no effect of the central-prototype on meaningfulness when resilience was high

(B = -0.03, SE = 0.16, $F(1, 147)$ = 0.03, p = .87, η^2 = .00), nor when resilience was low (B = 0.04, SE = 0.13, $F(1, 147)$ = 0.09, p = .77, η^2 = .00). Further analyses revealed that there was no association between resilience and meaning in the central-prototype condition (B = -0.21, SE = 0.15, $F(1, 147)$ = 2.05, p = .15, η^2 = .01), or the peripheral-prototype condition (B = -0.19, SE = 0.10, $F(1, 147)$ = 1.61, p = .20, η^2 = .01).

For participants in the low-loneliness condition, there a significant positive effect of the central-prototype on meaning when resilience was low, B = 0.61, SE = 0.17, $F(1, 147)$ = 13.49, p < .001, η^2 = .06, but there was no effect of the central-prototype on meaning when resilience was high, B = -0.01, SE = 0.14, $F(1, 147)$ = 0.00, p = .96, η^2 = .00. Further analyses revealed that there was a significant positive association between resilience and meaning in the peripheral-prototype condition, B = -0.57, SE = 0.15, $F(1, 147)$ = 13.96, p < .001, η^2 = .07, but there was no association between resilience and meaning in the central-prototype condition, B = 0.00, SE = 0.15, $F(1, 147)$ = 0.00, p = .98, η^2 = .00.
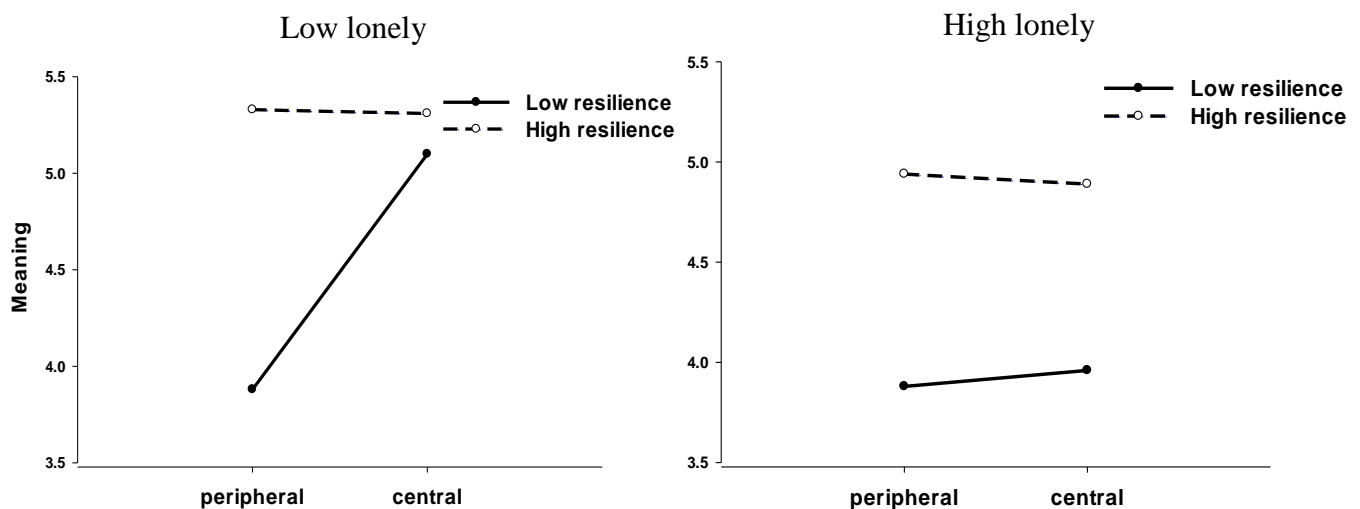

Figure 5d. Level of meaning as a function of manipulated loneliness and nostalgia

Table 5d. *Predicted Means and Standard Errors (in Parentheses) for Meaning for High vs. Low Resilience Participants as a Function of Manipulated Loneliness and Nostalgia*

	Mean (SE)	
	Low-resilience	High-resilience
Low-lonely		
Peripheral	3.87 (.22)	5.34 (.21)
Central	5.10 (.23)	5.32 (.16)
High-lonely		
Peripheral	3.88 (.17)	4.95 (.20)
Central	3.99 (.18)	4.92 (.23)

Next, I examined the subscales of the RS-25. Firstly, I examined 17 items of Factor I (*personal competence*). I entered meaning as a dependent variable into a 2 (feature type: central, peripheral) × 2 (loneliness: high, low) × 2 (resilience-17: high, low) multiple regression analysis. Results revealed a significant main effect of nostalgia on meaning, $B = 0.16$, $SE = 0.76$, $F(1, 140) = 4.80$, $p = .030$, $\eta^2 = .02$, a significant positive association of resilience with meaning, $B = 0.35$, $SE = 0.08$, $F(1, 140) = 20.52$, $p < .0001$, $\eta^2 = .11$, and a significant main effect of loneliness on meaning, $B = -0.27$, $SE = 0.08$, $F(1, 140) = 12.67$, $p < .001$, $\eta^2 = 0.07$. Results also revealed a marginally significant Central vs. Peripheral × Loneliness interaction, $B = -0.13$, $SE = 0.08$, $F(1, 140) = 3.20$, $p = .075$, $\eta^2 = .02$, $R^2 = .27$, a significant Central vs. Peripheral × Resilience interaction, $B = -0.15$, $SE = 0.18$, $F(1, 140) = 3.92$, $p = .049$, $\eta^2 = .02$, $R^2 = .27$, and a non-significant Loneliness × Resilience interaction, $B = 0.04$, $SE = 0.08$, $F(1, 140) = 0.33$, $p = .56$, $\eta^2 = .00$, $R^2 = .27$. Finally, results revealed a non-significant Central vs. Peripheral × Loneliness × Resilience three-way interaction, $B = 0.13$, $SE = 0.08$, $F(1, 140) = 2.83$, $p = .094$, $\eta^2 = .01$, $R^2 = .27$.

Finally, I examined the 8 items of Factor II (*acceptance of self and life*). I entered meaning as a dependent variable into a 2 (feature type: central, peripheral) × 2

(loneliness: high, low) × 2 (resilience-8: high, low) multiple regression analysis. Results revealed a significant main effect of nostalgia on meaning, $B = 0.15$, $SE = 0.07$, $F(1, 140) = 5.25$, $p = .023$, $\eta^2 = .02$, a significant positive association of resilience with meaning, $B = 0.53$, $SE = 0.07$, $F(1, 140) = 56.91$, $p < .0001$, $\eta^2 = 0.24$, and a significant main effect of loneliness on meaning, $B = -0.21$, $SE = 0.07$, $F(1, 140) = 9.43$, $p < .001$, $\eta^2 = 0.04$. Results also yielded a marginally significant Central vs. Peripheral × Loneliness interaction, $B = -0.18$, $SE = 0.07$, $F(1, 140) = 6.97$, $p = .010$, $\eta^2 = .03$, $R^2 = .40$, a significant Central vs. Peripheral × Resilience interaction, $B = -0.20$, $SE = 0.07$, $F(1, 140) = 8.05$, $p < .001$, $\eta^2 = .03$, $R^2 = .40$, and a non-significant Loneliness × Resilience interaction, $B = -0.01$, $SE = 0.07$, $F(1, 140) = 0.04$, $p = .86$, $\eta^2 = .00$, $R^2 = .40$. Finally, results revealed a non-significant Central vs. Peripheral × Loneliness × Resilience three-way interaction, $B = 0.08$, $SE = 0.07$, $F(1, 140) = 1.43$, $p = .23$, $\eta^2 = .01$, $R^2 = .40$.

Discussion

I aimed to assess whether nostalgia replenished deficits in meaning when social threat was present (compared to when social threat was absent), and whether these effects are shaped by resilience-related individual differences. To achieve this, I implemented experimental manipulations of loneliness and nostalgia. Study 4 found that when loneliness was high, recalling the central-prototype (compared to the peripheral-prototype) event did not increase feelings of meaning among participants who were high (compared to low) in resilience. These findings are not consistent with the social connectedness findings previously reported. It is possible that, when lonely, high-resilience individuals prioritise a sense of sociality when social support is lacking or is perceived to be so. Nostalgia is one psychological resource that is used to replenish feelings of social connectedness.

Study 4 also found that when loneliness was low, nostalgia increased meaning among low-resilience (compared to high-resilience) participants. It is possible that, in the low-loneliness condition, receiving reassurance regarding one's connection to close others (i.e., being informed by an experimenter that one is very low on loneliness) increased nostalgia's capacity to bolster perceptions of meaning in life among low-resilience participants. Previous research has shown that nostalgia boosts perceptions of life as meaningful (Van Tilburg et al., 2013). This finding was not expected and I therefore interpret it with caution.

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