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BRIEF ARTICLE



## Nostalgia strengthens global self-continuity through holistic thinking

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### ABSTRACT

Nostalgia, a sentimental longing for one's meaningful past, promotes global self-continuity (GSC), a sense of connection among one's past, present, and future selves. We identified a cognitive mechanism for this effect: holistic thinking, and in particular interactional causality (presupposing multiple causes that interact to influence an object's behaviour). In three studies, using measurement-of-mediation and experimental-causal-chain designs, nostalgia was related to, and caused, higher GSC through interactional causality. In cross-sectional Study 1, trait nostalgia was associated with GSC via interactional causality. In Study 2, induced nostalgia led to higher interactional causality and ensuing GSC. In Study 3, manipulated interactional causal thinking increased GSC.

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Nostalgia; global self-continuity; holistic thinking; interactional causality

The sociologist Fred Davis (1979) was the first to propose that nostalgic reverie plays a role in connecting temporally distinct aspects of the self. His proposal has stood the test of time. Yet, the cognitive mechanisms underlying this effect are not well-understood. We address, in three studies, a plausible mechanism: holistic thinking.

### *Nostalgia and self-continuity*


Nostalgia refers to sentimental longing about aspects of one's past. When nostalgising, one typically brings to mind memories of momentous events (e.g. birthday celebrations, graduations, anniversaries) or close others (e.g. family, friends, partners) from their life (Wildschut et al., 2006). One feels warm, tender, and even joyous, but also a tinge of longing for the bygone times; nostalgia, then, is an ambivalent, albeit mostly positive, emotion (Sedikides & Wildschut, 2016). It is also a self-relevant emotion, given that the events are autobiographical, meaningful, and narrated from a first-person perspective. Lastly, it is a social emotion, because, in nostalgic accounts,

close others act as a supportive cast to the protagonistic self (Sedikides & Wildschut, 2019).

Self-continuity has often been defined as a sense of connection between one's past and present selves (Chandler et al., 2003; Sedikides et al., 2015a). However, past-to-present self-continuity is positively associated with present-to-future self-continuity (i.e. sense of connection between one's present and future selves; Sokol & Eisenheim, 2016). Indeed, an expanded definition of the construct, what we call global self-continuity (GSC), has been gaining traction in the literature (Becker et al., 2018; Vignoles et al., 2006).

GSC, a sense of connection among one's past, present, and future selves, entails psychological benefits. For example, it is linked to positive affect, life satisfaction, and adaptive coping (Sadeh & Karniol, 2012; Sokol & Serper, 2019). Given GSC's benefits, research has begun to address its correlates and triggers.<sup>1</sup> One such correlate and trigger is nostalgia (Hong et al., 2020), an emotion that is both past-oriented (Wildschut et al., 2006) and entails implications for one's future (Sedikides & Wildschut, 2020). In this article, we were also concerned with

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nostalgia as a correlate and trigger of GSC. Additionally, we tested a cognitive mechanism likely to transmit the effect of nostalgia on GSC: holistic thinking.

### ***Nostalgia, holistic thinking, and global self-continuity***

#### ***Nostalgia and global self-continuity***

Nostalgia, as a low arousal and mostly positive emotion (Van Tilburg et al., 2018), may engender a broader outlook on one's life (Fredrickson, 2001), enabling the individual to link their past, present, and future. That is, nostalgia may bridge past and present, making the past feel subjectively closer to the present (past-present self-continuity), and may bridge present and future, making the future also feel closer to the present (present-future self-continuity). Indeed, in a series of studies, Hong et al. (2020) found that nostalgia was positively associated with GSC and also increased GCS. We expected to replicate these results.

#### ***Holistic thinking as a mediator of the effect of nostalgia on global self-continuity***

Holistic (as opposed to analytic) thinking involves the propensity toward seeing objects as interconnected rather than isolated (Nisbett et al., 2001). This thinking style has four components (Choi et al., 2007). One is *interactional causality*, which presupposes the presence of multiple causes that interact to influence an object's behaviour. Another is *dialectical attitude toward contradiction*, which advocates a dialectical approach or middle-ground compromise in which even opposite propositions can co-exist as true. The third component is *cyclic perception of change*, which assumes a dynamic, rather than static, state among causes of an object's behaviour. The fourth component is *field-oriented locus of attention*, according to which attention is oriented toward the relation between an object and the field in which it is embedded, rather than the object alone.

We propose that holistic thinking transmits the effect of nostalgia on GSC. When nostalgising, the person does not reflect on the relevant event solely, but instead considers close others and the way they relate, or will relate, to the self (Sedikides & Wildschut, 2019, 2020). The person searches for meaning or causal patterns (Sedikides & Wildschut, 2018). Indeed, nostalgic (vs. control) accounts comprise a greater number of causal words (e.g. because, effect, hence; Stephan et al., 2012), signifying a search for

interconnections. Through mental time travel, then, the person looks for causes of their past behaviour and how their present behaviour may shape the future.

Although our rationale appears to favour interactional causality at the expense of the other three holistic thinking components, we did not tie at the outset our mediational hypothesis to interactional causality. It is possible that nostalgizing engenders a propensity toward harmonising conflicting elements of one's past (dialectical attitude toward contradiction), a dynamically evolving pattern of causal accounts where the next account complements and even reverses the previous one (cyclic perception of change), or the orientation of one's attention toward the context rather than objects—self and close others— within the context (field-oriented locus of attention).

### ***Overview***

We tested the hypotheses that nostalgia is associated with or leads to GSC, and holistic thinking mediates the effect of nostalgia on GSC, in three studies combining measurement-of-mediation and experimental-causal-chain designs (Spencer et al., 2005). Additionally, we explored which of the four holistic thinking components, if any, is mostly affected by nostalgia or carries the putative mediation.

We approached these constructs at the trait (Study 1) and state (Studies 2–3) level, as a way to increase the generalizability of the findings. A trait is one's base-rate proclivity toward (or away from) a set of cognitions, emotions, or behaviours, whereas a state is represents a set of cognitions, emotions, or behaviours in a particular situation (Fleeson & Wilt, 2010). Further, states are experienced ("If a person is in a state he or she must be able to feel it;" Fridhandler, 1986, p. 170), are shorter-lived, and manifest continuously relative to traits, which are less homogenous across time (Fridhandler, 1986).

In Study 1, we assessed trait nostalgia, holistic thinking, and GSC. In Study 2, we manipulated nostalgia and measured holistic thinking and GSC. In Study 3, we manipulated interactional causality, which by then had emerged as the key component of holistic thinking, and measured GSC. We obtained ethical approval from University of Southampton and provide the research protocol in Supplemental Material.

## Study 1

In Study 1, we examined whether trait nostalgia is associated with higher trait GSC through trait holistic thinking.

### Method

#### Participants

We tested 252 paid undergraduates from various Canadian universities (178 women, 67 men, 7 other) aged 18–54 years ( $M_{\text{age}} = 24.00$ ,  $SD_{\text{age}} = 6.05$ ). Our recruitment target was 250 participants (Schönbrodt & Perugini, 2013).

#### Materials and procedure

Participants completed the 7-item Southampton Nostalgia Scale (Sedikides et al., 2015b), a measure of trait nostalgia. Four items assess propensity to nostalgising (e.g. “How prone are you to feeling nostalgic”; 1 = *not at all*, 7 = *very much*) or frequency of it (e.g. “Generally speaking, how often do you bring to mind nostalgic experiences?”; 1 = *very rarely*, 7 = *very frequently*). The remaining three items assess whether participants consider nostalgia valuable, important, or significant (1 = *not at all*, 7 = *very much*). We averaged responses to create a nostalgia index ( $M = 4.77$ ,  $SD = 1.23$ ,  $\alpha = .93$ ).

Then, participants completed the 24-item Analysis-Holism Scale (Choi et al., 2007, p. 1 = *strongly disagree*, 7 = *strongly agree*;  $M = 4.80$ ,  $SD = 0.50$ ,  $\alpha = .73$ ), with higher scores indicating greater holistic thinking. The scale comprises four subscales, six items each: *causality* ( $M = 5.02$ ,  $SD = 0.92$ ,  $\alpha = .78$ ; e.g. “Everything in the universe is somehow related to each other”), *attitude toward contradiction* ( $M = 4.76$ ,  $SD = 0.94$ ,  $\alpha = .74$ ; e.g. “It is more desirable to take the middle ground than go to extremes”), *perception of change* ( $M = 4.87$ ,  $SD = 0.91$ ,  $\alpha = .78$ ; e.g. “Current situations can change at any time”), and *locus of attention* ( $M = 4.55$ ,  $SD = 1.01$ ,  $\alpha = .83$ ; e.g. “The whole,

rather than its parts, should be considered in order to understand a phenomenon”). Higher subscale scores indicate interactional (than dispositional) causality, dialectical (than analytical) attitude toward contradiction, cyclic (than linear) perception of change, and field-oriented (than part-oriented) locus of attention.

Afterward, participants completed a measure of GSC (Becker et al., 2018; Hong et al., 2020). They listed seven identities that best represented who they were, and rated whether they regarded each identity as continuous (“To what extent does [each identity] make you feel that your past, present, and future are connected?”; 0 = *not at all*, 10 = *very much*). We averaged responses to create a GSC score ( $M = 7.74$ ,  $SD = 1.35$ ,  $\alpha = .71$ ).<sup>2</sup>

## Result and discussion

### Preliminary analysis

We present correlations among study variables in Table 1. Nostalgia was unassociated with holistic thinking (full scale), but holistic thinking was positively associated with GSC. Further, nostalgia was positively associated with causality and GSC, but not with attitude toward contradiction, perception of change, and locus of attention; causality and attitude toward contradiction were also positively associated with GSC, but perception of change and locus of attention were not.

### Mediation analysis

We used Hayes’ (2013) Process macro (Model 4) to conduct a mediation analysis based on 10,000 bootstrap samples, using holistic thinking (full scale) as mediator first. Nostalgia was unrelated to holistic thinking,  $B = 0.04$ ,  $SE = 0.03$ ,  $t = 1.45$ ,  $p = .148$ . The direct effect of nostalgia on GSC was significant,  $B = 0.18$ ,  $SE = 0.07$ ,  $t = 2.66$ ,  $p = .008$ . Controlling for nostalgia, holistic thinking was positively related to GSC,  $B =$

**Table 1.** Zero-Order Correlations Among Study 1 Variables.

Variable	1	2	3	4	5	6
1. Nostalgia	–					
2. Analysis-Holism Scale	.091	–				
3. Causality	.238***	.609***	–			
4. Attitude toward contradiction	.099	.648***	.187**	–		
5. Perception of change	–.076	.324**	.005	–.015	–	
6. Locus of attention	–.058	.547**	.129*	.208**	.245***	–
7. Global self-continuity	.177**	.142*	.218***	.166**	.048	–.111

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

0.34,  $SE = 0.17$ ,  $t = 2.05$ ,  $p = .041$ . There was no significant indirect effect (denoted as  $ab$ ) through holistic thinking,  $ab = 0.01$ ,  $SE = 0.01$ , 95% confidence interval (CI) =  $[-0.006, 0.038]$ .

We proceeded with a parallel mediation analysis—including simultaneously all four components—to explore whether the association between nostalgia and GSC was mediated by the components of holistic thinking. Nostalgia was positively associated with causality, but no other component (a paths, Table 2). The direct effect of nostalgia on GSC (controlling for the four putative mediators) was not significant ( $c'$  path, Table 2). Controlling for nostalgia, causality and attitude toward contradiction were positively related to GSC, perception of change was unrelated to it, and locus of attention was negatively related to it (b paths, Table 2). Lastly, a significant indirect effect emerged through causality,  $ab = 0.05$ ,  $SE = 0.02$ , 95% CI =  $[0.012, 0.091]$ , but not through attitude toward contradiction,  $ab = 0.02$ ,  $SE = 0.02$ , 95% CI =  $[-0.007, 0.053]$ , perception of change,  $ab = -0.002$ ,  $SE = 0.01$ , 95% CI =  $[-0.023, 0.021]$ , or locus of attention,  $ab = 0.01$ ,  $SE = 0.01$ , 95% CI =  $[-0.014, 0.039]$ . The association between nostalgia and GSC was mediated only by causality.

**Table 2.** Parallel Mediation Analysis in Studies 1 and 2.

Path	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	LLCI	ULCI
Study 1						
a1	0.18	0.05	3.88	<.001	0.088	0.268
a2	0.08	0.05	1.58	.116	-0.019	0.171
a3	-0.06	0.05	-1.20	.229	-0.149	0.036
a4	-0.05	0.05	-0.91	.363	-0.150	0.055
b1	0.27	0.09	2.88	.004	0.084	0.452
b2	0.22	0.09	2.45	.015	0.043	0.398
b3	0.03	0.09	0.30	.759	-0.154	0.211
b4	-0.21	0.09	-2.41	.017	-0.376	-0.038
$c'$	0.12	0.07	1.75	.081	-0.015	0.257
Study 2						
a1	0.43	0.21	2.04	.042	0.015	0.850
a2	0.32	0.16	1.96	.052	-0.002	0.647
a3	-0.19	0.19	-1.00	.320	-0.562	0.185
a4	0.25	0.19	1.31	.193	-0.128	0.627
b1	0.38	0.07	5.12	<.001	0.163	0.530
b2	0.05	0.10	0.48	.629	0.235	0.250
b3	-0.12	0.09	-1.29	.198	-0.152	0.062
b4	-0.20	0.09	-2.15	.033	-0.299	-0.016
$c'$	0.57	0.21	2.76	.007	0.163	0.984

Note. *B* = unstandardised regression coefficient. *SE* = standard error of *B*. LLCI = lower limit of 95% confidence interval. ULCI = upper limit of 95% confidence interval. Paths: a1 = nostalgia to causality, a2 = nostalgia to attitude toward contradiction, a3 = nostalgia to perception of change, a4 = nostalgia to locus of attention, b1 = causality to global self-continuity (GSC), b2 = attitude toward contradiction to GSC, b3 = perception of change to GSC, b4 = locus of attention to GSC.  $c'$  = direct effect of nostalgia on GSC.

## Study 2

In Study 2, we examined whether experimentally induced nostalgia elevates GSC via state holistic thinking, and especially state interactional causality (Spencer et al., 2005).

## Method

### Participants

We recruited 176 participants (119 women, 55 men, 2 other), aged 21–65 years ( $M_{\text{age}} = 35.64$ ,  $SD_{\text{age}} = 11.10$ ), from Prolific Academic. Based on relevant research (Sedikides et al., 2015a, Study 3), we aimed to recruit at least 128 participants to achieve a medium effect ( $f = .25$ ) with power  $(1 - \beta) = .80$  at  $\alpha = .05$  (two-tailed). We randomly assigned participants to the nostalgia ( $n = 89$ ) or control ( $n = 87$ ) condition.

### Materials and procedure

We manipulated nostalgia with the Event Reflection Task (Sedikides et al., 2015b). Participants in the nostalgia condition recalled a nostalgic event, described as “feeling sentimental about a fond and valued memory from one’s personal past,” listed four pertinent keywords, and wrote about how it made them feel. Participants in the control condition recalled a “past event that is ordinary, normal, and everyday—that is, events that [they] experience on a regular basis,” listed four pertinent keywords, and wrote how it made them feel. Then, all participants completed a 3-item manipulation check (Hepper et al., 2012). Sample item: “Right now, I am feeling quite nostalgic” (1 = *strongly disagree*, 7 = *strongly agree*;  $M = 4.92$ ,  $SD = 2.02$ ,  $\alpha = .96$ ).

Subsequently, given our interest in state GSC, and thus in effects of brief duration, we measured holistic thinking with an abbreviated version of the Analysis-Holism Scale (1 = *strongly disagree*, 7 = *strongly agree*;  $M = 4.24$ ,  $SD = 0.60$ ,  $\alpha = .77$ ). We selected three items for each subscale based on the corrected item-total correlation from Study 1.<sup>3</sup> Sample items are: “Everything in the universe is somehow related to each other” (causality;  $M = 3.65$ ,  $SD = 1.42$ ,  $\alpha = .83$ ), “It is more desirable to take the middle ground than go to extremes” (attitude toward contradiction;  $M = 4.66$ ,  $SD = 1.10$ ,  $\alpha = .57$ ), “A person who is currently living a successful life will continue to stay successful” (perception of change;  $M = 4.47$ ,  $SD = 1.25$ ,  $\alpha = .76$ ), and “The whole, rather than its parts, should be considered in order to understand

a phenomenon" (locus of attention;  $M = 4.18$ ,  $SD = 1.27$ ,  $\alpha = .82$ ).

Finally, we assessed GSC by slightly adjusting the 4-item state self-continuity scale (Sedikides et al., 2016) to reflect not just past-present self-continuity, but GSC. Sample item: "I feel connected to who I was in the past and who I will be in the future" ( $1 = \text{not at all}$ ,  $7 = \text{very much}$ ;  $M = 4.60$ ,  $SD = 1.50$ ,  $\alpha = .89$ ).

## Results and discussion

### Preliminary analysis

**Correlations.** We present correlations among study variables in Table 3. Holistic thinking (full scale) was positively associated with GSC. Causality was positively associated with GSC. Neither attitude toward contradiction, perception of change, nor locus of attention were linked to GSC.

**Manipulation Check.** Participants in the nostalgia condition ( $M = 5.94$ ,  $SD = 1.56$ ) felt more nostalgic than controls ( $M = 3.88$ ,  $SD = 1.90$ ),  $F(1, 174) = 62.21$ ,  $p < .001$ ,  $\eta_p^2 = .263$ . The manipulation was effective.

**Effect of Nostalgia on Holistic Thinking.** Nostalgic participants ( $M = 4.33$ ,  $SD = 0.53$ ) reported higher holistic thinking (full scale) than controls ( $M = 4.14$ ,  $SD = 0.64$ ),  $F(1, 174) = 5.28$ ,  $p = .023$ ,  $\eta_p^2 = .029$ . Also, nostalgic participants ( $M = 3.86$ ,  $SD = 1.38$ ) reported higher causality than controls ( $M = 3.43$ ,  $SD = 1.42$ ),  $F(1, 174) = 4.12$ ,  $p = .042$ ,  $\eta_p^2 = .023$ . However, nostalgia did not impact significantly: attitude toward contradiction ( $M_{\text{Nostalgia}} = 4.82$ ,  $SD_{\text{Nostalgia}} = 1.01$ ,  $M_{\text{Control}} = 4.49$ ,  $SD_{\text{Control}} = 1.17$ ),  $F(1, 174) = 3.84$ ,  $p = .052$ ,  $\eta_p^2 = .022$ ; perception of change ( $M_{\text{Nostalgia}} = 4.37$ ,  $SD_{\text{Nostalgia}} = 1.32$ ,  $M_{\text{Control}} = 4.56$ ,  $SD_{\text{Control}} = 1.19$ ),  $F(1, 174) = 1.00$ ,  $p = .320$ ,  $\eta_p^2 = .006$ ; or locus of attention ( $M_{\text{Nostalgia}} = 4.30$ ,  $SD_{\text{Nostalgia}} = 1.23$ ,  $M_{\text{Control}} = 4.05$ ,  $SD_{\text{Control}} = 1.31$ ),  $F(1, 174) = 1.71$ ,  $p = .193$ ,  $\eta_p^2 = .010$ .

**Effect of Nostalgia on State GSC.** Nostalgic participants ( $M = 4.96$ ,  $SD = 1.37$ ) reported higher state GSC than controls ( $M = 4.23$ ,  $SD = 1.56$ ),  $F(1, 174) = 10.89$ ,  $p = .001$ ,  $\eta_p^2 = .059$ .

### Mediation analysis

We used Hayes' (2013) Process Macro (Model 4) to conduct a mediation analysis (10,000 bootstrap samples). Nostalgia led to higher holistic thinking,  $B = 0.20$ ,  $SE = 0.09$ ,  $t = 2.30$ ,  $p = .023$ . The direct effect of nostalgia on GSC was significant,  $B = 0.64$ ,  $SE = 0.22$ ,  $t = 2.90$ ,  $p = .004$ . Controlling for nostalgia, holistic thinking was positively related to GSC,  $B = 0.42$ ,  $SE$

$= 0.19$ ,  $t = 2.25$ ,  $p = .026$ . Despite the joint significance of the  $a$  (i.e. nostalgia to holistic thinking) and  $b$  (i.e. holistic thinking to GSC) paths, which is essential for establishing mediation (Yzerbyt et al., 2018), the index of indirect effect did not reach significance,  $ab = 0.09$ ,  $SE = 0.06$ , 95% CI =  $[-0.005, 0.235]$ .

We next tested whether nostalgia increased GSC through components of holistic thinking, with an emphasis on causality (controlling for the other three components). Indeed, nostalgia increased causality, but not attitude toward contradiction, perception of change, or locus of attention ( $a$  paths, Table 2). Contrary to Study 1, the direct effect of nostalgia on GSC (controlling for the mediators) was significant ( $c'$  path, Table 2). Additionally, controlling for nostalgia, causality and locus of attention were positively associated with GSC, whereas perception of change and locus of attention were not ( $b$  paths, Table 2). Consistent with Study 1, a significant indirect effect emerged through causality,  $ab = 0.17$ ,  $SE = 0.09$ , 95% CI =  $[0.003, 0.359]$ , but not through attitude toward contradiction,  $ab = 0.02$ ,  $SE = 0.05$ , 95% CI =  $[-0.074, 0.116]$ , perception of change,  $ab = 0.02$ ,  $SE = 0.03$ , 95% CI =  $[-0.024, 0.106]$ , or locus of attention,  $ab = -0.05$ ,  $SE = 0.05$ , 95% CI =  $[-0.172, 0.028]$ .

## Study 3

In Study 3, we manipulated the emerging mediator, causality, and measured state GSC (Spencer et al., 2005).

### Method

#### Participants

We recruited 180 participants (118 women, 62 men), aged 18–69 years ( $M_{\text{age}} = 35.02$ ,  $SD_{\text{age}} = 12.15$ ), from Prolific Academic. Based on relevant research (Ma-Kellams & Blascovich, 2012, Study 5), we estimated a medium effect ( $f = .25$ ) with power ( $1 - \beta$ ) = .80 at  $\alpha = .05$  (two-tailed), aiming to recruit a minimum of 128 participants. We randomly assigned participants to the interactional causality ( $n = 85$ ) or control ( $n = 95$ ) condition.

#### Materials and procedure

We manipulated causality by adapting a procedure introduced by Ma-Kellams and Blascovich (2012, Study 5). Participants read one of two articles purportedly published in a scientific journal (*ScienceNow*). In the interactional causality condition, the article

**Table 3.** Zero-Order Correlations Among Study 2 Variables.

Variable	1	2	3	4	5	6	7
1. Nostalgia manipulation	–						
2. Manipulation check	.513***	–					
3. Analysis-Holism Scale	.172*	.228**	–				
4. Causality	.153*	.343**	.67***	–			
5. Att. toward contradiction	.147	.065	.62***	.218**	–		
6. Perception of change	–.075	.009	.11	–.115	–.265***	–	
7. Locus of attention	.099	–.020	.49**	.060	.323***	–.430***	–
8. Global self-continuity	.243**	.278***	.20**	.399***	.115	–.092	–.073

Note. Nostalgia manipulation was coded: 0 = control, 1 = nostalgia.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

suggested that “events are bounded in complex cause-and-effect relations.” It elaborated: “there exists intertwined and interconnected cause-and-effect relationships behind all things happening around us across time, and this notion helps them make sense of everyday life.” Therefore, “individuals who, during problem-solving, consider relevant information about other tasks (rather than simply focusing on the task at hand) perform better, receive higher favorability ratings from their peers, and demonstrate greater overall psychological well-being.” In the control (dispositional causality) condition, the article suggested that “events operate, to a great degree, independently of each other.” It elaborated: “almost all things happening around us across time, are largely independent and isolated from each other (i.e. have their own substance), and this notion helps them make sense of everyday life.” Therefore, “individuals who, during problem solving, only focus on the task at hand (rather than seeking relevant information about other tasks) perform better, receive higher favorability ratings from their peers, and demonstrate greater overall psychological well-being.” Subsequently, participants wrote about a personal experience that supported the argument they read.

Then, we administered a 2-item manipulation check: “Events cause each other” and “Events seem to have their own separate entity [reverse-coded]” (1 = *strongly disagree*, 7 = *strongly agree*;  $M = 4.71$ ,  $SD = 1.56$ ,  $r = .605$ ). Lastly, we assessed state GSC as in Study 2 ( $M = 4.94$ ,  $SD = 1.24$ ,  $\alpha = .80$ ).

## Results and discussion

Participants in the interactional causality condition ( $M = 5.54$ ,  $SD = 1.00$ ) endorsed greater causality than controls ( $M = 3.96$ ,  $SD = 1.59$ ),  $F(1, 176) = 61.61$ ,  $p < .001$ ,  $\eta_p^2 = .257$ . The manipulation check was effective. Importantly, participants in the interactional causality

condition ( $M = 5.28$ ,  $SD = 1.09$ ) reported higher GSC than controls ( $M = 4.64$ ,  $SD = 1.30$ ),  $F(1, 176) = 12.49$ ,  $p < .001$ ,  $\eta_p^2 = .066$ .

## General discussion

We accomplished two objectives in this research. First, we established a link between nostalgia and GSC, replicating Hong et al. (2020). In Study 1, we used the same GSC measure as Hong et al. (2020), and, in Studies 2–3, we used an alternative measure (after Sedikides et al., 2016), thus expanding the scope of the construct. Second, we identified an aspect of holistic thinking, interactional causality, as a plausible mechanism through which nostalgia is associated with, or increases, GSC.

The findings highlight the relevance of nostalgia for GSC, a construct associated with life satisfaction, positive affect, and adaptive coping (Sadeh & Karniol, 2012; Sokol & Serper, 2019). Further, the findings identify nostalgia as a key antecedent of that construct. Lastly, the findings have practical implications. Given that GSC is a marker of psychological health, nostalgia can be implemented to boost GSC.

Our research has limitations. First, in Study 1, we used a cross-sectional design to assess mediation (Maxwell & Cole, 2007). Yet, this mediational design was informative, because it placed the theory at risk (Fiedler et al., 2011). Regardless, our experimental-causal-chain design (Spencer et al., 2005) in subsequent studies addressed the limitations of Study 1’s cross-sectional, measurement-of-mediation approach. Second, in Study 2, our measure of GSC had not been previously validated. We take comfort in the results of Study 2 supporting our hypotheses (as well as replicating those of Study 1 and being compatible with those of Study 3), and thereby corroborating the construct validity of the GSC measure

(Cronbach & Meehl, 1955). Third, one may question the conceptual independence of our two key constructs, interactional causality and GSC. Their intercorrelations, though, were low-to-moderate (.218 in Study 1, .377 in Study 2 after partialling out condition), indicating that, despite their reliable overlap, the constructs were conceptually distinct. Finally, Hong et al. (2020) identified another mechanism underlying the relation between nostalgia and global self-continuity, narrative identity. Chandler et al. (2003) drew a distinction between essentialism and narrativism. Essentialism advocates qualities in a person that are immutable and resistant to change, whereas narrativism advocates qualities that follow from each other or are interlinked. It is possible that nostalgic accounts reinforce a narrative perspective, which in turn galvanises a focus on interactional causality. Follow-up research could test a serial mediation model, where nostalgia strengthens narrativism, which subsequently fortifies interactional causality in promoting GSC.

Nostalgic reverie, as Davis (1979) argued, assists in connecting temporally distinct self-aspects. It partly does so by bolstering thinking of how they causally interact over time.

## Notes

1. Self-continuity—connection between one's past and present selves—is also positively associated with psychological benefits; further, nostalgia is associated with, or triggers, self-continuity (Sedikides et al., 2015a, 2016).
2. Hong et al. (2020, Study 1) reported an alpha of .79 for the same scale.
3. In Choi et al. (2007, Table 1), causality included items 1 ( $r=.617$ ), 2 ( $r=.591$ ), 3 ( $r=.592$ ), 4 ( $r=.543$ ), 5 ( $r=.529$ ), and 6 ( $r=.575$ ). Attitude toward contradiction included items 7 ( $r=.538$ ), 8 ( $r=.648$ ), 9 ( $r=.613$ ), 10 ( $r=.531$ ), 11 ( $r=.242$ ), and 12 ( $r=.376$ ). Perception of change included items 13 ( $r=.476$ ), 14 ( $r=.610$ ), 15 ( $r=.522$ ), 16 ( $r=.685$ ), 17 ( $r=.242$ ), 18 ( $r=.360$ ). Locus of attention included items 19 ( $r=.671$ ), 20 ( $r=.652$ ), 21 ( $r=.628$ ), 22 ( $r=.706$ ), 23 ( $r=.415$ ), and 24 ( $r=.259$ ). The coefficients in brackets are from Study 1. We chose items 1, 2, 3, 7, 8, 9, 14, 15, 16, 19, 20, and 22.

## Data availability statement

The data that support the findings of this study are available from the corresponding author upon request.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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