

Nostalgia Relieves the Disillusioned Mind

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In recent years, successful political campaigns have inspired disenchanted citizens with messages that promise to restore their country to past glory (Cheung, Sedikides, Wildschut, Tausch, & Ayanian, 2017; Smeekes, 2015). Of course, most political leaders will make benevolent promises of some form, but why might a disillusioned citizen find solace in the notion that a nation can be made great *again*? Part of the appeal of such a message may come from a nostalgic reverie for the past. People who are disillusioned struggle to maintain significance and meaning in their lives (Maher, Igou, & Van Tilburg, 2018, 2019b) and nostalgic reverie can offer meaning (Routledge, Juhl, Abeyta, & Roylance, 2014; Wildschut, Sedikides, Routledge, Arndt, & Cordaro, 2010; Van Tilburg, Igou, & Sedikides, 2013; Van Tilburg, Sedikides, & Wildschut, 2018) by bolstering one's sense of social connection (Wildschut, Sedikides, Arndt, & Routledge, 2006) and providing an antidote to collective angst (e.g., Smeekes et al., 2018). Our research examines the palliative effects of nostalgia from a meaning-regulation perspective (e.g., Sedikides, Wildschut, Routledge, & Arndt, 2015; Stephan et al., 2014; Van Tilburg et al., 2013). Specifically, we test the hypothesis that disillusioned people can reaffirm their sense of meaning by engaging in nostalgic reverie.

Disillusionment

Experiences of disillusionment arise when dearly held positive assumptions are strongly challenged or discredited (Janoff-Bulman & Berg, 1994; Maher et al., 2018). The experience has been classified as a form of negative 'epistemic affect' (Maher, Van Tilburg & Igou, 2019; Vogl, Pekrun, Murayama, & Loderer, 2019) associated with feelings of hopelessness, confusion, and loss, following the realization of some form of self-deceiving idealization (Maher, Igou, & Van Tilburg, 2019; Niehuis, Lee, Reifman, Swenson, & Hunsaker, 2011). The broad epistemic connotation of disillusionment sets it apart from experiences such as disappointment (Maher, Igou, & Van Tilburg, 2019; Maher, Van Tilburg,

& Igou, 2019). The expectancy violations at the center of disillusionment are by definition wide-ranging and related to one's fundamental understanding of the world at large, rather than specific events or occasions (Maher, Igou, & Van Tilburg, 2019; Maher, Van Tilburg, & Igou, 2019). For example, if a research assistant learns that some previous findings they thought to be true failed to replicate, they may feel disappointed. However, if one has built a positive and profound understanding of human nature based on a scientific theory that has now been thoroughly discredited, then what is felt will be closer to disillusionment.

Disillusionment has important social and personal consequences. For example, in married couples, romantic disillusionment predicts divorce (Huston, Caughlin, Houts, Smith, & George, 2001; Niehuis & Bartell, 2006). Among those diagnosed with serious medical conditions, disillusionment predicts difficulty in recovery (Park, Edmondson, Fenster, & Blank, 2008). More generally, the experience is associated with political polarization (Block, 2011; Fuchsman, 2008; Maher et al., 2018) and aggressive tendencies (Van Tilburg, Igou, Maher, & Lennon, 2019). Furthermore, proneness to disillusionment correlates with a lack of perceived purpose and a search for it (Van Tilburg et al., 2019). Ultimately, the loss of dearly held assumptions, or the revelation of their illusory nature, begets an examination of what makes one's life meaningful.

Although disillusioned individuals seek answers and explanations, the accompanying damage to central epistemic frameworks hampers efforts to assimilate or accommodate new information (Maher, Igou, & Van Tilburg, 2019; Park, 2010). Indeed, a desire to search for meaning and understanding mediates the link between disillusionment and, for example, aggressive tendencies (Van Tilburg et al., 2019). Disillusioned individuals are more prone to repetitive and ruminative thinking (Park et al., 2008), and researchers have yet to investigate if disillusioned individuals can successfully regulate their sense of meaning, similarly to those who experience other forms of existential distress (e.g., Abeyta, Routledge, & Juhl,

2015; Van Tilburg et al., 2013). In particular, nostalgic reverie has proven to be an effective antidote for the bored and lonesome—states similarly characterized by a lack of meaning (Van Tilburg et al., 2013; Zhou, Sedikides, Wildschut, & Gao, 2008). The nature of disillusionment experiences (Maher, Igou, & Van Tilburg, 2019) suggests that nostalgic reverie might also serve as a resource for the disillusioned mind.

Nostalgia

Nostalgia is a self-relevant emotion (Van Tilburg et al., 2018) commonly defined as “a sentimental longing or wistful affection for the past” (The New Oxford Dictionary of English, 1998, p. 1266). Nostalgia involves memories of rose-tinted momentous occasions that feature the self in the company of valued others (e.g., graduations, holidays, vacations; Batcho, 1998; Wildschut, Sedikides, Arndt, & Routledge, 2006). Nostalgia mixes positive with negative affect, yet is overall mildly pleasant (Sedikides & Wildschut, 2016) and shares more similarities with other positive than negative emotions (Van Tilburg, Bruder, Wildschut, Sedikides, & Göritz, 2019). Lay perceptions of nostalgia’s prototype reveal prominent positive features (e.g., happy, warm) combined with less pronounced negative ones (e.g., yearning, sad; Hepper, Ritchie, Sedikides, & Wildschut, 2012). The prototype of nostalgia experiences is similar across several cultures and most age groups (Batcho, 1995; Hepper et al., 2014).

Nostalgia psychologically reunites people with a cherished past (Sedikides et al., 2015; Van Tilburg, Sedikides, Wildschut, & Vingerhoets, 2019). In doing so, it fosters individual (Routledge et al., 2011) and collective (Baldwin, White, & Sullivan, 2017; Wildschut, Bruder, Robertson, Van Tilburg, & Sedikides, 2014) social connectedness. It activates positive self-attributes (Vess, Arndt, Routledge, Sedikides, & Wildschut, 2012), enhances self-esteem (Hepper et al., 2012; Wildschut et al., 2006), and contributes to perceived meaning in life (Reid et al., 2015; Routledge et al., 2011; Routledge, Wildschut,

Sedikides, Juhl, & Arndt, 2012; Sedikides et al., 2018). Through replenishing psychological comforts, nostalgia offers a basis for subsequent constructive future-oriented behaviors, such as behavioral approach (Stephan, Wildschut, Sedikides, et al., 2014), inspiration (Stephan, Sedikides, Wildschut, Cheung, Routledge, & Arndt, 2015), optimism (Cheung, Wildschut, Sedikides, Hepper, Arndt, & Vingerhoets, 2013), and creativity (Van Tilburg, Sedikides, & Wildschut, 2015).

Importantly, people use nostalgia's palliative qualities as a self-regulatory resource. Nostalgia can enhance belongingness in the face of loneliness and other social threats (Abeyta et al, 2015; Zhou et al., 2008); nostalgia is used to combat a lack of purpose under boredom (Van Tilburg et al., 2013); nostalgia offers comfort in the face of ambient cold or adverse weather (Van Tilburg, et al. 2018; Zhou, Wildschut, Sedikides, Chen, & Vingerhoets, 2012); nostalgia counteracts self-discontinuity (Sedikides et al., 2015); and, of particular importance to the current investigation, it assuages meaning threats (Routledge et al., 2011; Routledge et al., 2012; for reviews, see: Routledge, Sedikides, Wildschut, & Juhl, 2013; Sedikides & Wildschut, 2018). Considering the existential characteristics of disillusionment experiences (Maher, Igou, & Van Tilburg, 2019), we propose that nostalgia can aid those who are disillusioned.

Meaning-Regulation: From Disillusionment to Nostalgia

People desire a meaningful life (Heine et al., 2006; Park, 2010; Van Tilburg & Igou, 2012). Indeed, sense of meaning is frequently cited as a central tenet of well-being and happiness (e.g., Haidt, 2006; Seligman, 2011). High ratings of meaning in life predict higher life satisfaction (Debats, Ven der Lubbe, & Wezeman, 1993), more happiness (Chamberlain & Zika, 1988), greater job satisfaction (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997), and better health (Steger, Mann, Michels, & Cooper, 2009). Consistently, challenges to people's sense of meaning elicit aversive arousal (e.g., Kay, Moscovitch, & Laurin, 2010;

Proulx & Heine, 2006) and negative affect (Maher, Van Tilburg, & Igou, 2019; Van Tilburg et al., 2019). Despite the ubiquity of meaning threats (Alloy, & Abramson, 1998; Weinstein & Klein, 1996; Taylor & Brown, 1988), people appear to readily defend or re-establish a sense of meaning (Heine et al., 2006; King & Heintzelman, 2011). Overall, meaning is a resource worth maintaining.

When events threaten meaning in life, people respond in pragmatic ways to defend it (Heine et al., 2006; Van Tilburg et al., 2013; Zhou et al., 2012). According to the meaning maintenance model, meaning is derived from frameworks of expected association that help people feel connected to their environments (Proulx et al., 2006). Any experiences that undermine these connections (i.e., expectancy violations) serve as a threat to meaning and lead to various compensatory responses (Jonas et al., 2014). For example, people defensively bolster their adherence to cultural worldviews that imbue life with meaning in response to threats to personal certainty (McGregor et al., 2001) and threats to belief in predictability (Kay et al., 2009). Generally, meaning-regulation (Van Tilburg & Igou, 2011) is a process whereby meaning loss from one source is—more or less creatively—compensated by alternative sources of meaning (Ma-Kellams, & Zhang, 2017; Proulx, Heine, & Vohs, 2010). This process has been referred to as fluid compensation (Heine et al., 2006; Ma-Kellams, & Zhang, 2017).

Like much self-regulatory behavior, meaning-regulation involves affective processes (Carver & Scheier, 1998; Frijda, 1994; Tesser, 2000). Meaning threats are a source of negative affect and distress (Park, 2019; Proulx & Heine, 2012) that motivate people to resolve meaning discrepancies. Concurrently, certain states of negative affect, such as boredom and uncertainty, signal that meaning is low (Barbalet, 1999; Van Tilburg & Igou, 2011) and motivate attempts to regain or reaffirm meaning (Maher, Van Tilburg, & Igou, 2019, Van Tilburg et al., 2013). For example, boredom has been shown to motivate a search

for meaning that elicits nostalgic reflection (Van Tilburg et al., 2013). Feelings of loneliness are similarly associated with nostalgic reflection (Zhou et al., 2008) and a strong desire to search for meaning (Van Tilburg et al., 2019). Importantly, not all states of negative affect motivate a search for meaning (Proulx et al. 2010; Van Tilburg & Igou, 2011). On the contrary, these motivations distinguish a small number of affective states from other experiences (Maher et al., 2019; Van Tilburg & Igou, 2011).

There is evidence to suggest that disillusionment can elicit compensatory efforts that prevent individuals from prolonged experiences of low meaning in life. As cited, disillusionment proneness is associated with a tendency to search for meaning (Van Tilburg et al., 2019) and to seek new ways to understand life (Janoff-Bulman & Berg, 1994; Maher et al., 2018). Indeed, the association between disillusionment and political polarization is mediated by a search for meaning (Maher et al., 2018). Furthermore, brain imaging studies reveal that when compared to experiences of general dissatisfaction, experiences of disillusionment are associated with activation of areas of brain areas involved in self-regulation and reconciling conflicting information (Niehuis et al., 2019). Overall, disillusionment appears to instigate attempts to repair or recover damaged meaning frameworks. As highlighted above, nostalgia can aid people in need of existential recovery.

Nostalgic reflection is a robust and reliable resource of meaning (Routledge et al., 2012; Sedikides & Wildschut, 2018; Van Tilburg et al., 2019; Vess et al., 2012) and people can pragmatically evoke nostalgic feelings to alleviate different forms of existential threat (Routledge, Arndt, Sedikides, & Wildschut, 2008; Van Tilburg et al., 2013). For example, inducing pessimism about relationship goals instigates nostalgic reflection (Abeyta et al., 2015) and people nostalgize to repair a sense of identity under threat in times of social transition (Smeeke et al., 2018) and displacement (Milligan, 2003). The epistemic consequences of disillusionment similarly induce a sense of loss and social disorientation

(Maher, Van Tilburg, & Igou, 2019) and we hypothesize that people can harness nostalgic reflection to maintain a sense of meaning under these conditions.

Current Research

People rely on beliefs and assumptions that guide their lives and connect them to others (Fromm, 1941/2011; Janoff-Bulman, 1989). Disillusionment arises from a contradiction of beliefs that leaves people feeling lost and disconnected. It is a state of existential concern. Nostalgia offers potential solace to the disillusioned, as a source of perceived meaning in life. Accordingly, disillusioned people may turn to nostalgic reverie in an attempt to bolster or re-establish perceived meaning. We investigated this process in three experiments. In Study 1, we tested if manipulated disillusionment indeed lowered people's sense of meaning. In Study 2, we investigated if induced disillusionment caused people to retrieve nostalgic events in a subsequent memory recall task, and followed this with a measure of perceived meaning in life. In Study 3, we investigated the alleged restorative power of nostalgia by manipulating both disillusionment and nostalgia, prior to a measure of perceived meaning. We hypothesized that disillusionment reduces meaning (Study 1) and inspires nostalgic reflection (Study 2). We further predicted that nostalgia reduces the impact of disillusionment on perceptions of meaning (Study 2 and 3). In each study, only one stage of data collection took place and we report all measures, manipulations, and exclusions.

Study 1: Disillusionment Reduces Meaning

Why should nostalgic reflection benefit those who are disillusioned? Crucially, we propose that disillusionment and nostalgia are linked through their overlapping existential associations (e.g., Sedikides & Wildschut, 2018; Van Tilburg et al., 2019a, 2019b). More specifically, we assert that both are related to perceptions of meaning, as disillusionment reduces meaningfulness, while nostalgia increases it. In the case of nostalgia, there exists a considerable number of studies demonstrating its meaning-restoring prowess (e.g., Sedikides

& Wildschut, 2016; Routledge et al., 2012; Van Tilburg et al., 2019) and people's tendency to turn to nostalgia when confronted with meaning-threats (e.g., Sedikides & Wildschut, 2018; Routledge, 2014; Van Tilburg et al., 2013). For disillusionment, which hasn't been studied as extensively, the proposed relationship with meaning (or lack thereof) is limited to conceptual work and correlational findings (e.g., Janoff-Bulman & Berg, 1994; Maher et al., 2018, 2019; Van Tilburg et al., 2019). In Study 1, we, therefore, conducted an experiment to investigate if disillusionment causes a lack of meaning.

Method

Participants and design. We opted for a two-cell design (disillusionment vs. control) to test the effects of disillusionment on perceptions of meaning. A power analysis estimated that 127 was the minimum sample required to achieve 80% power with a one-way ANOVA, at an alpha level of .05 (two-sided) and anticipating a medium effect of $f = .25$ ($\eta_p^2 = .06$).

We, therefore, set out to collect 140 participants, who we recruited on Prolific Academic—a UK-based online crowdsourcing tool. Participants were compensated with £0.75 sterling for taking part in a 5-minute study. In total, 138 participants completed the study (72 women; 64 men; 2 non-binary; $M_{\text{age}} = 33.47$, $SD = 11.86$). The study required participants to write about different events/occasions in their life and this writing also served as an attention check. One participant was removed for failing to follow the study instructions (i.e., not completing the writing tasks).

Procedure and materials. Participants were randomly assigned to a disillusionment or control group. We experimentally manipulated disillusionment using an adapted version of an autobiographical recall task designed to elicit negative emotions (Maher et al., 2018). Specifically, we gave participants a definition of disillusionment as “being dissatisfied or defeated in expectation or hope” and then provided these instructions; “Please think of a disillusioning issue that affects the world we live in. Specifically, try to think of a worldwide

issue that makes you feel most disillusioned. Bring this disillusioning experience to mind. Immerse yourself in the disillusioning worldwide issue. How does it make you feel?” They then wrote down keywords that related to this issue, before describing in detail how it made them feel. The control group also participated in a writing task, and were given the following instructions; “Please think of an ordinary event in your life. Bring this ordinary experience to mind. Immerse yourself in the ordinary experience. How does it make you feel?”

After the writing tasks, participants in both conditions completed a manipulation check by reporting how disillusioned they felt on a single item with a scale from 1 (*not at all*) to 7 (*very much*). Participants next responded to five items measuring perceived meaning (e.g., “I feel a sense of meaningfulness”; $\alpha = .84$; 1 = *strongly disagree*, 7 = *strongly agree*; Van Tilburg & Igou, 2011).

Results and Discussion

Manipulation checking. Participants in the disillusionment condition reported more disillusionment ($M = 5.62$, $SD = 1.25$) compared to those in the control condition ($M = 2.53$, $SD = 1.84$), $F(1, 135) = 132.84$ $p < .001$, $\eta_p^2 = .496$. The manipulation was successful.

Sense of meaning. In line with our hypothesis, participants in the disillusionment condition experienced a lower sense of meaning ($M = 4.26$, $SD = 1.23$) compared to those in the control condition ($M = 4.76$, $SD = 1.11$), $F(1, 135) = 6.20$ $p = .014$, $\eta_p^2 = .044$.

These results lend empirical support to the notion that the experience of disillusionment reduces an overall sense of meaning. This is a crucial finding for the research on causal—existential—effects of disillusionment experiences. That is, in line with our hypothesis that disillusioned people lack meaning, this study evidences that disillusionment indeed causes reductions in perceived meaning. We next examined if people turn to nostalgia for solace.

Study 2: Nostalgia Suppresses the Impact of Disillusionment on Meaning

Study 1 showed that disillusionment reduces a sense of meaning. In Study 2, we investigated whether disillusioned people use nostalgic reverie to restore a sense of meaning. To test this, we experimentally manipulated disillusionment before prompting participants to retrieve an unspecified memory. Participants were thus at liberty to retrieve memories that were or were not nostalgic, and we anticipated that disillusioned participants would use this freedom to retrieve a meaning-laden nostalgic memory in particular (Van Tilburg et al., 2013). After participants retrieved a memory we measured the nostalgia that the memory in question induced, followed by a measure of perceived meaning in life. We predicted that disillusioned participants would use the opportunity to engage in nostalgic reflection, causing higher nostalgia in the disillusioned group compared to control. Crucially, we also predicted that the nostalgia derived from the memory would be a resource for disillusioned participants in coping with the loss of meaning that disillusionment typically breeds; a statistical suppression effect where nostalgia mitigates the otherwise negative impact of disillusionment on perceived meaning in life (e.g., Zhou et al., 2008).

Method

Participants and design. Power analysis indicated that a sample of at least 200 participants was necessary to achieve 80% power with a one-way ANOVA, at an alpha level of .05 and anticipating a small to medium effect of $f = .2$ ($\eta_p^2 = .033$). Accordingly, we recruited participants on Amazon's Mechanical Turk (MTurk) until we had 210 completed responses (126 women; 84 men; $M_{age} = 38.89$, $SD = 13.26$). These participants were compensated \$0.75 for taking part in the five-minute study. As in Study 1, participants wrote about different events/occasions in their life and this served as an attention check. In total, 6 participants were removed for failing to follow the study instructions (i.e. not completing the

writing tasks). Participants were randomly assigned to a disillusionment condition or a control condition.

Procedure and materials. The disillusionment manipulation was a writing task identical to Study 1. After the writing task, all participants completed manipulation checks by reporting how disillusioned and uncertain they felt on a scale from 1 (*not at all*) to 7 (*very much*) and completing an epistemic meaning search scale (EMS; Maher et al., 2018). To measure EMS, participants rated their agreement with the following three statements; “After the writing I did on a previous page, I have a desire to make better sense of the world”, “The writing gives me a need to understand the world better”, and “After the writing, I am motivated to find more meaning” (1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = .92$). After manipulation checks, we led participants to believe they were beginning a new study by asking them to input their demographic details again. This was done to control for demand effects and prevent participants from becoming aware of the research question.

Next, participants completed a memory recall task that instructed them to “take some time to bring to mind a memory from the past” and “briefly describe this memory”. Participants first reported 4 keywords relevant to the memory before describing it in greater detail. After this task, we measured nostalgia with two items used in previous research (Wildschut et al., 2006; Van Tilburg et al., 2013). Specifically, participants responded to the statements “Right now, I am feeling quite nostalgic,” and “Right now, I am having nostalgic feelings” on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Finally, participants completed the Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi & Kaler, 2006). This 10-item measure consists of 2 subscales. Five items measure the sense of meaning in life (e.g., “My life has a clear sense of purpose”; 1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = .94$), while the other 5 measure the search for meaning in life (e.g., “I am seeking a purpose or mission in life; $\alpha = .94$).

Results and Discussion

Manipulation check. Participants in the disillusionment condition reported more disillusionment ($M = 5.28, SD = 1.62$) than those in the control condition ($M = 1.52, SD = 1.12$), $F(1, 202) = 384.65, p < .001, \eta_p^2 = .666$.

We took additional steps to understand how participants engaged in this task and to what extent they wrote about disillusioning events that are distinct from similar experiences like disappointment (see supplementary materials for further details on this distinction). First, we uploaded all participant's writing to *NVivo plus* for textual analysis. Participants' writing had been cut off at 254 characters, but we had the majority of what each participant wrote. We conducted a word frequency analysis that grouped words into categories according to the broadest semantic criteria (exact matches, stemmed words, synonyms, specializations, and generalizations) using an internal dictionary. Among the experimental group, *disillusionment* was identified as the second most common category, while *disappointment* occurred as the 21st. Other concepts in the top 20 included general terms relating to negative emotion (e.g. feeling, bad) and terms relating to epistemic emotion (e.g. knowledge). Neither disillusionment nor disappointment were identified in the writings of participants in the control condition. This objective analysis verifies the disillusioning content of the writing from participants in the experimental group.

Second, we had 2 independent coders rate each participant's written extracts according to how well they depicted disillusionment and disappointment (1 = *not at all*; 7 = *very much*). Inter-rater agreement was fair ($r = .47, p < .001$). The extracts were evaluated as reflecting a high level of disappointment, ($M = 4.77, SD = 1.34$) but a significantly higher level of disillusionment ($M = 5.28, SD = 1.40$), $F(1, 91) = 11.04, p = .001, \eta_p^2 = .108$. Furthermore, disillusionment ratings correlated significantly across coders ($r = .60, p < .001$) and both coder's ratings correlated significantly with participants' self-reported experiences

of disillusionment ($r = .34, p = .001$ & $r = .31, p = .002$). In summary, self-reports, automated textual analysis, and independent coding provide converging evidence that the manipulation was successful¹.

Nostalgia. We averaged responses across the two nostalgia items, $r(204) = .977, p < .001$, and entered the composite into a One-Way ANOVA. In line with our prediction, participants in the disillusionment condition retrieved memories that caused them to feel more nostalgic ($M = 5.40, SD = 1.90$) than those in the control condition ($M = 4.67, SD = 1.95$), $F(1,202) = 7.17, p = .008, \eta_p^2 = .034$.

Nostalgic mitigation. We hypothesized that disillusioned individuals engage in nostalgic reflection and that this instills life with meaning; hence preventing the meaning loss otherwise associated with disillusionment. This hypothesis corresponds to a pattern of statistical suppression, where ‘by virtue’ of nostalgia, disillusionment does not reduce meaning in life as much as it otherwise would. We tested this hypothesis using regression analysis (Preacher & Hayes, 2004). Specifically, we assessed the change in the direct effect of disillusionment (dummy coded; *control* = 0, *disillusionment* = 1) on meaning in life when controlling for nostalgia (i.e., the indirect effect of nostalgia) using 5,000 bias-corrected bootstrap samples. In line with our hypothesis, the disillusionment induction caused more nostalgia, $B = 0.73, SE = .27, t(202) = 2.67, 95\% \text{ CI } [.193, 1.26]$, which in turn predicted higher meaning in life, $B = 0.15, SE = .05, t(202) = 3.03, 95\% \text{ CI } [.053, .250]$. Most importantly, there was a significant indirect effect of disillusionment on meaning through nostalgia, $B = 0.11, 95\% \text{ CI } [.010, .245]$, indicating a statistical suppression effect²

¹ In line with previous research suggesting that the motivational elements of disillusionment emanate from epistemic disruption (Maher et al., 2019) we found that, compared to controls, disillusioned participants condition reported higher uncertainty ($M = 4.40, SD = 1.88$ v $M = 1.84, SD = 1.51$), $F(1, 203) = 115.11, p < .001, \eta_p^2 = .363$, and higher epistemic meaning search ($M = 5.44, SD = 1.31$ v $M = 4.19, SD = 1.57$), $F(1,203) = 36.53, p < .001, \eta_p^2 = .153$.

² In particular, the negative effect of disillusionment on meaning in life ($B = -.03, 95\% \text{ CI } [-.422, .359]$) became stronger when nostalgia was controlled for ($B = -.14, 95\% \text{ CI } [-.564, .204]$).

(MacKinnon, Fairchild, & Fritz, 2007). Controlling for nostalgia in the analysis caused a significant increase in the effect of disillusionment on meaning in life. This suggests that nostalgic reflection suppressed the negative effect of disillusionment on meaning in life.

Before we turn to testing the mediating role of nostalgia experimentally (Study 3), the reader should know that the online supplement contains another study testing how the impact of disillusionment on nostalgic reverie, differs from the impact of disappointment. Findings from that study likewise confirm that disillusionment is associated with a challenge to global meaning frameworks and that it is more *epistemic* and more general than disappointment (see also Maher et al., 2019). Furthermore, we found that disillusionment has unique effects on epistemic aspects of nostalgic reflection in particular.

Study 3: Preventing Nostalgia Perpetuates the Impact of Disillusionment on Meaning

In Study 3, we tested the nostalgia-as-resource hypothesis by experimentally manipulating the mediational process (Bullock, Green, & Ha, 2010; Judd & Kenny, 1981; Pirlott & MacKinnon, 2016; Spencer, Zanna, & Fong, 2005). By doing so, our study allowed us to directly test the impact of disillusionment on meaning perceptions by experimentally facilitating (vs. not facilitating) the hypothesized mediator (i.e., nostalgic reflection) after manipulating the primary predictor (i.e., disillusionment). We predicted that disillusionment would only reduce perceptions of meaning when nostalgia was not experimentally induced.

Method

Participants. We based our sample size on a previous study that measured the effect of nostalgia using a similar design (Van Tilburg et al., 2018) and recruited 305 participants³ on Prolific Academic (157 women; 148 men; $M_{\text{age}} = 34.75$, $SD = 10.99$). Participants

³ The critical test of our hypothesis was a planned comparison (or contrast) test between the disillusioned-blocked group and all 3 other groups. A sensitivity power analysis based on $N = 305$ and a desired power of .80 suggests that this sample size is large enough to detect an effect of $f^2 = .0256$ ($d = .319$).

completed an attention check that asked them to identify specific words in a sentence. We removed five participants from the analysis for failing this attention check.

Design and materials. We employed a 2 (disillusionment vs. control) \times 2 (nostalgia vs. control) design that involved first manipulating disillusionment, and then nostalgia, before measuring perceived meaning as our dependent variable. Since our nostalgia manipulation was a writing task (e.g., Sedikides, Wildschut, Routledge, Arndt, Hepper, & Zhou, 2015) we decided to use an alternative disillusionment induction that had been demonstrated to be effective in previous research (Maher et al., 2018). Specifically, we presented participants in the disillusionment condition with a series of negative statistics and facts around a range of issues. The induction works by targeting a broad range of global issues that likely threaten some of each participant's assumptions (or illusions) related to justice, fairness, and equality (Maher et al., 2018). Participants in the control condition engaged in a shape comparison task (see supplementary materials; see also Gervey, Igou, & Trope, 2005; Trope & Neter, 1994). This neutral task was used instead of a non-emotional reading task, as such reading can elicit boredom, which we know influences meaning in life (see Van Tilburg et al., 2013). After this induction, a manipulation check asked participants how disillusioned they felt (1 = *not at all*, 7 = *very much*).

We then manipulated nostalgic reflection by asking those in the nostalgia condition to describe a nostalgic event (Sedikides et al., 2015) and assigning the other participants to a cognitive load manipulation that involved counting backward (Fitoussi & Wegner, 2011). This counting task is an established means of preventing participants from engaging in nostalgic reflection (Van Tilburg, Sedikides, & Wildschut, 2018).

Results and Discussion

Manipulation check. We first examined the effect of our disillusionment induction in a one-way ANOVA. Results confirmed that disillusionment was higher in the experimental

group ($M = 3.94, SD = 1.78$), compared to the control group ($M = 2.43, SD = 1.51$), $F(1, 298) = 61.46, p < .001, \eta_p^2 = .171$.

We used a 2 (disillusionment) \times 2 (nostalgia) ANOVA on experienced nostalgia to assess the effectiveness of the nostalgia manipulation. The disillusionment main effect was not significant, $F(1, 296) = 0.13, p = .716, \eta_p^2 < .001$, and neither was the disillusionment \times nostalgia interaction, $F(1, 296) = 0.46, p = .830, \eta_p^2 < .001$. Note that the absence of the disillusionment effect on nostalgia here was expected; disillusioned participants in the counting-backwards condition were prevented from recalling a nostalgic event, hence there was little opportunity for disillusionment alone to influence nostalgia levels. Crucially, however, the ANOVA revealed a significant main effect of nostalgia condition, $F(1, 296) = 293.33, p < .001, \eta_p^2 = .500$. Participants felt more nostalgic after nostalgic reflection ($M = 5.12, SD = 1.43$) than after counting backwards ($M = 2.18, SD = 1.50$). Overall, our analysis indicated that both manipulations were effective.

Meaning. A 2 (disillusionment) \times 2 (nostalgia) ANOVA on sense of meaning revealed a significant main effect for nostalgia, $F(1, 296) = 17.91, p < .001, \eta_p^2 = .057$. Participants reported higher meaning in life after nostalgic reflection ($M = 4.85, SD = 1.31$) than after counting backwards ($M = 4.14, SD = 1.46$). There was a marginally significant disillusionment \times nostalgia interaction, $F(1, 296) = 3.61, p = .058, \eta_p^2 = .012$. Figure 1 displays the mean sense of meaning scores across all four conditions. Importantly, pairwise comparisons revealed that there was a significant difference in meaning within the counting group, $F(1, 296) = 5.12, p = .024, \eta_p^2 = .017$. Meaning was significantly lower among those from the disillusionment condition ($M = 3.92, SD = 1.44$) compared to the control condition ($M = 4.42, SD = 1.45$). However, there was no significant difference among those who engaged in nostalgic reflection, $F(1, 296) = 0.23, p = .630, \eta_p^2 = .001$. Therefore,

disillusionment reduced sense of meaning when nostalgia was prevented but not when it was facilitated. This pattern of results is consistent with the nostalgia-as-resource hypothesis.

Nostalgia as resource. In line with the resource hypothesis, feelings of meaning should be significantly lower among the disillusioned/nostalgia-blocked group compared to all 3 other groups. This is the only group that both (a) experienced the meaning loss of disillusionment and (b) were denied recovery by engaging in nostalgic reflection. An analysis of the planned comparisons (disillusionment/nostalgia-blocked vs. other three conditions) revealed that perceived meaning was significantly lower in the disillusionment-counting task group compared to all other conditions, $t(296) = -4.49, p < .001, d = .522$. Thus, as illustrated in Figure 1, only disillusioned participants who did not engage in nostalgic reflection suffered a significant loss of meaning compared to controls.

These results demonstrate that using a counting task to preventing people from nostalgizing facilitates the negative impact of disillusionment on sense of meaning. The opportunity to retrieve a nostalgic memory, on the other hand, prevents disillusionment from impacting meaningfulness.

General Discussion

Disillusionment leaves people feeling disconnected, cut adrift, and struggling to maintain their sense of meaning. Nostalgic reflection is a window to a socially fulfilling past that acts as a source of meaning for the present. In three experiments, we tested the proposition that nostalgia reduces the negative consequences of disillusionment by rekindling perceived meaning. In Study 1, disillusioned participants reported a lower sense of meaning compared to controls. In Study 2, disillusioned participants retrieved memories that made them more nostalgic relative to control participants. Importantly, mediational analysis demonstrated that nostalgia suppressed the impact of disillusionment on meaning in life. In addition, we analyzed the content of the disillusionment induction writings and ran an

additional study to verify that our manipulation sufficiently distinguishes disillusionment from disappointment. In Study 3, we built upon these findings by manipulating the mediator, nostalgia, directly in an experimental design. Our findings demonstrated that disillusioned participants prevented from engaging in nostalgic reflection suffered a loss of meaning in comparison to participants in the control conditions, and disillusioned participants who were facilitated to engage in nostalgic reflection. Using a varied set of experimental designs we thus found a consistent pattern of results: disillusioned participants employ nostalgia to regain meaning.

Meaning Regulation and Fluid Compensation

Our findings corroborate previous research on the existential consequences of emotions (e.g., Baldwin, Biernat, & Landau, 2015; Igou, Van Tilburg, Kinsella, & Buckley 2018; Maher, Igou, & Van Tilburg, 2019; Routledge et al., 2011; Van Tilburg et al., 2019) and further support models of meaning-regulation and fluid compensation (e.g., Heine et al., 2006; Ma-Kellams & Zhang, 2017). Previous research evidenced the self-regulatory power of nostalgia among those who are bored and lonely (e.g. Van Tilburg et al., 2013; Zhou et al., 2008). The current research adds to this literature by demonstrating that disillusioned individuals similarly find solace in nostalgic reflection. Boredom, disillusionment, and loneliness are three states of existential distress (Maher, Igou, & Van Tilburg, 2019; Van Tilburg & Igou, 2012; Zhang, Sang, Chan, & Schlegel, 2018), that have each been independently linked with a desire to search for meaning (Van Tilburg et al., 2019). Evidence linking each state with an increased desire for nostalgic reflection provides convergent support for a general meaning-regulation process such as fluid compensation.

Motivations to maintain meaning in life lead people to pragmatically enhance or attenuate domains of existential relevance. Meaning is a fluid concept (Ma-Kellams & Zhang, 2017) and people experience meaningfulness in many different ways across different

contexts. In accordance with the meaning maintenance model (Heine et al., 2006), people compensate for meaning threats in one domain, by bolstering meaning in an alternative domain (e.g., Coughlan, Igou, Van Tilburg, Kinsella, & Ritchie, 2019; Igou et al. 2018; Maher, Van Tilburg & Van den Tol, 2013; Van Tilburg et al 2018; Zhang, Sang, Chan, & Schlegel, 2018). This has been termed fluid compensation (Heine et al., 2006). Similarly, we show that although disillusionment typically reduces meaning (Study 1), disillusioned participants show a desire to experience nostalgia (Study 2), and nostalgia appears to be an effective resource for preventing disillusionment-induced meaning loss (Study 2 & 3). Thus, nostalgic experiences provide at least enough compensation to *uphold* meaning for disillusioned participants.

This research adds to a growing literature exploring the causes, consequences and correlates of disillusionment (Block, 2011; Huston et al., 2001; Maher, Igou, & Van Tilburg, 2019; Niehus et al., 2019). In essence, this research explores the psychological impact of having a guiding epistemic framework strongly challenged or shattered. Past findings demonstrate that experiences of disillusionment predict marriage breakdown (Huston et al., 2001) and different forms of political polarisation (Block, 2011; Maher et al, 2018). Other work distinguishes disillusionment from highly similar experiences such as disappointment and the current findings add to this literature. In particular, we found further evidence of the existential nature of disillusionment. This feature links disillusionment to the experience of meaning in life and makes it qualitatively different from disappointment. Future research may seek to more comprehensively delineate the commonalities and contrasts among these related states.

Limitations and Alternative Explanations

An alternative interpretation of our findings is that negative evaluations of one's current situation make the past seem more attractive due to a contrast effect (e.g., Schwarz &

Bless, 1992), regardless of any existential motivations. In other words, people judge the past as more attractive in contrast to the present, thus imbuing past reflections with a nostalgic quality. Nostalgia in this sense can be viewed as a longing for the past (Hepper, Ritchie, Sedikides, & Wildschut, 2012). This explanation posits that people engage in assimilation by including a positive view of the past in their global evaluation of meaning in life (Study 2). However, if this were the case, it is not clear how contextualized feelings of meaning (Study 3) would also be restored after nostalgic reflection. People are not expected to include perceptions of the past when making an evaluation of their current situation (Schwarz et al., 1991). Hence, a motivational explanation can more easily account for both Study 2 and Study 3 findings.

There are some limitations to the studies we conducted. First, it is difficult to disentangle the experience of disillusionment from highly similar experiences such as disappointment. Indeed, disappointment is a central feature of disillusionment (Maher et al., 2019). However, as we state in the introduction, disillusionment is particularly associated with meaning loss, through its broad epistemic connotations. We conducted a supplementary study that further supports this distinction. A second limitation refers to our choice of control groups in Study 3. Opposite the nostalgic reflection condition, we used a nostalgia blocking condition (see also Van Tilburg et al., 2019). An ideal control in this case would have been a non-nostalgic reflection of some sort. However, as we demonstrated in Study 2, disillusioned participants would likely use this time to engage in nostalgic reflection, thereby rendering the manipulation ineffective. Future research may seek to replicate these findings with alternative control conditions that help clarify the boundary conditions of disillusionment's effect on nostalgia.

Undoubtedly, some disillusioning experiences cannot be resolved with nostalgic reflection. In Studies 1 and 2, self-generated disillusionment induction ensured that there was

some variation in the forms of disillusionment that people experienced. However, this procedure might skew recalls towards experiences that people managed successfully, thus not fairly representing the breadth of disillusionment experiences. The alternative procedure in Study 3 was depersonalized and, for ethical reasons, similarly designed to reduce the likelihood of extreme responses. Thus, we have no clear impression of how effective nostalgic soothing can be in the case of extreme disillusionment. However, what we have shown is that nostalgia can re-establish perceptions of meaning under disillusioning circumstances that would ordinarily lead to meaning loss (as in Study 1 & Study 3).

To explore the boundary conditions of the nostalgia effects we report for disillusionment, future research should more systematically consider the content, and context, of disillusioning and nostalgic experiences, as well as individual differences among study participants. For example, people differ in their ability to cope with emotional experiences (Lazarus & Folkman, 1984). We anticipate that if disillusionment triggers states of rumination and depression, nostalgia is unlikely to provide sufficient solace. This can be the case with severe cases of disillusionment (Park et al., 2008) or when disillusionment occurs in individuals with unhealthy coping styles (Lazarus & Folkman, 1984). Indeed life-altering experiences stretch the limits of meaning-regulation in general. For example, Park et al. (2008) studied meaning-making processes among cancer survivors and found that when disillusionment led to repetitive thinking, it resulted in negative effects on long-term psychological well-being. Although research on extreme disillusionment is ethically problematic, especially if disillusionment was induced, future research can examine the effects of coping limitations by investigating how different coping styles can enhance, or diminish, the palliative power of nostalgia for those who experience disillusionment.

Alongside individual differences in general coping capacity and style, there are people for whom nostalgia in particular may be an ineffective source of meaning. For example,

victims of sexual assault and people suffering from addiction problems have strong reasons to avoid the past (Kim & Wohl, 2015; Najdowski & Ullman, 2009). Indeed, feeling nostalgic about the past has negative consequences for well-being and perceived coping ability for those low in identity continuity (Iyer & Jetten, 2011). In a similar vein, group membership may moderate the link between disillusionment and nostalgia on a collective level. Some groups might have more reasons to look fondly on their past than others (Smeekes, 2015) as the past may for some be associated with distinctly positive intergroup contexts. For example, nostalgia has a particular appeal to people who hold conservative worldviews (Lammers & Baldwin, 2018).

On an even broader level, the meaning re-affirming effect of nostalgia may be constrained by cultural contexts. Nostalgia and disillusionment are complex emotions, likely to be shaped by cultural conditions (Shaver, Schwartz, Kirson, & O'Connor, 1987). For example, in collectivist cultures, where citizens have an interdependent view of the self (Kitayama, Markus, & Kurokawa, 2000), sources of both meaning and nostalgia may be more interpersonal. Indeed, a distinction between collective and individual nostalgia has previously been made (Cheung et al., 2017; Wildschut et al., 2014). If another individual is the source of disillusionment, then nostalgic reverie may be less effective in reaffirming a sense of meaning. By directly manipulating the social level of disillusioning and nostalgic content across different cultures, future research can test this hypothesis and advance the theoretical understanding of existential meaning regulation.

Finally, nostalgia is not the only source of meaning that people rely on. For example, people may instead rely on their sense of gratitude (Van Tongeren, Green, Davis, Hook, & Hulseley, 2016), religiosity (Steger, & Frazier, 2005), or self-compassion (Jiang, & Chen, 2020) as a means of reaffirming meaning after disillusionment. Further, previous research shows that affirmations can reduce the impact of potential meaning threats. The classic work

on self-affirmation is consistent with this rationale (see Steele, 1988), and recent work has shown, for example, that religiosity (Van Tilburg et al., 2019) or gratitude (Emmons & Shelton, 2002) reduce reactivity to psychological threats. By measuring individual differences in tendencies towards gratitude, religiosity, or self-compassion future studies can test any moderating influence these variables may have.

Conclusions

Under conditions of disillusionment, the past provides a refuge of meaningfulness. In three experimental studies, we demonstrate the palliative power of nostalgia in this regard. Although these palliative functions of nostalgia have been documented before, the current findings help demonstrate the breadth and depth of nostalgia's psychological benefits. Disillusionment is a state of shattered assumptions that signal major disruption to epistemic frameworks. Disillusioned individuals feel lost and hopeless about the future. Yet, despite the extreme nature of the experience, there are internal self-regulatory resources that allow one to maintain a sense of meaning, simply by reflecting on the past. Thus, appeals to former greatness are powerful, at least in part, because they enable people to experience a sense of significance and a purpose; a desire to achieve greatness again.

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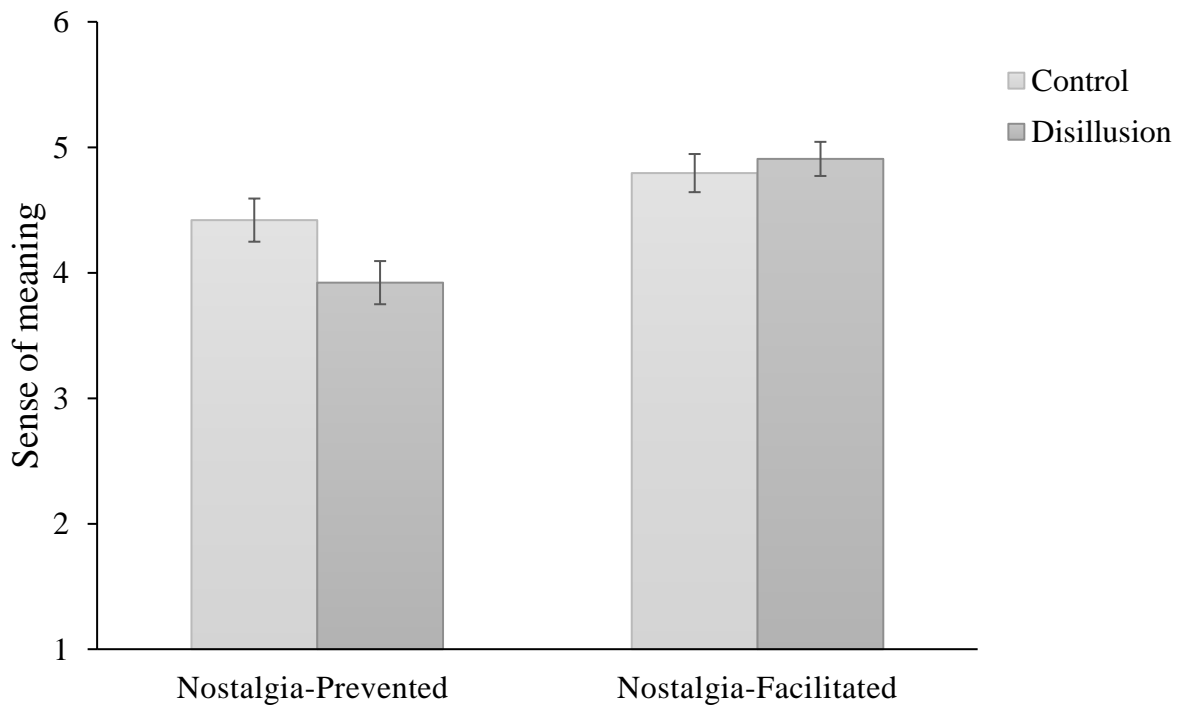
Figures

Figure 1: Sense of meaning among disillusioned and control participants in Study 3 who were prevented from, or facilitated to, engage in nostalgic reflection. Error bars represent standard errors.