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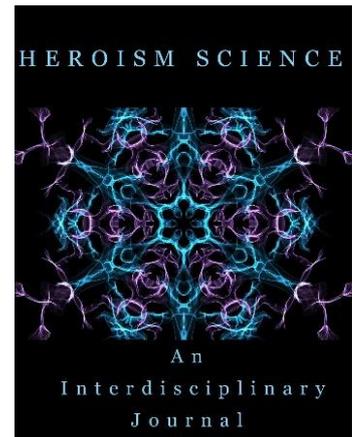
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In Pursuit of Important Goals: Nostalgia Fosters Heroic Perceptions via Social Connectedness



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ABSTRACT: Research on the theoretical order causally linking heroism to social connectedness and inspiration does not exist to our knowledge (Allison & Green, 2020). We propose that nostalgia is a source of heroism because of the social nature of nostalgic memories. We designed two studies, one correlational and one experimental, to test how nostalgia relates to pursuit of an important goal, through increasing social connectedness, heroic perceptions, and inspiration. Online participants completed an ordinary writing task (Study 1) or were randomly assigned to either a nostalgic or ordinary writing task (Study 2), followed by measures of social connectedness, heroic perceptions, inspiration, and goal pursuit. Nostalgia significantly predicted goal pursuit via social connectedness, heroic perceptions, and inspiration. Theoretical, empirical, and practical implications for future work are discussed. We expanded upon the prosocial function of nostalgia by incorporating heroism into our full sequence. Therefore, we strengthened support for the motivational consequences of nostalgia that can be applied to goal setting and goal pursuit behaviors.

1 INTRODUCTION

Although William Shakespeare is known as the greatest writer and dramatist in the English language, he also composed 154 sonnets that have enjoyed immense acclaim and popularity. Sonnets 29 and 30 are especially notable in their heartfelt expressions of the negative psychological states of loneliness and despair, along with their cure -- nostalgic reverie about a personally heroic figure. In Sonnet 29, the Bard at first feels “alone between my outcast state and trouble deaf heaven” and curses his fate. To cheer himself up, he turns to nostalgia: “Yet in these thoughts myself almost despising, happily I think on thee, and then my state... sings hymns at heaven’s gate.” Similarly, in Sonnet 30, Shakespeare finds himself buried in self-pity, lamenting about “the lack of many a thing I sought.” Again he turns to wistful remembrances of a cherished friend and personal hero: “But if the while I think on thee, dear friend, all losses are restored, and sorrows end.”

With these two iconic poems, Shakespeare intuited the role of nostalgia in mitigating negative affective states such as loneliness and sadness. Moreover, he anticipated the social nature of nostalgia, or rather its *prosocial* nature. As recent theorizing suggests, just thinking about our past heroes can yield affective benefits (Allison & Green, 2020). The goal of the present research is to elaborate empirically on a theoretical framework, in which nostalgia may contain personally heroic elements due to the social nature of the memories and experiences. According to Allison and Green (2020), while heroism in nostalgia research has not been directly assessed, the social and redemptive themes of these memories warrant further investigation. We examined the mechanisms influencing the relation between nostalgia and heroism, and the subsequent motivational and behavioral consequences of feeling nostalgic.

2 OVERVIEW OF NOSTALGIA

Nostalgia is a complex, social, and self-relevant emotion that possesses cognitive, motivational, and behavioral components (Sedikides et al., 2015). When people feel nostalgic, they reminisce about important and self-referent memories. The nostalgic experience is thought to be a universally experienced emotion (Hepper et al., 2014). General or personal nostalgia often possesses one of two common elements: close others (i.e., family, friends) and momentous events such as weddings or graduations (Wildschut et al., 2006). While nostalgia is a complex and bittersweet experience, containing elements of both positive and negative affect, the positive elements are almost always stronger than the negative ones (Johnson-Laird & Oatley, 1989; Sedikides, Wildschut, & Baden, 2004), resulting in an overall hedonically pleasing experience. Allison and Green (2020) argue that the heroism may be embedded in the content of nostalgic memories. To the extent that nostalgic reverie contains reminiscences of the self or others in the role of a hero, people may experience psychological and behavioral benefits from nostalgia.

Overall, the sociality function of nostalgia can be experienced (and assessed) at the trait or state level. There are individual differences among high nostalgics compared to low nostalgics. People higher in nostalgia proneness are more likely to prefer social activities compared to solo experiences; however, both high and low nostalgics experience similar levels of happiness (Batcho, 1998). High nostalgics tend to be more empathic and tend to behave more prosocially (i.e., helping those in need) (Juhl et al., 2020). In addition, nostalgia prone individuals are likely to possess greater perceptions of social support (Zhou et al., 2008, Study 1). At the state level, nostalgia is a frequent experience. Wildschut and colleagues (2006) asked university participants to indicate their prevalence of nostalgia; the majority of participants (79%) reported feeling nostalgic at least once a week. Nostalgic reverie is triggered by a number of stimuli and psychological states. Three primary sources

are negative affect (e.g., loneliness, boredom), sensory inputs (music, scents), and social interactions (Wildschut et al., 2006). Researchers can experimentally induce current feelings of nostalgia. The specific nostalgia manipulations can take various forms. For example, nostalgia can be manipulated through writing prompts (Sedikides et al., 2015), music and lyrics (Routledge et al., 2011; Cheung et al., 2013), scents (Reid et al., 2014), viewing social media posts (Behler, Bacalso, Green, & Kneuer, 2021), and re-reading favorite books (Kneuer, Green, & Cairo, 2021). People who feel nostalgic in the moment experience an increased sense of meaning in their lives (Sedikides et al., 2017), as well as greater positive affect, self-worth, and social connectedness (Hepper et al., 2012).

3 NOSTALGIA AND SOCIAL CONNECTEDNESS

Social connectedness, or a sense of acceptance or belongingness, is operationalized as feeling a connection, protection, or support from loved ones (Wildschut et al., 2006; Sedikides & Wildschut, 2019). Important components of social connectedness include experiencing secure attachment and love, along with trustworthiness (Abeyta et al., 2015). Nostalgia-induced social connectedness acts as a crucial mediator for the self-oriented and existential functions. For the self-oriented function, researchers found that people who listened to nostalgic lyrics, compared to a control, experienced greater optimism, through enhanced social connectedness and self-esteem (Cheung et al., 2013). Using song lyrics for a nostalgia manipulation, nostalgic participants experienced greater social connectedness (using a loneliness manipulation), which led to increased feelings of self-continuity (Sedikides et al., 2016, Study 1), and subsequently greater eudaimonic well-being (Sedikides et al., 2016, Study 6). Through raised social connectedness and self-esteem, nostalgia-induced participants also experienced greater inspiration (Stephan et al., 2014, Study 4). For the existential function, people induced with feelings of nostalgia, evoked through a song task

(Routledge et al., 2011, Study 1) or a writing task (Routledge et al., 2011, Study 2), felt greater meaning through increased social connectedness.

Overall, the sociality function of nostalgia often utilizes social connectedness as an important mediator, which influences various self-oriented and existential outcomes. Not only does nostalgia enhance social connectedness, but Sedikides and colleagues (2015) suggest that nostalgia increases prosocial behavior (i.e., physical proximity, helping, monetary donations). Based on the past theoretical and experimental work, we argue that heroism may be a source of prosociality that expands upon nostalgia's social functioning.

4 HEROISM AND SOCIAL CONNECTEDNESS

Heroism is a prosocial behavior characterized by high risk, sacrifice, without expectation of personal benefit (Allison et al., 2017). Many scholars debated the objectivity and subjectivity of the heroism definition. Further elaboration argued for greater emphasis of the mental and social construction of heroism, beyond the behavior itself (Allison & Goethals, 2011). Therefore, it is crucial to consider the perceptions of heroic others. Researchers have empirically explored the cardinal or prototypical features (traits) of heroes. The central heroic traits revealed capture the defining elements of heroic action: brave, moral integrity, conviction, courageous, self-sacrifice, protecting, honest, altruistic, selfless, determined, saves others, inspiring, and helpful (Kinsella et al., 2015a). Most of these traits capture social aspects and qualities, which align closely with the social nature of nostalgia. For example, one of the triggers for heroic action is the experience of negative events (i.e., personal or societal crisis).

Heroism scholars have long theorized a strong relationship between heroism and a sense of social connection. The progenitor of heroism studies, Joseph Campbell, observed that the goal of the mythic hero's journey always involves the hero returning home and

uniting with family and community. No longer psychologically isolated from the world, the heroic individual enjoys a sense of communion with others. In his description of the hero's journey, Campbell (1949, p. 25) wrote, "where we had thought to be alone, we shall be with all the world." Campbell (2004, p. 55) believed that one of the central functions of hero mythology is to "get a sense of everything – yourself, your society, the universe, and the mystery beyond – as one great unit." He claimed that "when we quit thinking primarily about ourselves and our own self-preservation, we undergo a truly heroic transformation of consciousness" (Campbell, 1988, p.155). In most hero narratives, heroes begin the journey feeling disconnected from the world. They are self-centered, prideful individuals whose sole preoccupation is establishing their identity, their career, and their material world. The entire point of their hero journey is to awaken them to the broader goal of thinking beyond themselves in achieving communion with the entire world and universe.

From Campbell's perspective, traversing all the stages of the hero's journey *causes* people to develop the heroic mindset of social connectedness. Psychologists who study lifespan development, such as Erik Erikson (1994), have also theorized that human beings pass through stages that ultimately lead to heightened intimacy, connection, and generativity with others. Other heroism scholars posit the opposite causal direction, namely, that heroism itself promotes social connectedness. Allison (2020) has called this *the unification principle of heroism*. Acts of heroism unify people, and heroic leaders make it their primary goal to bring people of color, religion, and gender orientation together. A drive toward achieving personal and societal wholeness, healing, and unity are what set heroes apart from villains (Allison, 2019; Allison et al., 2019).

In his analysis of the primary function of heroism, Friedman (2017) introduced the construct of self-expansiveness describing how boundaries between ourselves and others, and even between ourselves and the world, can be seen as permeable. As Friedman puts it,

“viewing others as an alternate manifestation of oneself can promote heroism, as one’s individual life is not viewed as separate” (p. 15). Research has shown that performing acts of kindness produces oxytocin, often referred to as the “love hormone” (Keltner, 2009).

Kindness produces physiological benefits such as increased energy, heightened immune system, enhanced cognitive functioning, lower heart rate, better cortisol levels, greater life satisfaction, and most importantly, a significantly higher sense of social connection (Esch & Stefano, 2011).

In summary, theoretical work in heroism science suggests strong link between heroic actions and an augmented sense of social connectedness. Although there are no direct data addressing the causal direction of this relationship, we suspect a bi-directional relationship. It seems reasonable that the urge to perform a heroic act stems from a sense of connection to the target of the act. Moreover, it is equally reasonable to deduce that social connectedness is one important result of having performed a heroic act. Research on kindness, a mild form of heroism, supports this latter causal link.

5 MOTIVATIONAL FUNCTIONALITY AND BEHAVIORAL INTENTIONS: INSPIRATION AND GOAL PURSUIT

Allison & Green (2020) suggested that theoretical and empirical features of both nostalgia and heroism converge on goal setting and pursuit. More broadly, heroism and nostalgia are both motivational states. Heroism increases inspiration; when people identify with a hero (particularly an underdog) who succeeds, they often perceive them to be inspiring (Davis et al., 2011). Nostalgic states similarly increase feelings of inspiration in people (Stephan et al., 2015). Thrash and Elliot (2003) conceptualized inspiration as containing a motivational characteristic. Therefore, they argue that inspiring people drives behavior, particularly goal striving behavior (Milyavskaya et al., 2012). At the trait level, inspired people are more likely to experience increases in their well-being, through more purpose in

life and gratitude (Thrash et al., 2010). According to Thrash and Elliot (2003), there are two processes of inspiration: inspired *by* something and inspired *to do* something. They suggest that inspiration is related to motivation as it drives behavior. Milyavskaya et al. (2012) empirically supported the notion that people who are inspired *to do* something are more likely to pursue a goal.

Researchers have found that social connectedness is one of the important underlying mechanisms for the relation between nostalgia and inspiration (Stephan et al., 2015). When people feel nostalgic, they experience elevated social connectedness, in turn increasing self-esteem and subsequently inspiration (Stephan et al., 2015). The researchers explored the distinguishing elements of nostalgia-evoked inspiration. They randomly assigned participants to either a nostalgic (“bring to mind a nostalgic event in your life”) or a positive affect (“bring to mind a lucky event in your life”) writing manipulation. Those in the nostalgia condition experienced felt more social connectedness, in turn raising their self-esteem and subsequently inspiration, above and beyond positive affect.

These motivational trajectories of nostalgia also activate goal pursuit. For example, following a nostalgia induction, elevated inspiration increased pursuit of self-important goals via social connectedness and self-esteem (Study 6, Stephan et al., 2015). Nostalgia elevates goal-orientation, specifically for personally important goals (Sedikides & Wildschut, 2018). Stephan and colleagues (2015) used an adapted procedure to capture goal pursuit following a nostalgia induction. This procedure, developed by Milyavskaya and colleagues (2012) asked participants to list five of their personal goals and select the one they felt was most important. They responded to items that measured motivational pursuits of their goal (i.e., “I want to put more time and effort into pursuing this goal”). Nostalgia, through enhanced meaning in life, increased goal pursuit, but only for their most important goal (Stephan et al., 2015). This is not evident for pursuing the least important goal (Sedikides & Wildschut, 2018). The

motivational benefits are frequently depicted in the heroism realm. Heroism has been linked to the pursuit of meaningful personal goals (Ross, 2019). Restorative features emerged from heroism work. Heroism tends to restore past negative experiences when people idealize their version of themselves, thus increasing their intentions to develop, and subsequently pursue, personally meaningful goals (Ross, 2019).

6 STUDY 1

Study 1 investigated initial associations to examine whether nostalgia related to heroism through social connectedness. Our objective was to clarify the relation between nostalgia and heroism based on the theoretical framework (Allison & Green, 2020), as well as model our preliminary correlational paths linking nostalgia to goal pursuit, through social connectedness, heroism, and inspiration.

6.1 HYPOTHESES

H1: We hypothesized that trait nostalgia would be positively correlated with heroic perceptions (central heroic traits) ascribed to the main character recalled in the memory.

H2: We hypothesized that social connectedness would mediate the relation between trait nostalgia and heroic perceptions from an ordinary writing narrative prompt.

H3: We hypothesized that social connectedness, heroic perceptions, and inspiration would mediate the relation between trait nostalgia and goal pursuit.

7 METHOD

7.1 PARTICIPANTS

Data were collected as part of an online questionnaire through Amazon Mechanical Turk. Participants were 115 U.S. residents at least 18 years old, with a mean age of 33.59 (*SD*

= 11.08). The sample was mostly White (69.6%), followed by Black or African American (12.2%), East Asian (8.7%), more than one race (4.3%), South Asian (3.5%), and other or unknown (1.7%). Participants were predominately women (65.2%), followed by men (33%) and non-binary (1.7%). Participants were paid \$0.50 as compensation.

7.2 MEASURES AND PROCEDURE

We used the control writing induction from the widely-used Event Reflection Task (Wildschut et al., 2006), in which participants wrote about an ordinary memory for five minutes. We asked participants to then identify the main character or primary person they wrote about in the writing task, such as a friend or relative. We measured perceptions of heroism for the identified person in the narrative using Kinsella et al.'s (2015a) central characteristics of heroes. Participants rated their identified person along 13 characteristics, including brave, courageous, selfless, helpful, in a Likert-type format (1 = *not at all related* to 8 = *extremely related*; $\alpha = .94$).

We measured social connectedness with selected items from the State Functions of Nostalgia Scale (Hepper et al., 2012). Participants responded to four items in a Likert-type format (1 = *strongly disagree* to 6 = *strongly agree*; $\alpha = .89$) following the sentence prompt, "thinking about this event..." ("makes me feel loved," "makes me feel connected to loved ones," "makes me feel protected," and "makes me feel I can trust others"). We assessed participants' level of inspiration using seven items in a Likert-type format (1 = *not at all* to 7 = *very much*; $\alpha = .94$); for example, "I am inspired to do something." Next, we measured goal pursuit with four adapted items from Milyavskaya et al. (2012), such as "right now I feel energized to pursue my goal" in a Likert-type format (1 = *do not agree at all* to 9 = *agree completely*; $\alpha = .91$).

We included a shortened version of the Southampton Nostalgia Scale (Routledge et al., 2008) that contained four items measuring nostalgia proneness in a 7-point Likert scale (1

= *not at all / very rarely* to 7 = *very much / very frequently*; $\alpha = .92$): “how valuable is nostalgia to you?,” “how important is it for you to bring to mind nostalgic experiences?,” “how prone are you to feeling nostalgic?,” and “generally speaking, how often do you bring to mind nostalgic experiences?”

8 RESULTS

8.1 PRELIMINARY ANALYSES

We ran a series of assumption checks to assess the normality of the data. All variables fell within the ± 1.50 cutoff for skewness and kurtosis. We discovered that 3 goal pursuit datapoints violated the ± 3.29 z-score cutoff for univariate outliers; therefore, we corrected the problematic values using the winsorizing technique. There were no multicollinearity violations, as all variables were $< .70$ cutoff. The correlational matrices of our trait and outcome variables can be found in Table 1.

Table 1. Correlations among the variables.

Variable	1	2	3	4	5	<i>M</i> (<i>SD</i>)
1. Southampton Nostalgia Scale	-					4.63(1.48)
2. Central Heroic Traits	.14	-				4.26(1.93)
3. Social Connectedness	.27**	.49**	-			3.92(1.58)
4. Goal Pursuit	.16	.24**	.21*	-		6.88(1.67)
5. Inspiration	.40**	.48**	.42**	.53**	-	4.26(1.58)

* $p < .05$

** $p < .01$

8.2 MEDIATION MODEL

We conducted bootstrapping analysis to examine the indirect effect of trait nostalgia on heroic perceptions (central heroic traits) via social connectedness using PROCESS (Hayes, 2012). This mediation model (see Figure 1), conducted with 5,000 bootstraps, yielded a mean bootstrap estimate of the indirect effect of .17. Because the 95% confidence

interval did not include 0 [.05, .32], we could firmly conclude that social connectedness significantly mediated the effect of trait nostalgia on central heroic traits. That is, trait nostalgia predicted greater social connectedness, which, in turn, led to greater perceptions of heroism.

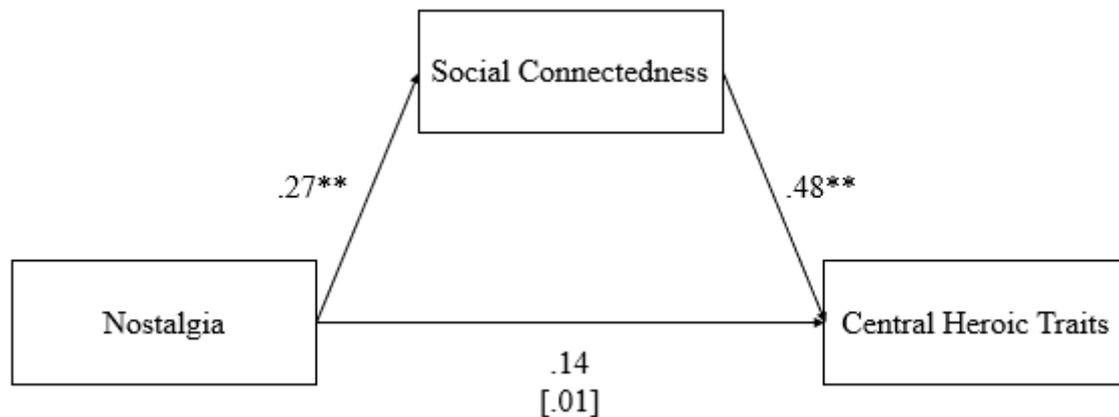


Figure 1. Trait nostalgia (SNS) on central heroic traits via social connectedness.

8.3 SERIAL MEDIATION MODEL

Using PROCESS (Hayes, 2012), we conducted a serial mediational model testing the effect of trait nostalgia on goal pursuit through social connectedness, heroic perceptions (central heroic traits), and inspiration. This serial mediation model, using 5,000 bootstraps, yielded a mean bootstrap estimate of the indirect effect of .03; because the 95% confidence interval did not include zero [.01, .07], we can firmly conclude that social connectedness, central heroic traits, and inspiration mediated the effect of trait nostalgia on goal pursuit (see Figure 2). For completion, we tested alternative models, flipping the mediator order, to test model fit (See Supplemental Materials).

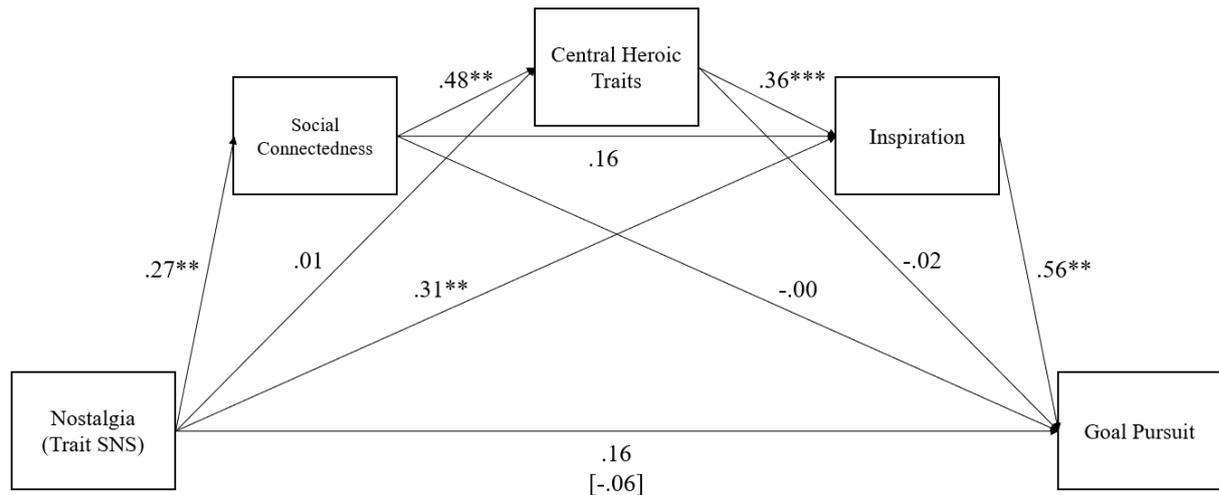


Figure 2. Beta coefficients in serial mediation model (** indicated $p < .01$).

9 DISCUSSION

We conducted an online correlational Study 1 to establish a relation between nostalgia and heroism, specifically heroic traits ascribed to someone described in a personal memory. The participants wrote about an ordinary memory for five minutes, then completed self-report measures. Participants were asked to identify the main target of their narrative and rate how heroic that individual was across various central traits. After initial correlational analyses, we ran mediation and serial mediation analyses. Our first hypothesis examining the correlational mediation model was supported; social connectedness mediated the effect of trait nostalgia to central trait ratings of heroism. In addition, our hypothesis theoretically predicting our full correlational serial mediation model was supported. Three serial mechanisms, social connectedness, perceptions of heroism, and inspiration, mediated the relation between trait nostalgia and goal pursuit. In the correlational study, we established initial support to merge the nostalgia and heroism work. Branching off of the social and motivational functionality of nostalgia on behavioral intentions, we empirically expanding the model to include the new element of heroism.

This correlational approach laid the foundation for the experimental Study 2 to test the full model against a control group.

10 STUDY 2

The objective for Study 2 was to establish stronger ordering of our paths in the full serial mediational model. Study 1 provided preliminary evidence to support the full model linking nostalgia to goal pursuit, via increased social connectedness, perceptions of heroism, and inspiration. We used an experimental design to manipulate nostalgia. Though the three mediators were measured, Study 2 allowed us to examine the effect of nostalgia on goal pursuit using the our experimental design.

10.1 HYPOTHESES

H1: We hypothesized that nostalgic writing (state nostalgia) would increase feelings of social connectedness and, in turn, heroic perceptions.

H2: We hypothesized that nostalgic writing (state nostalgia) would increase feelings of social connectedness, in turn, heroic perceptions, which would elevate inspiration and, subsequently, pursuit of important goals.

11 METHOD

11.1 PARTICIPANTS

Data were collected as part of an online questionnaire through Prolific. Participants were 199 U.S. residents who were at least 18 years old. There were five participants who failed our attention checks, leaving a final sample of 194, with a mean age of 26.38 ($SD = 9.58$). The sample was mostly White (68.8%), followed by biracial/multiracial (8.3%), Black or African American (8.2%), other or unknown (6.2%), East Asian (4.6%), South Asian (2.6%),

American Indian/Alaska Native (1.0%), and Native Hawaiian/Pacific Islander (0.5%).

Participants were predominately women (83%), followed by men (12.9%), non-binary (3.6%), and other or prefer not to answer (0.5%). Participants were paid \$6.50/hour based on completion time.

11.2 MEASURES AND PROCEDURE

We used the Event Reflections task (Wildschut et al., 2006) as a nostalgia induction. Consenting participants were randomly assigned to write about a nostalgic memory or an ordinary memory. Following the five-minute writing task, participants responded to a three-item state nostalgia manipulation check (Hepper et al., 2012). We asked participants to then identify the main character or primary person they wrote about in the writing task, such as a friend or relative. Then we measured heroism of the identified person in the memory using the same Kinsella et al. (2015a) central characteristics of heroes employed in Study 1. We asked participants to rate their person along 13 characteristics, including brave, courageous, selfless, helpful, in a Likert-type format (1 = *not at all related* to 8 = *extremely related*; $\alpha = .94$). We also included the same measures of social connectedness ($\alpha = .91$), inspiration ($\alpha = .88$), and goal pursuit ($\alpha = .89$) as in Study 1.

12 RESULTS

12.1 PRELIMINARY ANALYSES

We ran a series of assumption checks to assess the normality of the data. All variables fell within the ± 1.50 cutoff for skewness and kurtosis. One of the goal pursuit datapoints violated the ± 3.29 z-score cutoff for univariate outliers; therefore, we corrected the problematic values using the winsorizing technique. There were no multicollinearity

violations, as all outcome variables were $< .70$ cutoff. The correlational matrices of our outcome measures can be found in Table 3.

Table 3. Correlations among state outcome variables across conditions.

Variable	1	2	3	4	5	<i>M</i> (<i>SD</i>)
<i>Nostalgic Writing Group</i>						
1. State Nostalgia	-					5.34(.76)
2. Central Heroic Traits	.15	-				3.84(1.85)
3. Social Connectedness	.26**	.24*	-			4.75(1.15)
4. Inspiration	.13	.33**	.19	-		4.09(1.27)
5. Goal Pursuit	.09	.10	.08	.43**	-	6.52(1.61)
<i>Control Writing Group</i>						
1. State Nostalgia	-					3.99(1.56)
2. Central Heroic Traits	.38**	-				3.37(1.92)
3. Social Connectedness	.40**	.47**	-			3.43(1.71)
4. Inspiration	.42**	.49**	.65**	-		4.08(1.42)
5. Goal Pursuit	.06	.18	.34**	.50**	-	6.69(1.68)

* $p < .05$

** $p < .01$

We conducted an independent samples t-test to determine if our writing manipulation revealed differences in our nostalgia manipulation check. The nostalgic writing condition ($M = 5.34$, $SD = .76$) was significantly higher in nostalgia compared to the control writing condition ($M = 3.99$, $SD = 1.56$), $t(192) = 7.76$, $p < .001$, $\eta^2 = .24$, 95% CI [1.00, 1.69], a large effect. Therefore, the writing task successfully induced nostalgia relative to the control group. In addition, participants in the nostalgic writing group ($M = 3.81$, $SD = 1.51$) considered their memories to be significantly less ordinary compared to the control group ($M = 5.42$, $SD = 1.01$), $t(192) = -8.65$, $p < .001$, $\eta^2 = .28$, 95% CI [-1.98, -1.24], a large effect.

We performed a chi-square test of independence to examine the relation between writing condition and target of writing (see Figure 3). There was a significant association between these variables, $\chi^2(1, N = 194) = 13.10$, $p < .001$. Consistent with past research, people writing about nostalgic memories were more likely to have others (i.e., relatives,

friends, romantic partners) as the target of the memory, compared to writing about an ordinary memory.

We conducted a two-way between-subjects analysis of variance (ANOVA) to assess whether writing group (nostalgic vs. ordinary) and target of writing (self vs. other) influenced the ratings of central heroic traits. The main effect of group on central heroic trait ratings was not significant, $F_{1,190} = 1.24, p = 0.266$. There was a significant main effect of writing target ($F_{1,190} = 4.43, p = 0.037, \eta_p^2 = .02$): those who wrote about another person in their past memory ($M = 4.02, SD = 1.85$) rated them as possessing more heroic traits than those who wrote about themselves in their past memory ($M = 3.33, SD = 1.88$). There was no significant interaction between group and target ($F_{1,190} = .02, p = .895$) such that the effect of group on heroic perception ratings was not dependent on target of writing.

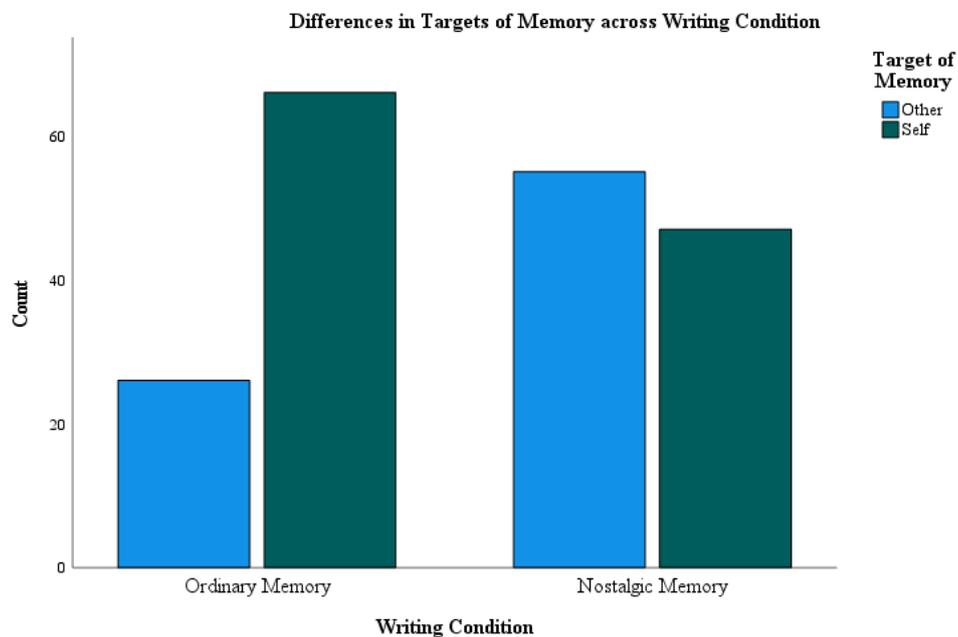


Figure 3. Clustered bar chart displaying categorical group differences in the target of the memory across writing conditions.

12.2 MEDIATION MODEL

We conducted several bootstrapping analyses to examine the indirect effect of nostalgia on heroic perceptions (central heroic traits) via social connectedness using PROCESS (Hayes, 2012). Our first mediation model (Figure 4) with writing condition (*state nostalgia*), conducted with 5,000 bootstraps, yielded a mean bootstrap estimate of the indirect effect of .63. Because the 95% confidence interval did not include 0 [.35, .97], we could firmly conclude that social connectedness mediated the effect of the nostalgia induction on central heroic traits. That is, individuals who thought about a nostalgic memory felt more socially connected to others, which, in turn, led to them rating the central character of their recollection as more heroic.

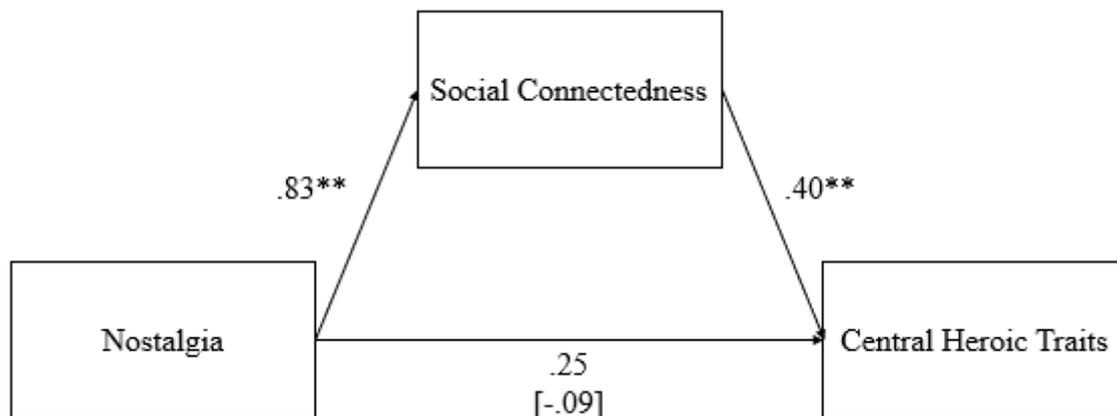


Figure 4. Nostalgic writing on central heroic traits via social connectedness.

12.3 SERIAL MEDIATIONAL MODEL

Using PROCESS (Hayes, 2012), we conducted a serial mediational model testing the effect of nostalgic writing (*state nostalgia*) on goal pursuit through social connectedness, central heroic traits, and inspiration, as in Study 1. This serial mediation model, using 5,000 bootstraps, yielded a mean bootstrap estimate of the indirect effect of .07; because the 95% confidence interval did not include zero [.03, .13], we can firmly conclude that social

connectedness, central heroic traits, and inspiration mediated the effect of state nostalgia on goal pursuit (see Figure 5). This finding—but in the context of an experiment—was consistent with the findings from Study 1.

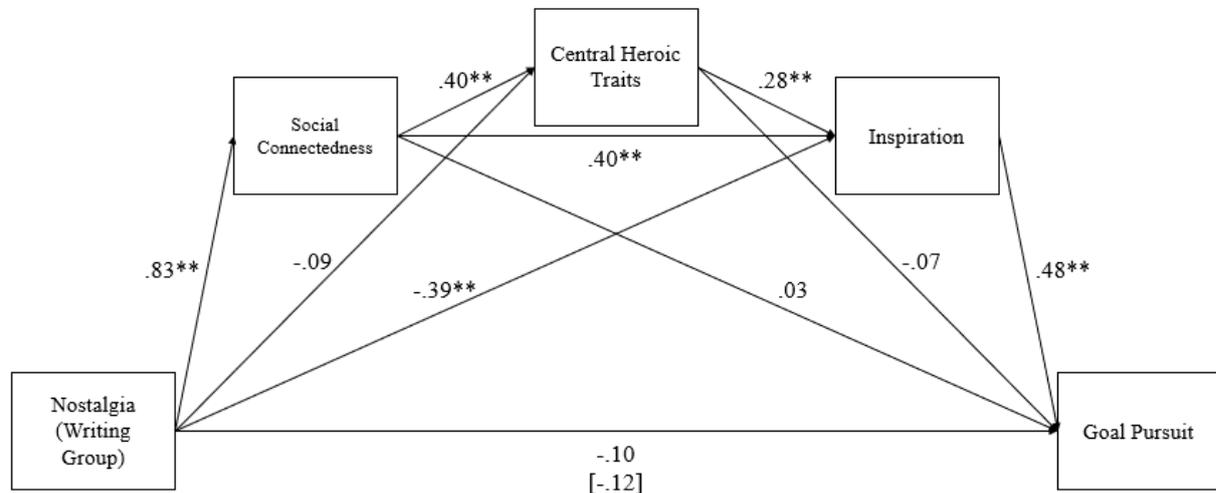


Figure 5. Beta coefficients in serial mediation model (** indicated $p < .01$).

13 DISCUSSION

We conducted an online experiment, in which participants were randomly assigned to either writing about a nostalgic or an ordinary memory for five minutes. We ran a series of analyses to determine any group differences and investigated different mediators, based on Study 1, to determine the effects of feeling nostalgic on goal pursuit, through social connectedness, heroic perception, and inspiration. Nostalgic writing, compared to the control prompt, contributed to greater feelings of social connectedness, and, subsequently, increased heroic perceptions in the identified target of the narrative; thus, supporting our first hypothesis. The full serial mediation modeling the social, motivational, and behavioral effects of nostalgia supported our second hypothesis. Specifically, nostalgic writing (vs. control) predicted increased pursuit of important goals via three cascading mechanisms (amplified social connectedness, central heroic traits, and inspiration). While we did not directly

manipulate our mediators, we successfully established a stronger relation between nostalgia and heroism.

14 GENERAL DISCUSSION

Nostalgia is an emotion with social and motivational functions that leads to adaptive behavioral intentions. In Study 1, we initially modelled correlational findings to link nostalgia and heroism. While trait nostalgia and central heroic traits were not significantly correlated with each other, the social function of nostalgia, via social connectedness, predicted greater heroic perceptions ascribed to the main character identified in the memory. Our overall serial mediation model, correlational (Study 1) and experimental (Study 2), supported the theoretical justification to link nostalgia to goal pursuit, specifically through social and motivational mechanisms. However, the heroic perceptions captured in the model revealed the importance of heroism linking the social functions to the motivational functions of nostalgia.

The perceptions of others often explain how we comprehend social interactions. This translates to nostalgic reverie. Nostalgia is a social emotion, which increases feelings of social connectedness (Wildschut et al., 2006). The social elements woven into the perceptions of the people who were embedded in the nostalgic reflection help explain the increased heroic ratings. In other words, nostalgia increases heroic perceptions in part because the nostalgic memory elicits greater social connectedness than in an ordinary memory. The perceived connection to close others elicited by nostalgic memories increased a sense of perceived heroism towards the person the memory was about.

This initial mediation model facilitated a strong foundation that rooted heroism into our larger serial mediation model. While past work revealed that nostalgic people will pursue their important personal goals (Stephan et al., 2015), understanding the social, prosocial, and

motivational mechanisms advance the field further. We examined the influence of nostalgia on goal striving intentions to better understand the mechanisms that link and explain past memories to future behavior. People regularly set personal goals for themselves; however, reaching and attaining their personal goals is not very common (Norcross & Vangarelli, 1988). Thus, we introduced practical implications from our studies. When people reflect on a nostalgic memory, it energizes them to pursue their important personal goal, through elevated feelings of social connectedness, which increases heroic perceptions, and, in turn, feelings of more inspiration.

We note that the writing induction in Study 2 did not reveal significant group differences in heroic perceptions (central heroic trait ratings) between the two writing prompts. We anticipated the nostalgic memories to capture greater heroic perceptions of the target of the narrative. We measured the target of the narrative reflections in both studies. Future research should manipulate the target itself or consider manipulating heroism within nostalgic writing prompts. This would advance the theoretical framework and blend the two literatures further. In addition, it would be beneficial to capture redemptive and social components of the narratives to investigate heroic themes of redemption in the nostalgic world.

We modeled the full path linking nostalgia to goal pursuit through social connectedness, central heroic traits, and inspiration in both of our studies. The beta coefficients in both of our studies for the full path trajectories were consistent with significance and direction. However, we found inconsistencies in the beta coefficient for social connectedness to inspiration and for nostalgia to inspiration. In Study 1, the beta coefficient was not significant between social connectedness and inspiration, but in Study 2 it was significant. In addition, the beta coefficient for nostalgia to inspiration was significant and positive in Study 1, but in Study 2 the value was significant but negative. Overall, our

serial mediation model between our two studies provides empirical evidence with the consistent directional paths, supported by recent theoretical advancements by Allison and Green (2020). Our research further establishes the social and heroic perceptions and motivational elements of nostalgic memories to help explain goal striving behavioral intentions.

There are theoretical, empirical, and practical implications to our findings. First, we empirically expanded upon the social, prosocial, and motivational functions of nostalgia to include heroism. We assessed the perceptions of heroism along central characteristics. In Study 1, nostalgia prone individuals tended to attribute more heroic traits to the main character of their memory through increased feelings of social connectedness. Then we examined the subsequent motivational consequences but testing the full sequence in our serial mediation model. Nostalgia-evoked goal pursuit, through enhanced social connectedness, perceptions of heroism, and inspiration, broadened the existing literature by articulating the mechanisms related to social, prosocial, and motivational functioning. Comparatively, Stephan et al. (2015) conducted six studies to understand nostalgia-induced goal pursuit, through social connectedness, self-esteem, and inspiration. However, what differentiates the studies is the newly established mediator of heroic perceptions that addresses the prosocial elements.

While nostalgia-evoked social connectedness is an important source of self-esteem, and subsequently inspiration and goal pursuit (see Sedikides & Wildschut, 2019, for a review), we suggest that heroic perceptions substantially bridge the full sequence through the prosocial nature of heroism. In other words, the addition of the prosocial function of heroism elaborates upon the full model as it pertains to nostalgia-evoked goal pursuit. It would be important to directly compare and assess the self-positivity function (i.e., self-esteem) and the prosocial function (i.e., heroism) together in a nostalgia context. Inspiration is a

distinguishing characteristic of heroes, compared to altruists and leaders (Kinsella et al., 2015b). Therefore, future theoretical implications should take heroism into account when examining social and motivational consequences of nostalgia.

We examined the social, prosocial, and motivational functions as they relate to the behavioral outcomes to pursue an important goal. Uniquely, we incorporated heroic elements into the full sequence; experiencing nostalgia increases social connectedness, thus increasing heroic perceptions, and subsequently elevating inspiration and, in turn, goal pursuit. We empirically supported the notion proposed by Allison and Green (2020) that nostalgic reverie contains heroic qualities that connect to sociality and motivation. Overall, the studies revealed important insight to the broad functionality of nostalgia that includes heroic characteristics.

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16 SUPPLEMENTAL MATERIALS

16.1 ALTERNATIVE MODEL FIT (STUDY 1)

Our serial mediation model, with social connectedness entered first followed by central heroic traits, assessing the effect of nostalgia on inspiration had stronger model fit (see Table 2). This was consistent with our serial mediation model assessing the effect of nostalgia on goal pursuit, even though both the original and alternative models yielded null effects. Therefore, we will continue to use the original order of the mediators for our experimental Study 2.

Table 2. Testing alternative model fit for our serial mediation analyses.

Model	<i>a</i> -path ₁ (β)	<i>a</i> -path ₂ (β)	<i>d</i> -path (β)	<i>b</i> -path ₁ (β)	<i>b</i> -path ₂ (β)	<i>c</i> -path (β)	<i>c</i> '-path (β)	Indirect Effects <i>b</i> (CI)
<i>Outcome:</i>								
<i>Inspiration</i>								
Original	.27**	.01	.48**	.16	.36**	.40**	.31**	.05 (.01, .10)
Alternative	.14	.20*	.46**	.36**	.16	.40**	.31**	.01 (-.01, .04)
<i>Outcome</i>								
<i>Goal Pursuit</i>								
Original	.27**	.01	.48**	.09	.18	.16	.11	.03 (-.00, .07)
Alternative	.14	.20*	.46**	.18	.09	.16	.11	.01 (-.01, .04)

SNS → Social Con. → Inspire → CHT → Goal Pursuit = not sig. (indirect effect = -.00, 95% CI includes 0)

SNS → CHT → Inspire → Social Con. → Goal Pursuit = not sig. (indirect effect = .00, 95% CI includes 0)

SNS → CHT → Social Con. → Inspire → Goal Pursuit = not sig. (indirect effect = .01, 95% CI includes 0)

SNS → Inspire → CHT → Social Con. → Goal Pursuit = not sig. (indirect effect = .00, 95% CI includes 0)

SNS → Inspire → Social Con. → CHT → Goal Pursuit = not sig. (indirect effect = -.00, 95% CI includes 0)

16.2 ALTERNATIVE MODEL FIT (STUDY 2)

Nostalgic Writing → Social Con. → Inspire → CHT → Goal Pursuit = not sig. (indirect effect = -.01, 95% CI includes 0)

Nostalgic Writing → CHT → Inspire → Social Con. → Goal Pursuit = not sig. (indirect effect = .00, 95% CI includes 0)

Nostalgic Writing → CHT → Social Con. → Inspire → Goal Pursuit = not sig. (indirect effect = .03, 95% CI includes 0)

Nostalgic Writing → Inspire → CHT → Social Con. → Goal Pursuit = not sig. (indirect effect = .00, 95% CI includes 0)

Nostalgic Writing → Inspire → Social Con. → CHT → Goal Pursuit = not sig. (indirect effect = -.00, 95% CI includes 0)

17 CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.