Routines Make People Unexpectedly Nostalgic

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WORKING PAPER

Invited resubmission at Journal of Personality and Social Psychology

Abstract

What makes people nostalgic for the past, and can they correctly anticipate which experiences will inspire nostalgia? Research suggests that momentous events, like graduations, commonly produce nostalgic memories, but these experiences are relatively rare. This paper examines whether routine experiences—those repeated reliably across time—also inspire nostalgia and whether people correctly anticipate the relationship between routines and nostalgia. Five studies, plus four replications, show that people reflecting on past routine experiences felt more nostalgic than others expected to feel towards current routines in the future. Routines appear to inspire nostalgia because they stand in for periods of life during which they occurred, bringing to mind imagery of this period and transporting people back to this time. However, when anticipating future nostalgia, people fail to appreciate how their routines will come to represent the periods surrounding them. Consequently, they fail to realize just how much their routine memories will transport them back to important times in their lives, leading them to underestimate nostalgia for these experiences.

Keywords: nostalgia, routines, experiences, forecasting errors

Routines Make People Unexpectedly Nostalgic

In late 2015, Former President Barack Obama, with just one year left in his presidency, was asked what he expected to miss most from his time in office. Perhaps not surprisingly, he mentions some of the most special aspects of being president: rides on the private jet, Air Force One, and private helicopter, Marine One (Campbell, 2015). Yet, when interviewed again 18 months later, after his presidency had ended, he mentions a very different type of experience. He instead recalled his routine on summer nights: sitting on the Truman Balcony, looking off at the Washington Monument and Lincoln Memorial (Smith, 2017). While President Obama expected to feel nostalgic, or a sentimental longing for one's past (Wildschut et al., 2006a), for special or momentous aspects of his presidency, his actual nostalgic memories reflected more mundane, routine moments as well. In the present research, we suggest that Barack Obama is far from an isolated case and that routines like the one he described regularly produce unexpected nostalgia.

Routine experiences, or those repeated across time according to a pattern or schedule, are a ubiquitous part of everyday life: there are morning routines, weekly dinner date routines, yearly vacation routines, etc. Despite their commonality, we suggest that over time routines can take on new, more symbolic meaning. Their repeated nature leads them to become a stand-in for, and to serve as a reminder of, the broader life context surrounding the ordinary routine. We argue that when people reflect on their past routines, it brings to mind thoughts and imagery of this broader context—the things they did and people they knew—which allows them to vividly relive their past, generating nostalgia. Yet, when *anticipating* future nostalgia, people fail to realize how their routines will acquire new meaning when viewed in hindsight. They focus less on this broader context and more on the experience of going through the routine in the present. And because routines are an ordinary, expected part of life in the present, focusing on this leads people to fail

to anticipate the extent to which their memories of routines will transport them to the past and generate nostalgia.

In what follows, we first discuss existing literature on the content and consequences of nostalgic memories and how people anticipate future nostalgia. Then, we describe our theory of how routines can generate nostalgia and why people underestimate the extent to which this occurs. We then present five studies (plus four replications) supporting this theory. We conclude with a discussion of the theoretical contributions and practical implications of our work.

Nostalgia, Its Contents, and Its Consequences

Nostalgia is the sentimental longing or wistful affection for one's past (*Oxford English Dictionary*, 2003; Wildschut et al., 2006a). It is an intense, mixed emotional experience, though typically more positive than negative (Holak & Havlena, 1998). People experience nostalgia regularly, with 80% of respondents in one study reporting that they feel nostalgic at least once a week (Wildschut et al., 2006a), Moreover, nostalgia appears to be universal, occurring across a range of cultures (Hepper et al., 2014a).

Most previous research on nostalgia has focused on its downstream consequences. Though historically perceived as a negative state, today researchers believe nostalgia mostly serves a positive function (see Sedikides, Wildschut, Routledge, & Arndt, 2015 for a review). The current model suggests that nostalgia helps relieve psychologically aversive states (e.g., loneliness) and confers psychological benefits, such as increased social connectedness, reduced boredom, and greater meaning in life (Sedikides & Wildschut, 2018; Wildschut et al., 2006a; Zhou et al., 2008). Relatively less work has examined *what* makes people nostalgic—that is, what are the specific types of experiences that compose nostalgic memories.

The few studies that have directly investigated the content of nostalgic memories suggest that these memories typically involve the self, interacting with close others or during momentous events (Biskas et al., 2019a; Hepper et al., 2014a; Wildschut et al., 2006b). In their seminal 2006 investigation into the content of nostalgia, Wildschut and colleagues asked participants to describe a personally meaningful memory that makes them feel "*most nostalgic"* (p. 979, emphasis from the original). The authors then coded participants' descriptions based on a coding scheme, including seven categories decided a priori (a person or people, momentous events, places, periods in life, animals, tangible things, and past versions of themselves). From these categories, the most commonly occurring one was momentous events (making up 34% of memory descriptions), followed closely by other people (making up 28%). More recent research building on these initial findings revealed that people form nostalgic memories for events that have personal meaning to them (Hepper et al., 2014b) and that they know to savor when going through the event initially (Biskas et al., 2019b). In other words, when people are asked what experiences make them most nostalgic, momentous events are the most common type of experience mentioned.

This take-away is also echoed in research studying the *process* underlying nostalgic reflection, which suggests that nostalgia stems from a desire to relive past experiences (Evans et al., 2020; Hepper et al., 2012; Holak & Havlena, 1998). Because the past is in the past, memories are the primary vehicle through which people can revisit earlier periods of their lives. As such, richer memories that allow people to relive the past more deeply should also provoke greater nostalgia (Evans et al., 2020). This feeling of reliving, or "really being there," is referred to as transportation and is characterized by elaborate mental imagery and strong emotional reactions (Green & Brock, 2000). In line with this, reflecting on memories of momentous events typically

leads to feelings of transportation (Brewer, 1986; Williams et al., 2008), making it natural that memories of momentous events would also inspire nostalgia.

Though nostalgia focuses on past experiences, recent research has begun to explore how it might also affect behavior in the present, and how it might shape perceptions of the future (FioRito & Routledge, 2020). For example, under certain circumstances, people who feel nostalgic tend to be more motivated to pursue important goals (Sedikides et al., 2018) and become more optimistic about the future (Cheung et al., 2013). People also sometimes begin to feel nostalgic for events while they are still happening (e.g., a student who feels nostalgic for college during the final weeks of their senior year; Batcho & Shikh, 2016). At other times, people imagine that some experiences in the present will make them feel nostalgic in the future (Cheung et al., 2019a). That is, just as they do with other emotional experiences like happiness (e.g., Wilson et al., 2000) or regret (e.g., Gilbert et al., 2004), people anticipate themselves feeling nostalgic in the future about experiences that are currently ongoingClick or tap here to enter text..

Though research on anticipated nostalgia is relatively new, initial work suggests that it is a common experience and that it can change how people value and approach their current experiences. For example, when participants anticipated feeling nostalgic for an experience in the present, they attempted to savor that event more while going through it (Cheung et al., 2019a). Moreover, consistent with the research on actual nostalgia, work on *anticipated* nostalgia has thus far shown that people anticipate more nostalgia for events they view as more personally meaningful in the present and for those that involve close others (Cheung et al., 2019a). Not surprisingly, anticipated nostalgia for a current momentous event (e.g., college graduation) was positively correlated with actual nostalgia for that experience.

In sum, existing work on the content of people's *most* nostalgic memories has consistently shown that people bring to mind mostly momentous events, both in reflection and in anticipation. While participants in these studies may have mentioned other types of experiences as well, no previous investigation has specifically examined whether non-momentous, everyday experiences might also generate nostalgia. Moreover, research on anticipated nostalgia has never examined how *accurate* people are in predicting their future nostalgia, especially for events that might not be particularly meaningful in the present. In the current research, we aim to bridge these gaps, demonstrating the power of *routines* to also elicit nostalgia and people's unique inability to anticipate this while engaging in routine experiences.

Routine Experiences

Routine experiences are those repeated across time according to a regular pattern or schedule. A review drawing on diverse literatures (e.g., psychology, occupational therapy, anthropology) defines routines as "strategically designed behavioral patterns… used to organize and coordinate activities along different axes of time, duration, social and physical contexts, sequence and order" (Zisberg et al., 2007, p. 446). Examples include morning routines (e.g., having a cup of coffee, going to the gym, commuting to work) or patterns over longer periods of time, such as weekly grocery trips or vacations to the same place each summer.

By providing structure, routines often serve a functional purpose of ensuring that required, or desired, tasks and experiences occur with as little planning and decision making as possible (Clark, 2000; Ludwig, 1997; Phipps & Ozanne, 2017; Zisberg et al., 2007). Because they follow a set schedule, routines can come to be initiated automatically over time and become an expected, regular part of everyday life (Zisberg et al., 2007). While they serve a functional purpose and occur automatically, this does not imply that the experiences comprising routines are

always utilitarian and mindless in nature. The activities that make up routines can be highly engaging (e.g., reading a book before bed each night) and hedonic (e.g., attending a happy hour every Friday; Heintzelman & King, 2019a; Ludwig, 1997). The critical, defining feature of routines is simply that the experience occurs repeatedly according to a pattern or schedule.

Routines are not the only type of repeated experience; rituals and habits also fit into this category. While all three types of experiences are repeated, rituals serve a symbolic purpose and are inherently imbued with cultural meaning, even in the present (i.e., as one engages in them; Hobson et al., 2017; see also Rook, 1985). On the other hand, habits are learned associations between specific behaviors (e.g., nail biting, cigarette smoking) and certain contexts that trigger them (leading them to be executed automatically; Wood & Rünger, 2016). In contrast, routines are experiences (not behaviors) that occur according to a schedule, and are typically not imbued with higher cultural meaning in the moment. Thus, while routines share some characteristics with both rituals and habits, they are a distinct type of repeated experience. In the present research, we propose that routines play a special, but unanticipated, role in generating nostalgia.[1]

The Current Research

Building on the defining features of routines, our research makes two primary hypotheses, which we develop in the following sections.

How Routines Generate Nostalgia

[1]Because habits usually occur outside of conscious awareness, we do not necessarily expect them to be remembered well or to generate nostalgia. And while rituals may be a potent source of nostalgia, we expect that people are likely able to *accurately* anticipate their nostalgia for these experiences (because they already have inherent meaning in the present).

In the present, each individual instance of a routine is an ordinary, expected part of everyday life. Indeed, the repetition of routines creates a sense of familiarity (Avni‐Babad, 2011) and people come to expect, even adapt, to their occurrence (Zisberg et al., 2007). Theories of attention suggest that people pay less attention to patterns that occur consistently (compared to changes in patterns; Helson, 1964; see also, Kahneman & Miller, 1986; Kahneman & Tversky, 1979). Thus, routines should not necessarily lead to much thought or attention in the moment, because they are part of people's regular patterns of everyday life. Indeed, people tend to view their routines as common and normal Click or tap here to enter text., taking their occurrence for granted and rarely contemplating them unless they are disrupted (Phipps & Ozanne, 2017). As a result, routines may fade into the background, not leading to much symbolic value *in the present*, as people are going through them. Yet, we posit that when people reflect back on the totality of their experiences across time, that routines begin to take on new meaning.

Experiences that are repeated many times can become connected to and serve as reminders for the eras during which they occurred. Memories for repeated events that extend across time tend to be remembered well because the many instances of the event are consolidated into a single memory (Brewer, 1986; Williams et al., 2008). And because these experiences do not represent a single unique experience, memories of them tend to be linked to a particular time period (Neisser, 1986). This process of aggregating experiences is not unlike other ways people think and talk about groups of objects. For example, whole categories are often mentally represented by prototypical (Rosch, 1973) or exemplary (Nosofsky, 2011) members, such as when people use the brand Kleenex (an exemplar) to refer to the entire facial tissue category. More broadly, foundational principles of gestalt psychology show that people tend to perceive related stimuli as a whole rather than as individual units (Wagemans et al., 2012). In a similar

way, memories of repeated experiences can bring to mind images and thoughts not just of the experience itself, but also of the period when it occurred and how it relates to one's broader life story (Conway, 2005; Conway & Pleydell-Pearce, 2000).

Because routines are, by definition, repeated events, we suggest that when people reflect on them, they may also consider the broader meaning of the life period in which they occurred. In other words, people are unlikely to remember individual instances of themselves performing mundane routines, but may start to view routines as stand-ins for the broader context of one's personal life at the time (e.g., the role this time period played in one's life story). The "part" (one's routine) serves as a representative memory for the "whole" (a period of one's life). Bringing to mind imagery of the broader context in one's personal life should also trigger more emotional connections and memories from this period, leading to more vivid reflections of the past (Green & Brock, 2000). Taken together, to the extent that routines come to represent past life periods, they should transport people back to their past life, thus generating nostalgia.

As an initial exploration of the possibility that routines can be a source of nostalgia, we examined naturalistic accounts of people's nostalgic memories online. Specifically, we collected 129 blog posts on the internet where people described their nostalgic memories, and asked a set of hypothesis-blind raters to code each blog post as either routine, momentous, or something else, and to rate how routine the experience seemed on a 7-point scale (1 = *Not at all routine*, 7 = *Very routine*). Interestingly, we found that the majority of posts (79.1%) described routine experiences (while 20.9% described momentous events). Moreover, on average, the experiences in the posts were rated above the midpoint on routineness ($M = 4.53$, $SD = 1.93$), $t(128) = 3.13$, $p = .002$ (see the web appendix for additional details). Thus, while the majority of existing research

has shown that people are oftentimes nostalgic for momentous events in their lives, it appears that routine experiences might be another, unexplored source of nostalgia for many people.

Why People Underestimate Nostalgia for Routines

We propose that people will not necessarily anticipate nostalgia for their routines because it is difficult to predict how the meaning of their past routines will evolve over time. In order to anticipate future states and emotions, people must rely on their own mental representations of how they will view that event in the future, as well as how their memories of that event will make them feel. However, a great deal of research suggests that people often have trouble constructing these representations accurately in the moment, and thus make inaccurate predictions about how they will feel in the future (Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003).

More specifically, one way people's representations of the future sometimes falter is that they rely too much on what they are *currently* experiencing and feeling to make predictions about what they will experience and feel in the *future* (Loewenstein, 1996; Loewenstein et al., 2003). For example, hungry people have trouble anticipating their preferences when they will later be satiated (Gilbert et al., 2002), and people who are not currently being socially ostracized underestimate how painful it will be when they are excluded (Nordgren et al., 2011). These common types of errors, known as projection biases or empathy gaps, occur because people have difficulty appreciating how their states and emotions will change over time. Relatedly, research on focalism shows that people overestimate the impact of certain life experiences on their future well-being (Kahneman & Snell, 1992; Schkade & Kahneman, 1998; Wilson et al., 2000). This occurs because people focus too much on what they are specifically asked to make a prediction about, and fail to consider how the complexity of their lives will affect them in retrospect. These

miscalibrations are also related to recent theories suggesting that people often fail to see connections across their life experiences (i.e., take a "birds-eye view") because they naturally focus on individual experiences (i.e., take a "ground-level" view) when considering the present, rather than thinking about how that present connects to their past and future (Mogilner et al., 2018).

We suggest that a similar process may occur when people anticipate nostalgia for their routines. In the present, people view their routines as an ordinary part of their everyday life (by definition), and are thus unlikely to expect them to elicit strong thoughts or feelings in the future. Without recognizing how routines will come to stand in for past life periods, and the imagery of the broader context that this will evoke, people may overlook the extent to which memories of their routines will transport them back to the past, in turn inspiring nostalgia. In other words, if people "project" how they currently feel about their routines onto the future, they will not be able to predict the powerful emotional response these routines will one day inspire.

In sum, we hypothesize that people will underestimate nostalgia for their routine experiences. We suggest this occurs because people do not imagine the broader context of their routines when predicting future nostalgia. Because of this, they fail to anticipate the extent to which their memories will transport them to the past.

Overview of Studies

In five studies, plus four replications, we tested our core hypothesis that people underestimate nostalgia for routines. In Study 1, we found that memories of past routines inspired more nostalgia than people expected to feel for their current routines. In Studies 2 and 3, we replicated this effect in more tightly controlled designs and tested our proposed mechanism through measurement. Study 2 limited the types of routines considered across those anticipating

nostalgia and those reporting actual nostalgia. Study 3 used a longitudinal design and showed that people felt more nostalgic for the *exact same* routine (when looking back on it) than they anticipated feeling about that routine when going through it in the moment. These two studies also showed that people underestimated nostalgia for routines because they focused less on the broader context of the routine in the present, and in turn failed to anticipate the extent to which their memories would transport them to the past. Study 4 tested this process through moderation by showing that people more accurately anticipate nostalgia for momentous events, which are already connected to their broader life periods in the present. Finally, Study 5 showed that we can debias people's predictions by reminding them of an unrelated past routine before asking them to anticipate their nostalgia for a current routine.

For all studies, sample sizes were determined in advance. All studies conducted after Fall 2019 (Studies 2, 3, and 5) were preregistered on aspredicted.com. For online studies, we aimed to recruit at least 100 participants per condition. For studies involving student populations, we recruited as many participants as possible during the semester the study took place, with a goal of at least 50 participants per cell. These rules of thumb were determined based on the typical availability of student participants and power calculations. Using G*Power (Faul et al., 2007), we calculated that this sample size would give us 80% power to detect a medium effect. Across all studies except for Study 3, we excluded participants who failed an instructional manipulation check (IMC; (Oppenheimer, Meyvis, & Davidenko, 2009). In some studies, not all participants recruited to participate ultimately qualified for participation (Studies 2 and 5). In these studies, we preregistered that we would recruit participants in batches until we reached a certain number of participants after accounting for exclusions. For each study, we report all conditions and measures either in the main text or in the web appendix. We also note the topics and goals of the

measures reported in the web appendix where relevant. All data, analysis code, materials, and preregistrations can be found at https://bit.ly/routineOSF.

Study 1: Predicted and Actual Nostalgia for Routines

To test our hypothesis that routines generate more nostalgia than expected, we assigned participants in Study 1 to think about a routine either from their past or that they had in their life in the present. *Predictors* thought about a routine in their life right now and reported how nostalgic they expected to feel towards this routine in the future. We compared this anticipated nostalgia to *experiencers* actual nostalgia towards a routine they used to (but no longer) have in their life. We expected that *predictors* would anticipate feeling less nostalgic for a current routine than *experiencers* actually felt towards a past routine.

Note that this approach differs from previous research studying nostalgic memories and what participants spontaneously bring to mind when asked to reflect on the past (e.g., Wildschut et al., 2006a). We measure expected and actual nostalgia for routine experiences *specifically* to capture the mismatch between what people anticipate and what they actually experience. We reflect further on this methodological difference in the General Discussion, suggesting that it also enabled us to gain new insights into the sources of people's nostalgia.

Method

We recruited 298 participants from MTurk (M_{age} = 37.83, 54% female, 46% male) in the Fall of 2018. All participants were first told that the study was about routine experiences, described as "experiences or activities that are repeated across time," along with examples (having an after-school routine, going to the same pizza place regularly, or vacationing to the

same place each summer[2]). Then, participants were randomly assigned to one of three role conditions (*predictor, experiencer-general, experiencer-specific*). In the *predictor* condition, participants described a routine from the present time in their life (i.e., that they were currently engaging in regularly). In contrast, *experiencers* were asked to think about a routine from their past, that they no longer engaged in. We included two *experiencer* conditions that varied the specificity of the time from which their routine came. In the *experiencer-general* condition, participants were asked to recall and describe a routine that occurred across many periods of their life. In the *experiencer-specific* condition, they were instead asked to recall a routine that occurred in just one period. Since *predictors* were thinking of a specific time period—the present—when making their predictions, we included the *experiencer-specific* condition to mirror this specificity, along with the more ecologically valid, unconstrained *experiencer-general* condition (since people are not usually restricted to a single period of time when reflecting on their memories).

To capture and manipulate the specificity of participants life periods, all participants created a timeline of their life. To do this, they first listed five "eras" of their lives which we defined as "discrete periods that represent a specific time of [their lives]" with the last era representing the current period of their lives. Then they listed 10 unique events that occurred across these eras. Finally, they assigned each event to the era in which it occurred. After creating their timelines, participants moved on to the focal routine description task based on their assigned condition. In the *experiencer-general* condition, they were asked to think of a routine

[2]Though not all vacations are routine, some people vacation to the same place every year. We included vacations in our examples so that participants would feel comfortable generating routines that occur at various frequencies.

that occurred across multiple "eras" they previously listed. In the *experiencer-specific* condition, they were asked to think of a routine that occurred in just one era. *Predictors* were asked to think of a routine occurring in the current era.

After describing their routines, participants reported their anticipated and actual nostalgia using four items. *Predictors* indicated how nostalgic they expected the routine to make them feel in the future, five years from now (1 = Not nostalgic, 4 = Somewhat nostalgic, 7 = Strongly nostalgic; adapted from Barrett et al., 2010). Next, they indicated the extent to which they agreed that the routine would make them feel each of the following in the future, five years from now: nostalgic, sentimental, and reminiscent (1 = *Strongly disagree,* 7 = *Strongly agree*). *Experiencers* indicated how nostalgic the routine made them feel in the present (1 = *Not nostalgic*, 4 = *Somewhat nostalgic*, 7 = *Strongly nostalgic*) and the extent to which they agreed that the routine made them feel nostalgic, sentimental, and reminiscent right now (1 = *Strongly disagree,* 7 = *Strongly agree*). We averaged these four items in each condition to create a *nostalgia* measure (α = .934).

Since participants were generating their own routines, we included several items about the qualities of the routine to ensure they were similar across conditions. First, participants reported the extent to which they viewed the experience as a *routine* (1 = *Not at all routine,* 7 = *Very routine*) and how *frequently* the experience occurred (labeled: (1) only once; (2) less frequently than every year; (3) yearly; (4) Every 2-6 months; (5) monthly; (6) every two weeks or so; (7) weekly; (8) every few days; (9) daily; (10) more than once a day). In addition, we also included a series of items assessing whether any differences between *predictors* anticipated nostalgia and *experiencers* actual nostalgia might be explained by factors previously shown to drive nostalgia. We argue that routines inspire nostalgia because, over time, they come to stand-

in for periods of life, bringing to mind imagery of one's broader life context. However, it could instead be the case that *experiencers* bring to mind routines that were more important to them as they went through them in the past whereas *predictors* think of more mundane ones. To test this, we asked participants to indicate the extent to which the routine contributed (or contributes) to their happiness in life (1 = *Not at all,* 7 = *Very much*). Past research also suggests that nostalgic memories often involve close others (Wildschut et al., 2006b). As such, if *predictors* are more likely to think of solitary routines or those involving distant others, it could suppress anticipated nostalgia relative to *experiencers*. As such, participants indicated whether the routine involved (or involves) others (1 = *Always or sometimes involved others*, 2 = *Never involved others*) and, if it involved others, how close they were to those people (1 = *Not at all close,* 7 = *Very close*).

To conclude the study, participants completed an IMC and provided their demographic information.[3]

Results

Two participants failed the IMC and are exclude from the analyses reported below.

Routine experience checks. We first tested whether *experiencers* and *predictors* considered similarly routine experiences. A one-way ANOVA on the *routine* measure confirmed that participants did not differ in how routine they considered their routines across conditions ($M_{predictor}$ = 6.00, $SD_{predictor}$ = 1.35, $M_{experiencer\text{-}general}$ = 5.81, $SD_{experiencer\text{-}general}$ = 1.33, $M_{experiencer\text{-}specific}$ = 5.84, $SD_{experiencer\text{-}specific}$ = 1.24), $F(2, 293) = .62$, $p = .539$.

[3]Additional measures collected in this study focused on the timeline creation task and how the routine contributed to other dimensions of well-being.

For ease of analysis, we treated our *frequency* measure as a continuous variable for all analyses reported in the manuscript.[4] A one-way ANOVA on the *frequency* measure indicates the routines differed in how frequently they occurred, $F(2, 293) = 8.73$, $p < .001$, $\eta^2 = .056$. Follow up tests using Fisher's LSD (used in all subsequent comparisons) shows that this was driven by those in the *predictor* condition thinking of routines that occurred more frequently ($M = 7.79$, $SD = 2.18$) than those in the *experiencer-general* condition ($M = 6.38$, $SD = 2.56$; $t(293) = 4.19$, $p < .001$) and those in the *experiencer-specific* condition ($M = 6.98$, $SD = 2.45$; $t(293) = 2.53$, $p = .015$). The two *experiencer* conditions did not differ ($t < 1.7$). On our scale, this difference is equivalent to routines occurring between about every two weeks versus about every few days.

Nostalgia. As predicted, a one-way ANOVA on the *nostalgia* score indicated a significant effect of role condition, $F(2, 293) = 11.45$, $p < .001$, $\eta^2 = .073$. *Predictors* expected to feel less nostalgic for their current routines ($M = 4.42$, $SD = 1.78$) than *experiencers* actually felt for their routines from either general periods ($M = 5.36$, $SD = 1.63$; $t(293) = 3.81$, $p < .001$) or specific periods ($M = 5.35$, $SD = 1.38$; $t(293) = 4.16$, $p < .001$). The two *experiencer* conditions did not differ ($t < .1$). This difference remained significant when controlling for differences in how frequently the routines occurred, $F(2, 292) = 7.90$, $p < .001$ $\eta^2 = .051$.

Supplemental analyses. We next tested for potential differences across conditions on dimensions previously shown to be related to nostalgia. Though the experiences were considered similarly routine, we first tested whether they might have differed in importance to well-being. We ran a one-way ANOVA on the happiness measure. There was a marginally significant effect of role condition on how happy the routines made participants, $F(2, 293) = 3.00$, $p = .051$ η^2

[4]In the web appendix, we report the percentage of experiences occurring at each frequency, as well as non-parametric analyses of this variable for all studies (which produce consistent results).

= .02. *Predictors* indicated their routines made them significantly *happier* (M = 5.38, SD = 1.46) than those in the *experiencer-specific* condition did (M = 4.86, SD = 1.59; $t(293) = 2.47$, p = .022), and marginally happier than those in the *experiencer-general* condition (M = 4.96, SD = 1.87; $t(293) = 1.80$, p = .069). Notably, this pattern is opposite of what would be expected based on this explanation. If *experiencers* bring to mind more important routines, they should rate them as contributing more to their happiness. Instead, we find that *predictors* rated their routines as making them happier than *experiencers.* Nevertheless, follow up tests show that the differences in nostalgia remain when controlling for happiness ($F(2, 292) = 25.23$, $p < .001$ $\eta^2 = .147$).

Next, we tested whether *experiencers* were more likely to think of routines involving close others than *predictors*. We found no differences in the percentage of routines involving others across role conditions (*predictors*: 81.3%, *experiencer-specific*: 86.9%, *experiencer-general*: 86.7%), $\chi^2(2; N = 295) = 1.58$, p = .453. In addition, among those thinking of social routines, there was no difference in how close participants felt towards the others involved in their routines, $F(2, 248) = .54$, p = .586. A 2(predictor, experiencer) by 2(social, nonsocial) ANOVA (collapsing across the two *predictor* conditions) on *nostalgia* did reveal a significant interaction, $F(1, 294) = 4.48$, p = .035 η_p^2 = .015. *Predictors* who thought about a nonsocial routine (M = 2.99, SD = 1.36) expected to feel less nostalgic than *experiencers* who thought about a nonsocial routine (M = 4.73, SD = 1.16), $F(1, 294) = 14.02$, $p < .001$ η_p^2 = .046. While this difference was smaller for social routines, *predictors* (M = 4.77, SD = 1.72) still expected to feel less nostalgic than *experiencers* actually felt (M = 5.44, SD = 1.53), $F(1, 294) = 10.62$, $p < .001$ η_p^2 = .035.

Finally, we examined whether the differences between *experiencers* and *predictors* nostalgia differed based on age. Past research has shown that ordinary experiences provide more

happiness as people age (Bhattacharjee & Mogilner, 2014), which could mean that older participants better realize the value of routines compared to younger participants. Because we found no differences between the two *experiencer* conditions, we collapsed across those for ease of interpretation. We then regressed *nostalgia* scores on role condition (*predictor* = 0, *experiencer* = 1), age, and their interaction. The interaction between condition and age was not significant (b = -.02 SE = .02, p = .240). *Experiencers'* nostalgia was greater than *predictors'* anticipated nostalgia, controlling for differences in age (b = 1.64 SE = 0.63, p = .01).

Replication study. We ran a similar version of this study using a student sample from a large northeastern U.S. university (N = 246; M_{age} = 20.33, 57% female, 42% male, 1% other) in the Fall of 2018. Participants were assigned to one of four role conditions (*predictors, experiencer-general, experiencer-specific, experiencer-specific-unlabeled*). Those in the *experiencer-specific* condition were asked to think of a routine from high school**.** We added an *experiencer-specific-unlabeled* condition, where participants were asked to think about a routine they had "four years ago" (which, for undergraduate students, would have occurred while they were in high school but removed the "high school" label which may trigger specific types of routines). Those in the *experiencer-general* condition were asked about a routine from their life in general. *Predictors* thought about a routine that was currently part of their life. As expected, we replicated the findings above. A one-way ANOVA indicated a significant effect of role condition on the *nostalgia* measure, $F(3, 184) = 5.13$, p = .002 η^2 = .077. Follow up pairwise comparisons using Fisher's LSD revealed that *experiencers* reflecting on a routine from a general period (M = 5.02, SD = 1.56), a specific period (M = 5.31, SD = 1.20), and an unlabeled specific period (M = 5.63, SD = .88) felt, at least directionally, more nostalgia than *predictors* anticipated feeling for a current routine in the future (M = 4.58, SD = 1.65), $t_{experiencer\text{-}general}(184)$

= 1.33, p = .119, $t_{experiencer\text{-}specific}(184) = 2.52$, p = .008, $t_{experiencer\text{-}specific\text{-}unlabeled}(184) = 3.79$, p < .001. Nostalgia felt for routines from a specific period did not differ from nostalgia for a general period, $t(184) = 1.01$, p = .310 or an unlabeled specific period, $t(184) = 1.48$, p = .252. Routines from an unlabeled specific period led to greater feelings of nostalgia than those from a general period, $t(184) = 2.28$, p = .036. Additional details about the study method and additional analyses are reported in the web appendix.

Discussion

Supporting our hypothesis, these results suggest that memories of routine experiences (i.e., reflected on by *experiencers*) generated more nostalgia that *predictors* expected to feel in the future for routines they currently had in their lives. This occurred for routines from both general and specific life periods. While it is possible that routines from certain periods (e.g., childhood, high school) might generate more nostalgia than other periods, we found that the difference between predicted and actual nostalgia occurred when thinking about life more generally as well. Furthermore, we found that the effect could not be explained by *predictors* thinking of more mundane routines compared to *experiencers* more important ones nor could it be explained by differences in the involvement of close others. *Predictors* and *experiencers* both thought of similarly social routines and the effect persisted when controlling for the extent to which the routines contributed to well-being and their social nature. Finally, our effect did not differ based on age, suggesting that the relative value of routine versus momentous events across the course of life (e.g., Bhattacharjee & Mogilner, 2014) cannot explain the underestimation. While this suggests that *experiencers* and *predictors* reflected on similar types of routines, it is still possible that these routines might have differed on some other dimension not captured in our study. To address this possibility, in Study 2 we limited the types of routines *predictors* and

experiencers considered to the same subset of routines. Moreover, we began examining our proposed mechanism underlying the difference between anticipated and actual nostalgia for routines.

Study 2: The Role of the Broader Context and Transportation

In Study 1, we demonstrated that routines generate more nostalgia than expected, and that this was not explained by certain differences in the routines *predictors* and *experiencers* considered. Our goals for Study 2 were two-fold. First, we aimed to replicate the underestimation of nostalgia for routines while better controlling for the types of routines *experiencers* and *predictors* considered. To do so, we provided *predictors* and *experiencers* with the same short list of possible routines to evaluate (e.g., commuting, weekly chore routine). This allowed us to directly compare nostalgia for a specific set of routine types to the anticipated nostalgia for that same set of routines. In addition, because our results thus far show that the effect does not seem to be driven by reflecting on any particular time in life, in this and all remaining studies we focused only on the more conservative *experiencer-general* condition, where participants reflect on a routine from any time in their lives.

Second, we began to examine the mechanism that we propose drives the underestimation of nostalgia for routines. We suggest that, when anticipating nostalgia, *predictors* tend to overlook the changing meaning of their routine. They focus less on how this memory will stand in for, and bring to mind imagery of, the broader context of their personal life, whereas *experiencers* generally couch past routines in these broader contexts. As a result, *predictors* fail to anticipate the degree to which their memories of routine events will transport them to the past, thereby generating nostalgia. In this study, we tested this hypothesis by measuring whether

consideration of the broader context of routines and sense of transportation drove differences between anticipated and actual nostalgia.

Method

We recruited 394 participants from Amazon's Mechanical Turk[5] (M_{age} = 41.39, 49% male, 50% female, 1% other) in the Summer of 2021. This study was preregistered on aspredicted.org (https://aspredicted.org/blind.php?x=xk9bm8).

Participants were randomly assigned to serve as either *predictors* or *experiencers*. To gain more control over the types of routines *experiencers* and *predictors* brought to mind, we provided *predictors* and *experiencers* with the same short list of possible routines to evaluate. In the *predictor* condition, participants first chose a routine that they currently had in their life (and had had in their life before March of 2020) from a list of five potential routines to evaluate. This list included commuting to work or school, a gym/exercise routine, a weekly meal routine (i.e., eating at the same place or with the same people at the same time each week), a weekend activity routine (i.e., doing the same hobby or activity every weekend), and a chore routine. We chose these routines because they were commonly described by both *experiencers* and *predictors* in Study 1. *Experiencers* were asked to choose from the same list, but to think of a routine that they no longer had in their lives (and had not had in their lives since before March of 2020). All participants could also indicate that they could not think of a routine meeting these criteria. If they did so, they exited the study at that time.

[5]We preregistered to collect data until we had at least 300 participants who could think of a qualifying routine. We initially collected 350 participants, but 53 participants did not complete the study. We then aimed to recruit an additional 50 participants to reach our preregistered sample size and ultimately recruited 44 additional participants.

Participants then completed the same four *nostalgia* items used in Study 1 (α = .971). In addition, as a further robustness check that our effect is not driven by comparing two different types of routines across *predictors* and *experiencers*, we directly asked *experiencers* to report how their current nostalgia for their routines compared to their expectations. That is, they indicted whether they felt more or less nostalgic for their routines than they expected they might when they actually had the routines in their lives (*-50 = Much less than expected*, 0 = *As expected*, +50 = *Much more than expected*).

Next, participants completed a series of items to assess our proposed mechanism. Participants first responded to four items indicating the extent to which their routines currently brought to mind *imagery of the broader context* of the routines (α = .745). They responded to: "When you think about this routine right now, to what extent are you imagining the broader context of the routine? That is, to what extent are you thinking about the broader time period in which the routine occurs and the people you know and things you do during this time?" (1 = *Not at all,* 7 = *Entirely*). Next, participants indicated what their routines currently meant to them (1 = *It is just something I do*, 7 = *It represents something bigger about my life during this period*). Finally, all participants responded to two items indicating, first, whether they were mostly thinking about going through the motions of the routine (what it involved, the experience itself), which we reverse scored, and second, whether they were mostly thinking about how the routine relates to their life, in general, during this period of time (both *1 = Strongly agree*, 7 = *Strongly disagree)*.

Next, participants completed a modified version of the Transportation Scale (adapted from Green & Brock, 2000): "I was really able to relive this routine in my mind," "I felt absorbed in my memory when I reflected on this routine," "I could vividly remember the details

of the routine," "I felt carried away while thinking back on this routine," and "I felt as if I had traveled back in time to when this routine occurred." (1 = *Strongly disagree*, 7 = *Strongly agree*). *Predictors* responded to the same items, but written to reflect the future tense (e.g., "I will really be able to relive this routine in my mind."). For both conditions, these five items were averaged to form our *transportation* measure ($\alpha = .852$).

Participants next completed the same *routine* and *frequency* items from Study 1 as routine experience checks. Though we limited the types of routines considered in this study, we also included the items assessing whether others were involved in the routine and how close participants were to them to test for any differences. In addition, we included the happiness and enjoyment measures from the previous study as well as a new measure of how important the routine is/was to participants lives (1 = *Not at all*, 7 = *Very*). To conclude this study, participants completed an IMC and provided their demographic information.[6]

Results

Of the 394 participants initially recruited, 59 could not think of a qualifying routine and did not complete the study. In addition, ten participants who completed the study failed the IMC and were excluded from the analyses reported below. This did not differ by condition ($N = 7$ *experiencers*, $N = 3$ *predictors*), $\chi^2(1; N = 334) = 1.63$, $p = .202$.

Routine experience checks. Participants in the *experiencer* condition ($M = 6.27$, $SD = 1.03$) rated their routines as slightly less routine than *predictors* ($M = 6.49$, $SD = .85$), $t(324) = 2.03$, $p = .044$, $d = .23$. They also reported that the experiences occurred slightly less frequently

[6]Additional measures in this study focused on aspects of the routine, including its social nature, and how experiences felt toward their emotional reactions when looking back on their routine.

($M_{experiencer}$ = 8.10, *SD* = 1.16 vs. $M_{predictor}$ = 8.35, *SD* = 1.05, *t*(324) = 2.03, *p* = .043, *d* = .23. This difference, though significant, corresponds to routines that occur at the same frequency (every few days) on our scale.

Nostalgia. Replicating previous studies, participants in the *experiencer* condition reported feeling more nostalgic for their routines (*M* = 4.18, *SD* = 1.87) than those in the *predictor* condition expected to feel for their routines in the future (*M* = 3.47, *SD* = 1.82), *t*(324) = 3.44, *p* = .001 *d* = .38. This result holds when controlling for how routine the experience was rated (*F*(1, 323) = 11.08, *p* = .001 η^2 = .033) and how frequently they occurred (*F*(1, 323) = 10.51, *p* = .001 η^2 = .032). Next, we examined the *experiencers* ratings of how their nostalgia compared to expectations. Consistent with our other nostalgia results, *experiencers* indicated they felt more nostalgic for their routines than expected (*M* = 6.22, *SD* = 21.56), *one-sample* *t*(152) = 3.57, *p* < .001.

Imagery of the broader context. In line with our theorizing, participants in the *experiencer* condition reported imagining the broader context of their routine to a greater extent (*M* = 4.25, *SD* = 1.18) than those in the *predictor* condition (*M* = 3.43, *SD* = 1.43), *t*(324) = 5.59, *p* < .001 *d* = .62.

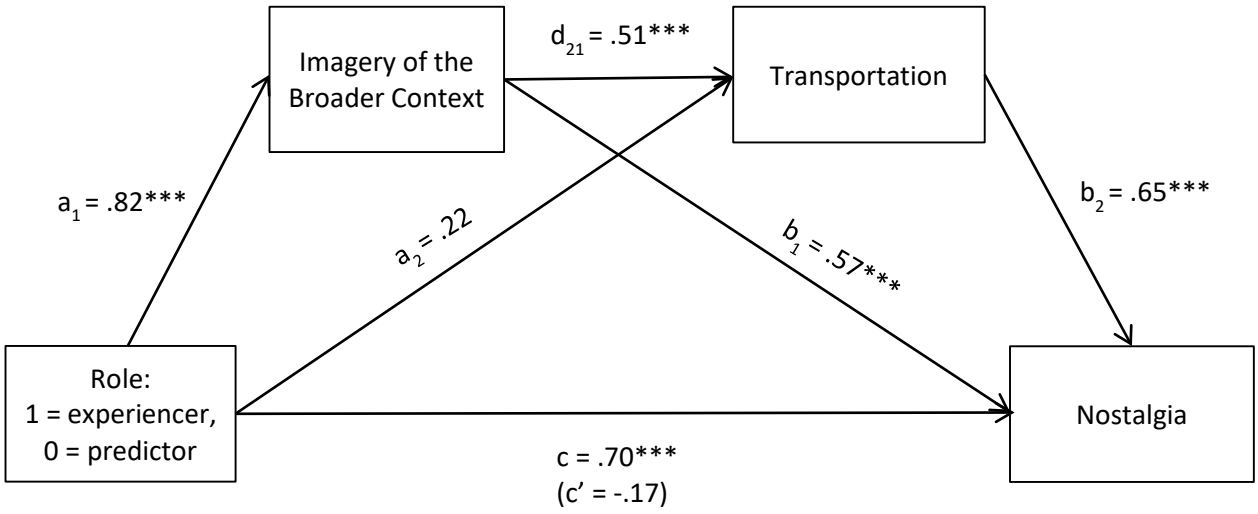
Transportation. Further, memories of past routines led participants to relive their past experiences more vividly than they anticipated. *Experiencers* reported feeling more transported by their memories (*M* = 5.10, *SD* = 1.24) than *predictors* expected to feel in the future (*M* = 4.46, *SD* = 1.26), *t*(324) = 4.60, *p* < .001 *d* = .51.

Mediation analysis. We next tested whether these measures drove the underestimation of nostalgia by conducting a serial mediation analysis. That is, we predicted that *experiencers* would imagine the broader context of their routine to a greater extent than *predictors*, which

would lead them to feel more transported to the past than predictors anticipated and, thus more nostalgic. To test this, we ran a serial mediation model using the SPSS PROCESS macro version 3.1 (Hayes, 2013, Model 6) and 10,000 bootstraps with role as the independent variable (*predictor* = 0, *experiencer* = 1), *imagery of the broader context* as the first mediator, *transportation* as the second mediator, and *nostalgia* as the dependent variable (see *Figure 1*). We found a significant indirect effect (indirect effect = .15 *SE* = .35, 95% CI [0.09, 0.21]).

Figure 1

Serial mediation analysis from Study 2



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

Relative to *predictors*, *experiencers* imagined the broader context of their routine more (b = .82 *SE* = .15, $p < .001$), which in turn, led them to feel more transported to the past than predictors expected to feel in the future (d_{21} = .51 *SE* = .04, $p < .001$). And as *experiencers* felt more transported, they felt more nostalgic for their routines than *predictors* anticipated (b_2 = .65, *SE*

= .07 $p < .001$). Once we included the serial mediation in our model, the effect of memory condition on nostalgia decreased from c = .70, *SE* = .20 $p < .001$ to c' = -.17, *SE* = .14, $p = .230$.

Supplemental analyses. We next conducted several exploratory analyses that were not part of our preregistered analysis plan. First, we conducted a series of 2(role: *predictor, experiencer*) x 5(type of routine) between-subjects ANOVAs on our primary outcomes of interest to see if there were any differences across the various types of routines. We found no significant role condition by type of routine interactions for any of these main measures (*F's* < 1.25). We report these full analyses in the web appendix.

Predictors (39.3%) and *experiencers* (47.7%) did not differ in how likely they were to think of routines involving others, $\chi^2(1, N = 326) = 2.34$, $p = .126$. Though there was a marginal difference in how close they felt to those involved in their routines ($M_{predictor} = 6.00$, $SD_{predictor} = 1.50$ *vs*. $M_{experiencer} = 5.49$, $SD_{experiencer} = 1.61$; $t(139) = 1.93$, $p = .055$ $d = .33$), the difference in nostalgia remained when controlling for closeness, $F(1, 138) = 9.09$, $p = .003$, $\eta^2 = .062$.

Predictors and *experiencers* did not differ in how much they enjoyed their routines ($t(324) = 1.00$, $p = .317$) nor in how happy their routines made them ($t(324) = 1.22$, $p = .224$). *Predictors* indicated their routines were marginally more important ($M = 5.54$, $SD = 1.56$) than *experiencers* did ($M = 5.25$, $SD = 1.63$), $t(324) = 1.67$, $p = .096$, $d = .19$. However, the difference in nostalgia remains when controlling for importance, $F(1, 323) = 23.18$, $p < .001$, $\eta^2 = .067$. Moreover, a 2(role: *predictor, experiencer*) by 2(type of routine: social, nonsocial) ANOVA on nostalgia did not produce a significant interaction ($F < 1.21$), indicating *predictors* underestimated nostalgia for both social and nonsocial routines.

Existing research on the content of nostalgic memories highlights that people are primarily nostalgic for valued past experiences (Wildschut et al., 2006a). Thus, the valence (i.e.,

degree of positivity felt toward the routine) may influence how accurately people anticipate nostalgia for routines. As an exploratory test of how our findings might differ by valence, we grouped the more "stereotypically" negative routines (commutes, gym/exercise, chores) and the more positive ones (meals, weekend activities), and conducted a 2(role: *predictor, experiencer*) by 2(valence: positive, negative) between-subjects analysis. The interaction between routine valence and role was not significant, $F(1, 322) = .003$, $p = .956$, and the difference between predicted and actual nostalgia occurred for both negative routines ($M_{predicted} = 3.13$, $SD_{predicted} = 1.71$ vs. $M_{actual} = 3.79$, $SD_{actual} = 1.87$; $F(1, 322) = 8.50$, $p = .004$ $\eta_p^2 = .026$) and positive routines ($M_{predicted} = 4.54$, $SD_{predicted} = 1.74$ vs. $M_{actual} = 5.17$, $SD_{predicted} = 1.47$; $F(1, 322) = 2.80$, $p = .09$ $\eta_p^2 = .009$).

Replication study. We ran another version of this study on Mturk in the Fall of 2019 ($M_{age} = 36.53$, 57% male, 42% female, 1% other) where we allowed participants to consider any routine they liked. We found the same pattern of results. *Experiencers* felt more nostalgic for their routines ($M = 5.32$, $SD = 1.49$) than *predictors* expected to feel for their routines in the future ($M = 4.67$, $SD = 1.79$), $t(287) = 3.44$, $p = .001$ $d = .40$. *Experiencers* also reported imagining the broader context of their routine to a greater extent ($M = 5.38$, $SD = 1.52$) than *predictors* did ($M = 4.80$, $SD = 1.55$), $t(287) = 3.25$, $p = .001$ $d = .38$. In addition, *experiencers* reported feeling more transported by their memories ($M = 5.40$, $SD = 1.14$) than *predictors* expected to feel in the future ($M = 4.93$, $SD = 1.33$), $t(287) = 3.23$, $p = .001$ $d = .38$. Finally, we ran the same mediation model we ran in the main study and again found a significant indirect effect (indirect effect = .11 $SE = .05$, 95% CI [0.03, 0.21]). See the web appendix for the full details of this study.

Discussion

This study replicated the underestimation of nostalgia for routines when better controlling for the specific content of the routine. Even when specifically considering the same types of routine, people felt more nostalgic for their past routines than they expected to feel about those routines in the present. This pattern held for both stereotypically negative routines (like mundane morning commutes) and more positive routines (like meals). In addition, we found a similar effect when directly asking *experiencers* how their current nostalgia compared to their expectations. Furthermore, this study, and its replication, provided initial support for our proposed process. *Predictors* thinking of a current routine, relative to *experiencers* thinking of a past one, failed to realize how these routines would connect to the broader context and, consequently, transport them back to this time and place. This drove differences in anticipated versus actual nostalgia.

While *predictors* and *experiencers* in Study 2 were limited to the same subset of routine types, this study still compared predicted and actual nostalgia across two different groups of participants. As such, it's still possible that the routines participants generated in hindsight differed in unmeasured ways from the routines participants generated in the present. In Study 3, we add even more control by recruiting participants to create a new routine and measuring their anticipated and actual nostalgia towards this same routine over time. This design allows us to directly compare predictions to experiences, holding all elements of the routine constant.

Study 3: The Changing Meaning of the Exact Same Routine Across Time

Our goal for Study 3 was to replicate the results of Study 2 using an even more tightly-controlled longitudinal design, holding constant all aspects of the routine itself. To do so, we

recruited university students to create a new routine of their choosing for one semester, and measured their anticipated nostalgia for this routine across the semester. Several months after the semester ended, when participants were no longer engaging in this routine, we measured their actual nostalgia for this routine in retrospect. In addition, we further tested our theory that people underestimate nostalgia for their routines because they do not consider the broader context of the routine when making predictions, leading them to misjudge how transported they will feel by those routines in the future.

Method

We recruited 169 undergraduate students from a large northeastern U.S. university (M_{age} = 20.33, 57% female, 42% male, 1% other) for an 11 week-long study that took place in two phases. The initial phase took place across the Fall 2021 semester, from late September to late November, and the second phase took place in early May of the Spring 2022 semester. Participants were paid $35 for completing the entire study. This study was preregistered on aspredicted.org (https://aspredicted.org/46Y_RNW).

Screener Survey. To begin the first phase of the study, participants completed a screener survey in mid-September of the Fall 2021 semester. First, they read that, for this study, they would need to create a new routine and complete a survey each week for 10 weeks, plus one final survey in the spring semester. After agreeing to participate and confirming that they would be on campus for the entire semester, participants were provided with additional information about the routine they should create. They read the definition of a routine as in Study 1 and were instructed to create a new routine associated with one of their Fall 2021 classes, that is, to think of some activity they would always do before or after each class meeting. This was to ensure, as much as possible, that these routines would end before the Spring semester and thus not be still

occurring during the second phase of the study. They read several examples of such routines (e.g., buying a coffee before each class session, going to the gym after each class, meeting a friend for lunch after class) before describing in detail the routine they planned to create.

Participants then completed several items about the specifics of their routine. They indicated which class it would be associated with (i.e., occurring before or after each class), how many days per week it would occur (1-7 days), what days of the week it would occur, about what time it would occur (1 = *Early morning (before 9 am)*, 2 = *Mid-morning (9 am – 12 pm)*, 3 = *Early afternoon (12 – 3 pm),* 4 = *Late afternoon (3 – 5 pm),* 5 = *Evening (6 – 9 pm),* 6 = *Late night (9 pm or later)*), and whether it would involve other people (1 = *Yes, it will always involve others*, 2 = *It will sometimes involve other people and sometimes not*, 3 = *No, it will never involve other people*). Finally, they provided demographic information.

Week 1 survey. In the first week of the study (1-2 weeks after participants completed the screener survey), participants were reminded of their routine and asked if they had completed this routine as planned or had decided to pursue a different routine. Those who changed their routine completed the same items about their routine from the screener survey before proceeding to the next portion of the study.

All participants were then asked to upload a photo relating to their routine to serve as proof that they completed their routine. Examples of photos participants uploaded included receipts from a coffee stop on the way to campus, a timestamped photo from their gym visit, a photo of their homework from a study session after class, and screenshots of their journaling entry for the day.

Next, participants completed a survey containing our primary measures of interest. First, they completed the same four *anticipated nostalgia* items from Study 1 (α = .885). For these

items, participants were specifically asked to consider how they would feel about their routine when looking back on it in the Spring 2022 semester. This controlled for the specific time period that predictors (vs. experiencers) were considering when reporting their anticipated (vs. actual) nostalgia.

In addition to our primary nostalgia measure, we also included measures of our proposed underlying mechanism in the week 1 survey. Participants completed the same four items from Study 2 assessing the extent to which their routines currently brought to mind *imagery of the broader context* of the routines ($\alpha = .601$). In addition, they completed the same five-item *anticipated transportation* scale ($\alpha = .799$) from Study 2, which again specified that participants should think about how they would feel in the Spring 2022 semester.

Weeks 2-10 surveys. Each Friday for the next nine weeks, participants received a link to complete the weekly survey. They were asked to complete the survey before Sunday and received one additional reminder email on Saturday afternoon. To lessen the burden on participants, the surveys for weeks 2-10 were shorter than week 1. Participants first indicated whether they completed their routine "as specified," "slightly different than previously specified," or that they did not complete their routine. If they reported that they completed their routine slightly differently or not at all, they were asked to explain why. Those who indicated that they did not complete their routine were redirected to the end of the survey. Those who completed their routine ("as specified" or "slightly differently") were asked to upload a photo as proof.

Participants then indicated how nostalgic they expected the routine to make them feel in the Spring 2022 semester using a single item (1 = *Not nostalgic,* 4 = *Somewhat nostalgic,* 7 = *Strongly nostalgic*). We also included two filler questions to help disguise the main goal of the

study. Participants indicated whether they expected to be more or less busy in the Spring 2022 semester, and whether they expected to be more or less productive at this time in the Spring 2022 semester (both 1 = *Much less,* 7 = *Much more*).

Finally, in week 4, we also included one exploratory item assessing participants' perception of the valence of their routine with the item "So far, how positively or negatively do you feel towards your routine?" (-3 = *Very negatively,* 0 = *Neutral*, +3 = *Very positively*).

Follow-up survey. In early May of the Spring 2022 semester, participants completed the final follow-up survey. Participants first read the description of their routine they provided in the screener survey. Then participants indicated how nostalgic thinking back on this routine from the previous semester made them feel using the same *actual nostalgia* items from previous studies (α = .944). They then indicated the extent to which they were currently *imagining the broader context* of their routines (α = .530), and how *transported* thinking about their routines made them feel (α = .807) using the same scales from previous studies.

Participants also indicated whether they were still engaging in their routine in the same way as they did in Fall 2021 (1 = *Yes, exactly the same way*, 2 = *I have a similar routine, but it's not exactly the same*, 3 = *No, I no longer engage in this routine*) and answered the same descriptive items about their routine from the screener survey. Finally, they indicated how positively or negatively they felt towards the routine itself as well as toward the Fall 2021 semester (-3 = *Very negatively,* 0 = *Neutral*, +3 = *Very positively*).[7]

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[7] We preregistered to include an IMC and an additional item ("Do you feel more or less nostalgic for this routine than you expected you might when you had this routine in your life?"; -50 = *Much less than expected*, 0 = *As expected*, +50 = *Much more than expected*) in the follow-up survey, but due to a researcher error, these two questions were inadvertently left out of the survey. The follow-up survey also included several questions on potential downstream consequences of nostalgia arising from routines.

Results

Sample size across weeks. Table 1 presents the number of responses for each week of the survey. A total of 138 participants completed the first weekly survey. Of these, 113 participants (81.9%) completed follow-up survey.

Table 1.

Sample size and descriptive statistics for each survey in Study 3.

Week/Survey	*N*	Nostalgia *M* (SD)
Screener	169	----
1	138	3.47 (1.75)***
2	128	3.54 (1.50)***
3	121	3.72 (1.57)**
4	122	3.77 (1.62)**
5	117	3.91 (1.80)**
6	111	4.05 (1.67)
7	106	3.83 (1.82)*
8	105	3.94 (1.90)
9	107	3.93 (1.81)
10	77	4.04 (1.92)
Follow-Up	127	4.09 (1.89)

Note: *** = $p < .001$; ** = $p < .01$, * = $p < .10$ for the comparison between the single item predicted nostalgia measure for that week versus actual nostalgia from the follow-up survey.

Description of Routines. On average, participants' routines occurred 1.92 times per week (*SD* = 1.18, *Min* = 1, *Max* = 7). The vast majority (89.3%) occurred one to three times per week. Thirty-five percent occurred in the early or mid-morning, 47.9% occurred in the afternoon, and 16.6% in the evening. Most participants (62.7%) chose routines that never involved others, 7.1% chose a routine that always involved others, and 30.2% chose a routine that sometimes

involved others. As intended, 88.9% of participants were no longer engaging in their Fall routine at the time they completed the follow-up survey in the Spring semester.[8]

Nostalgia. We preregistered two primary analyses testing our key hypothesis. First, we compared predicted nostalgia (from the week 1 survey) to actual nostalgia (from the follow-up survey) using the four-item *nostalgia* scale. As predicted, participants expected to feel less nostalgic for their routine ($M = 4.00$, $SD = 1.41$) than they actually felt the following semester ($M = 4.37$, $SD = 1.54$), $t(112) = 2.86$, $p = .005$ $d = .27$.

Next, we compared the single-item nostalgia measure across all 11 surveys in a repeated measures ANOVA. We again found a significant effect of time on nostalgia, $F(4.96, 168.63) = 2.54$, $p = .031$, $\eta^2 = .07$.[9] Figure 2 displays the mean nostalgia rating across each week. An exploratory analysis of the linear trend was also significant, $F(1, 34) = 4.96$, $p = .033$ $\eta^2 = .127$.

Finally, since participants were asked to create new routines for this study, it was possible that their predictions in week 1 were particularly low because participants did not know the details of their new routine yet. Thus, we also conducted an exploratory analysis (not part of our initial preregistered analysis plan) comparing anticipated nostalgia from week 5 (which was exactly halfway through our measurement period in the Fall semester) to actual nostalgia. Again, participants expected to feel less nostalgic for their routine ($M = 3.86$, $SD = 1.81$) than they actually felt the next semester ($M = 4.24$, $SD = 1.94$), $t(102) = 2.65$, $p = .009$.

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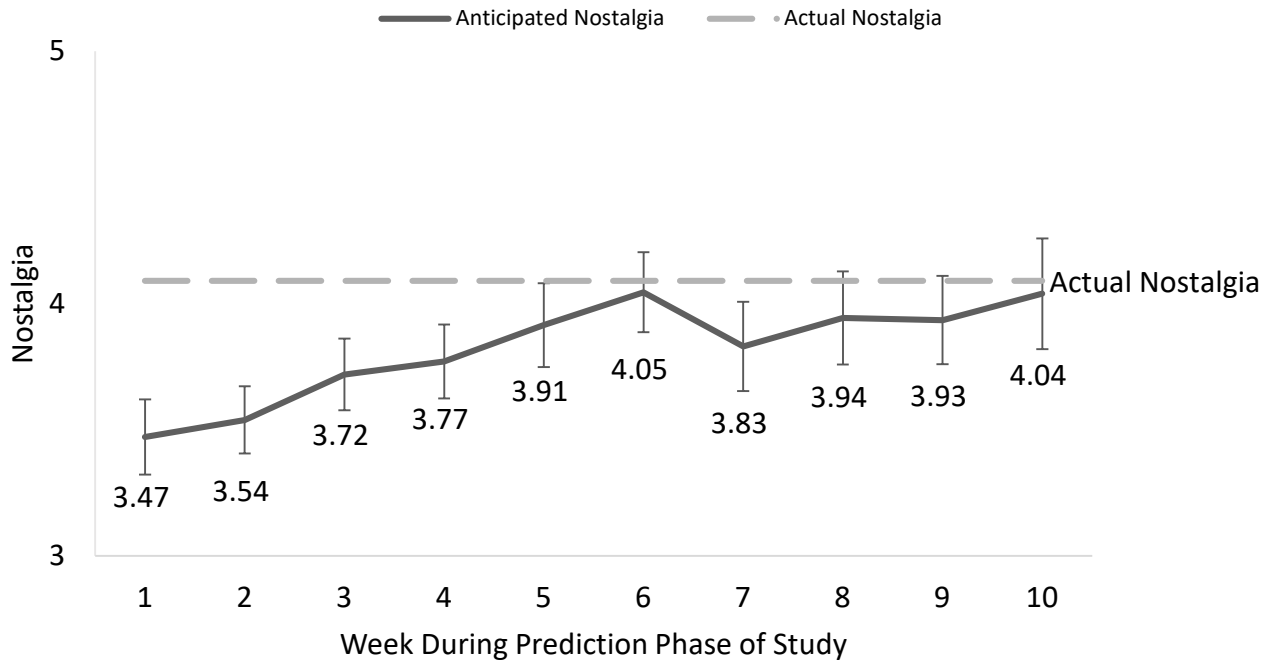
[8] The results do not change when we exclude participants who were still engaging in their routine in the Spring semester.

[9] Mauchly's Test of Sphericity was significant ($p < .001$), so we used the Greenhouse-Geisser adjustment to account for this violation of the assumption that the variance was similar across time periods.

Figure 2.

Predicted nostalgia across time compared to actual nostalgia from Study 3.



Note: Means plotted include all available data for that survey. Error bars represent the standard error of the mean.

We next conducted several additional analyses (not part of our preregistered analysis plan) to further examine the process and test the robustness of our effect.

Imagery of the broader context. First, we compared the extent to which participants imagined the broader context of their routine while engaging in it (during week 1) versus when looking back on their routine (in the follow-up survey). Replicating the results of Study 2, when making predictions about how they would feel toward their routines in the future, participants thought less about the broader context ($M = 3.89$, $SD = 1.11$) compared to when reflecting on their routines ($M = 4.43$, $SD = 1.00$), $t(112) = 4.61$, $p < .001$ $d = .43$.

Transportation. A similar analysis showed that participants anticipated feeling marginally less transported when looking back on their routines in the future (M = 4.04, SD = 1.19) compared to how they actually felt when looking back on those same routines (M = 4.25, SD = 1.08), $t(112) = 1.79$, $p = .076$ $d = .169$.

Mediation analysis. As in Study 2, we tested whether these measures drove the underestimation of nostalgia by conducting a serial mediation test. As expected, a within-subjects mediation analysis using the SPSS MEMORE macro version 2.1 (Model 1, Montoya & Hayes, 2017) with 10,000 bootstraps produced a significant indirect effect of *imagery of the broader context* and *transportation* on *nostalgia* (indirect effect: -.068, SE = .03 95% CI[-.14, -.02]). That is, participants thought less about the broader context of their routines when making predictions than when looking back on their routines (B = -.54, SE = .12 95% CI[-.77, -.31], $p < .001$), which led them to expect to feel less transported by their memories than they actually felt (B = -.34, SE = .13, 95% CI[-.60, -.08], p = .01), which in turn made them less nostalgic for their routine in anticipation than they were in reality (B = .34, SE = .09, 95% CI[.15, 54], $p < .001$). When we included imagery of the broader context and transportation in our model, the difference between predicted and actual nostalgia was no longer significant, B = -.12, SE = .12 95% CI[-.35, .12], p = .315.

Routine and time period valence. Because participants could choose their own routines, it is not surprising that the vast majority were perceived as positive routines (M = 1.48, SD = 1.16; 4.9% rated negative (N = 6), 15.6% rated neutral (N = 19), 79.5% rated positive (N = 97)). The majority of participants also viewed the Fall 2021 semester positively (M = .83, SD = 1.70; 24.6% rated negative (N = 31), 9.5% rated neutral (N = 12), 65.9% rated positive (N = 83)).

Consistent with previous research (Wildschut et al., 2006a), participants were more nostalgic for their routines the more positive they were ($r = .264$, $p < .001$). More central to our hypothesis, we next tested whether the difference between predicted and actual nostalgia differed based on the valence of the routine. To do this, we subtracted actual *nostalgia* scores from predicted *nostalgia* scores to create a *nostalgia prediction accuracy* score (with negative numbers indicating an underestimation of nostalgia and positive numbers indicating an overestimation). There was no relationship between participants' ratings of the valence of their routines and the accuracy of their nostalgia predictions ($r = -.118$, $p = .212$). We also tested the correlation between participants' ratings of the valence of the general time period and their nostalgia prediction accuracy, and again found no relationship ($r = -.09$, $p = .378$).

Replication study. To test the robustness of our effect with a non-US population, we ran another preregistered version of this study using a simplified design and a sample of participants from over 20 different countries. We recruited masters students from a European business school ($N = 51$; $M_{age} = 23.04$, 58.8% male, 41.2% female) where students spend the first part of their studies at the school's France campus and the second part of their studies at the school's Singapore campus. In the first part of this study (January 2022), we surveyed participants while they were in France about a routine they currently had that was specific to their life there. Participants were asked to indicate how nostalgic they expected to feel when looking back on that routine several months in the future. Then, in May 2022, when participants had moved to Singapore, we sent a follow-up survey asking them about their actual nostalgia for this routine (now that they were no longer engaging in it). Replicating our previous findings, participants expected to feel less nostalgic for their routine ($M = 4.37$, $SD = 1.50$) than they actually felt ($M = 4.79$, $SD = 1.35$), $t(42) = 2.07$, $p = .045$. Moreover, in the follow-up survey, we also asked

participants if they felt more or less nostalgic now than they had expected to feel when we first contacted them (-50 = *Much less than expected,* 0 = *As expected*, +50 = *Much more than expected*). Consistent with our findings with this measure in Study 2, participants reported feeling significantly more nostalgic than they originally expected (M = 11.28, SD = 17.98), *one-sample* $t(43) = 4.12$, $p < .001$ $d = .627$. For a full reporting of this study and additional analyses, please see the web appendix.

Discussion

Study 3 showed that the same participants underestimated their nostalgia for the exact same routine across time. When considering a routine that was currently part of their lives, participants' predicted that it would make them less nostalgic than that routine actually made them feel when they looked back at in the future. By having participants act as both *predictors* and *experiencers* in this study (evaluating the exact same routine over time), we gained additional confidence that the misprediction effect is not driven by different routines being brought to mind by people in these different roles. It also allowed us to control for the time period that participants were considering when acting as *predictors* versus *experiencers* (i.e., by asking them to predict their nostalgia for the specific time in the future when we planned to ask them about their actual nostalgia).

Study 3 also provided additional support for our proposed mechanism underlying this effect. Participants were less likely to think about the broader context of their routine in the moment, and thus less likely to realize how much it would transport them back to that time period, compared to when they reflected on that same routine when they were no longer engaging in it. In our remaining two studies, we will test this mechanism further by exploring theoretically-relevant moderators.

Interestingly, we again found no difference in prediction accuracy based on the valence of the routine (or the time period). This suggests that the underestimation of nostalgia may occur even for negative routines (consistent with our categorization of routines in Study 2), though it is worth noting that the majority of participants in this study viewed their routines positively (making the analysis for this contrast underpowered). It is also notable that we found a significant linear trend in participants' anticipation of future nostalgia for their routines, such that predicted nostalgia increased as the semester progressed. This is consistent with prior research suggesting that as endings approach, people begin to feel preemptively nostalgic for experiences that are still ongoing (Batcho & Shikh, 2016; Biskas et al., 2019; Ersner-hershfield, Mikels, & Sullivan, 2010). We return to the role of both routine valence and salient endings in anticipating nostalgia in the General Discussion.

Study 4: Predicted and Actual Nostalgia for Routine Versus Momentous Experiences

Studies 2 and 3 showed that people underestimate nostalgia for routines because they do not realize the extent to which their routines will come to represent a particular life period and thus transport them back in time. Based on this logic, people's predictions about their future nostalgia should be more accurate when an experience already has meaning as it is occurring. That is, people should be less likely to underestimate nostalgia for more momentous events, like graduations and weddings, since such experiences already serve as self-defining symbols of a particular life period, and should naturally lead people to imagine the broader context of those experiences even in the present. . Indeed, past research has shown that anticipated nostalgia for momentous experiences is positively correlated with actual nostalgia (Cheung et al., 2019a). In

Study 4, we test whether prediction accuracy for future nostalgia is moderated by the importance of the current life event.

Method

We recruited 394 participants from Amazon's Mechanical Turk (M_{age} = 39.14, 58% female, 41% male, 1% other) in the Spring of 2019 to participate in a study about life experiences. We randomly assigned participants to one of four conditions in a 2(role: *experiencer, predictor*) x 2(experience type: *routine, momentous*) between-subjects design. The routine conditions were the same as in previous studies: those in the *routine predictor* condition described a routine that they currently had, while those in the *routine experiencer* condition recalled a routine that they no longer had. In this study, participants could think of any type of routine they wished. In the momentous conditions, participants were instead asked to consider a momentous event in their life, defined as "an experience or activity that you consider momentous or of particular importance in your life" along with examples (graduating from school, going on a vacation somewhere new, or changing to a new job in the near future). Those in the *momentous predictor* condition were asked to describe an important event coming up for them in the near future, while those in the *momentous experiencer* condition were asked to describe an important event from their past. Note that given the nature of most momentous events, we could not ask participants in the *momentous predictor* condition to consider something occurring *currently* (since, for most people, completing a survey falls short of "momentous").

After describing their routine or momentous experience, participants completed the same four-item *nostalgia* scale used in previous studies (α = .94). We also included a series of measures in the two *prediction* conditions assessing how familiar participants were with the experience and their certainty that the experience would occur (which might have been different

across *routine* and *momentous* conditions). The results reported below held when controlling for these variables (see web appendix). Next, we asked the same routine and frequency measures from previous studies as manipulation checks. We included the same well-being and social items from previous studies. We also included an additional item for *routine predictors* assessing whether they thought they would stop engaging in their routine. People often underestimate how much they and their lives will change in the future (e.g., Quoidbach et al., 2013), which could mean that *predictors* imagine a future where they are still engaging in their current routine. If this were the case, it would be logical for *routine predictors* not to anticipate feeling very nostalgic for that experience. To test this possibility, *predictors* indicated whether they expected to still be engaging in their routine in the distant future (1 = *yes,* 2 = *no*). Finally, participants completed an IMC and provided their demographic information.[10]

Results

Two participants failed the IMC and were excluded from the analyses reported below.

Manipulation checks. As expected, a two-way ANOVA on the *routine* measure revealed a significant main effect of experience type, $F(1, 388) = 769.35$, $p < .001$ $\eta_p^2 = .665$. Those in the *routine* conditions rated their experience as more routine ($M = 6.26$, $SD = .97$) than those in the *momentous* conditions ($M = 2.16$, $SD = 1.86$). Similarly, a two-way ANOVA on the *frequency* measure also revealed a significant main effect of experience type, $F(1, 388) = 529.49$, $p < .001$ $\eta_p^2 = .577$. Those in the *routine* conditions indicated that the experience occurred more frequently ($M = 7.15$, $SD = 2.20$) than those in the *momentous* conditions ($M = 2.06$, $SD = 2.20$).

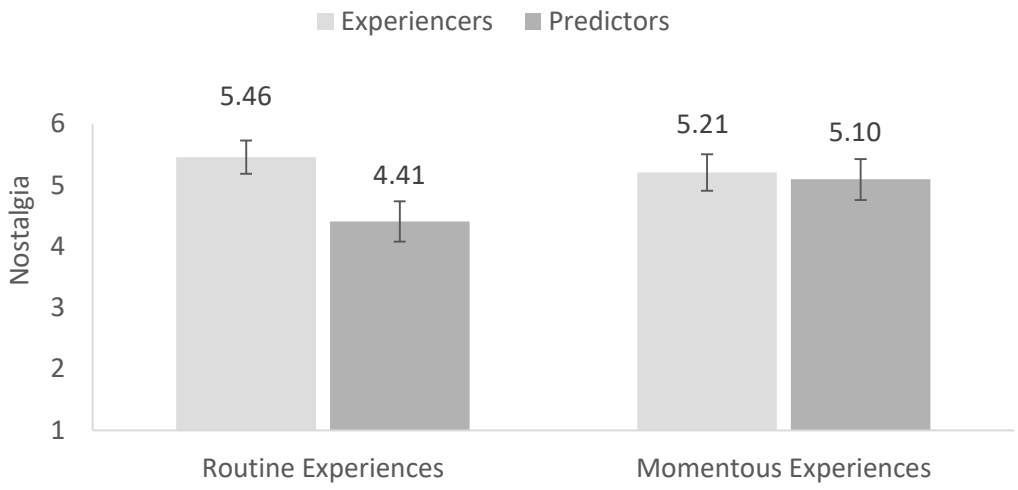
[10] Additional measures collected in this study focused on the process of thinking of an experience, such as how difficult it was, and questions regarding familiarity of knowledge of the experience.

Nostalgia. Next, we ran a two-way ANOVA on *nostalgia*. The main effect of experience type was not significant ($F < 2$). There was a main effect of role such that those in the *experiencer* conditions ($M = 5.33$, $SD = 1.40$) indicated feeling more nostalgic than those in the *predictor* conditions expected to feel ($M = 4.74$, $SD = 1.71$), $F(1, 388) = 13.70$, $p < .001$ $\eta_p^2 = .034$. More importantly, this was qualified by the predicted role by experience type interaction, $F(1, 388) = 8.89$, $p = .003$ $\eta_p^2 = .022$. In the *routine* conditions, we replicated our previous findings: *experiencers* felt more nostalgic for their past routines ($M = 5.46$, $SD = 1.33$) than *predictors* anticipated feeling for current routines ($M = 4.41$, $SD = 1.70$), $F(1, 388) = 22.78$, $p < .001$ $\eta_p^2 = .055$. In contrast, for those in the momentous event conditions, there was no difference in nostalgia between *experiencers* ($M = 5.21$, $SD = 1.46$) and *predictors* ($M = 5.10$, $SD = 1.66$), $F(1, 388) = .254$, $p = .615$. Looking at the data another way, amongst *experiencers,* there was no difference in actual feelings of nostalgia between those reflecting on a routine and those reflecting on a momentous event, $F(1, 388) = 1.25$, $p = .264$. Yet, amongst *predictors*, those imagining momentous events expected to feel significantly more nostalgic than those imagining routines, $F(1, 388) = 9.75$, $p = .002$ (see Figure 3).

Supplemental analyses. We ran a two-way ANOVA with experience type and role conditions as the factors on the measures of happiness. Only the main effect of experience type was significant ($M_{routine} = 5.10$, $SD_{predictor} = 1.71$ *vs*. $M_{experiencer} = 5.76$, $SD_{experiencer} = 1.41$), $F(1,$

Figure 3

Anticipated and actual nostalgia as a function of experience type (Study 4)



Note: Error bars represent 95% confidence intervals.

388) = 17.01, $p < .001$ $\eta_p^2 = .042$. No other effects were significant (*F's* < 1.7), suggesting that predicted and actual experiences (regardless of type) did not differ in how happy they made people feel. Moreover, the interaction between role and experience type remained significant when controlling for happiness, $F(1, 387) = 7.81$, $p = .005$ $\eta_p^2 = .02$.

While the vast majority of experiences, regardless of type, were social, momentous events (86.5%) were indeed more likely to involve others than routine experiences (71.0%), $\chi^2(1; N = 392) = 13.90$, $p < .001$. However, the pattern of results is the same when we examine only those experiences that involved others. The main effect of experience type was not significant ($F < 1$). There was a main effect of role such that those in the *experiencer* conditions ($M = 5.48$, $SD = 1.33$) indicated feeling more nostalgic than those in the *predictor* conditions expected to feel ($M = 5.11$, $SD = 1.58$), $F(1, 304) = 5.74$, $p = .017$ $\eta_p^2 = .019$. This was, critically, again qualified

by the predicted experience type by role interaction, $F(1, 304) = 6.95$, $p = .009$ $\eta_p^2 = .022$. In the *routine* conditions, *experiencers* felt more nostalgic for their past routines ($M = 5.67$, $SD = 1.15$) than *predictors* anticipated feeling for current routines ($M = 4.83$, $SD = 1.61$), $F(1, 304) = 11.76$, $p = .001$ $\eta_p^2 = .037$. In contrast, for those in the momentous event conditions, there was no difference in nostalgia between *experiencers* ($M = 5.30$, $SD = 1.45$) and *predictors* ($M = 5.34$, $SD = 1.53$), $F(1, 304) = .03$, $p = .860$. We also did not find any differences in closeness of the others involved. A two-way ANOVA on the closeness measure produced no significant differences (*F's* < 2.1).

Finally, we examined whether the difference between expected and actual nostalgia for routines differed based on whether the participant expected their routine to end using a one-way ANOVA. There was a significant effect of condition, $F(2, 197) = 12.06$, $p < .001$ $\eta^2 = .109$. *Experiencers* actual nostalgia ($M = 5.46$, $SD = 1.33$) was greater than both *predictors* who expected to continue their routines ($M = 4.14$, $SD = 1.53$, $t(197) = 4.01$, $p = .001$) and those who expected it to end ($M = 4.48$, $SD = 1.74$, $t(197) = 4.26$, $p < .001$).

Replication study. We also replicated the results of this study using a sample of undergraduate students ($N = 335$, $M_{age} = 19.89$, 60% female, 40% male) in the Spring of 2019. We asked participants to describe a routine or momentous event specifically from high school (*experiencer* conditions) or from their current life in college (*predictor* conditions). A two-way ANOVA again revealed a significant role by experience type interaction, $F(1, 334) = 9.07$, $p = .003$ $\eta_p^2 = .026$. In the *routine* conditions, *experiencers* indicated feeling more nostalgic for their routines ($M = 5.25$, $SD = 1.17$) than *predictors* expected to feel in the future ($M = 4.58$, $SD = 1.62$), $F(1, 334) = 8.52$, $p = .004$ $\eta_p^2 = .025$. However, in the *momentous* conditions, there was no difference in nostalgia between *experiencers* ($M = 4.82$, $SD = 1.78$) and *predictors* ($M = 5.13$,

SD = 1.43), $F(1, 334) = 1.81$, $p = .180$. In fact, in this sample, *experiencers* reflecting on past routine experiences actually felt marginally more nostalgic than *experiencers* reflecting on past momentous events, $F(1, 334) = 3.37$, $p = .067$ $\eta_p^2 = .01$. Full details of this study can be found in the web appendix.

Discussion

Study 4 (and its replication) show that accuracy for nostalgia predictions is moderated by experience type: people are more accurate in predicting their future nostalgia for momentous experiences compared to routine ones. This is consistent with our theory that people underestimate their nostalgia for routines because they do not realize how routines will come to represent life periods and transport them to the past. Thus, to the extent that an event is already a meaningful life marker in the present, people are able to recognize how it will generate nostalgia for them in the future.

Study 5: Improving Predictions for Routines

Thus far, we have shown that people underestimate their nostalgia for routines (but not for momentous events), and that this occurs because people fail to realize how their routines may change in meaning over time. In our final study, we sought to debias this prediction error. One reason people rely on their present feelings to predict their future feelings is because they erroneously believe their feelings will remain consistent over time (e.g., Loewenstein et al., 2003; Quoidbach et al., 2013). As such, one way to reduce this tendency is to make one's future state, and how it differs from the present, more accessible when people make such predictions (e.g., Nordgren et al., 2011; Read & Loewenstein, 1999). Reminder interventions like this work because accurate forecasts about the future do not naturally come to mind for people

(Loewenstein et al., 2003; Read & Loewenstein, 1999), especially when it comes to their future feelings (Schkade & Kahneman, 1998; Wilson et al., 2000).In fact, people often get "stuck" thinking only about the present experience, rather than broadening their view across their life, which can hide connections between their experiences (Mogilner et al., 2018).

Building on this, in Study 5, we attempt to improve participants' predictions about their future nostalgia by using a similar reminder strategy, focused on how their routines may change meaning over time. We expected that *"debiased" predictors* would anticipate future nostalgia for their routines more similarly to *experiencers'* actual nostalgia.

Method

We recruited 567 participants from Mturk (M_{age} = 39.66, 40% male, 58% female, 2% other)[11] in the Fall of 2020. This study was preregistered on aspredicted.org (https://aspredicted.org/blind.php?x=ta86ef). Participants were randomly assigned to one of three role conditions. All participants began the study by completing a "life experience" visualization task. In the *experiencer* and *control predictor* conditions, participants were asked to describe something they had done that day which served as a neutral control writing task. In the *debiased predictor* condition, in contrast, we reminded participants about a past routine by asking them to reflect on and describe a past daily routine and how it made them feel.

Then, participants moved on to our focal routine manipulation. In this study, we controlled the experiences participants considered by asking all participants to consider a daily routine. Because it's possible that some participants did not have had a past or current daily

[11]We pre-registered to collect data until we had at least 500 participants who could think of a daily routine. We initially collected 527 participants, but 29 participants did not complete the study. We then recruited an additional 40 participants, allowing us to reach our preregistered target sample size.

routine to evaluate, participants were first asked if they could think of a past/current daily routine (based on condition). As in Study 3, those that reported that they could not think of one exited the study at that time, and those that could continued on to describe and evaluate their routine. In the *experiencer* condition, participants were asked to reflect on a past daily routine using a similar prompt as in previous studies. Both the *control predictor* and *debiased predictor* conditions were asked to reflect on a current daily routine using a similar prompt as in previous studies.

After describing their past or current routines, participants completed the same four items assessing predicted and actual *nostalgia* as in previous studies ($\alpha = .956$), as well as the same *imagery of the broader context* item and the five-item *transportation* scale ($\alpha = .855$) to test the mechanism. We again included the *routine* and *frequency* measures from previous studies to ensure the experiences in each condition were similarly routine. Participants also indicated whether their routine involved others or not, as in previous studies (we did not include the closeness item). In this study, participants also rated the hedonic versus utilitarian nature of their routine (1 = *Primarily utilitarian*, 7 = *Primarily hedonic*; adapted from (Khan & Dhar, 2006) to test whether there were any differences in the extent to which the daily routines served a more functional versus enjoyment purpose. Finally, participants completed an IMC and provided demographic information.[12]

[12]Additional measures collected in this study focused on downstream consequences of anticipated/actual nostalgia for the routine and how COVID-19 had impacted the participants' life.

Results

Of the 567 initial participants, only 5% ($N = 32$) could not think of a routine and, as preregistered, did not complete the study. Of the 535 who completed the study, 9.7% ($N = 55$) failed the IMC and, as preregistered, were excluded from the analyses reported below. This left 481 participants. The exclusion rate (including those who failed the IMC and those who could not think of a routine) did not differ by condition, $\chi^2(2; N = 535) = .89$, $p = .642$.

Routine experience checks. As expected, participants' routine ratings did not differ across conditions ($M_{experiencer} = 6.36$, $SD_{experiencer} = 1.07$ *vs.* $M_{control\ predictor} = 6.29$, $SD_{control\ predictor} = 1.13$ *vs.* $M_{debiased\ predictor} = 6.14$, $SD_{debiased\ predictor} = 1.13$), $F(2, 478) = 1.51$, $p = .223$.

There was a significant difference in how frequently the routines occurred across conditions, $F(2, 478) = 4.41$, $p = .013$, $\eta^2 = .018$. Follow up tests using Fisher's LSD (used in all subsequent comparisons) showed that *control predictors* thought of routines occurring slightly more frequently ($M = 9.01$, $SD = .76$) than *debiased predictors* ($M = 8.66$, $SD = 1.33$; $t(478) = 2.91$, $p = .004$) and marginally more frequently than *experiencers* ($M = 8.79$, $SD = 1.04$; $t(478) = 2.12$, $p = .069$). *Debiased predictors* and *experiencers* did not differ, $t(478) = 1.03$, $p = .249$. Based on our scale, this represents a difference between routines that occur every day versus every few days.

Nostalgia. As predicted, we found a significant effect of role on *nostalgia*, $F(2, 478) = 4.41$, $p = .027$, $\eta^2 = .015$. Replicating previous studies, *experiencers* reported feeling more nostalgic for their past daily routines ($M = 4.63$, $SD = 1.68$) than *control predictors* expected to feel for their current routines in the future ($M = 4.15$, $SD = 1.77$), $t(478) = 2.55$, $p = .012$. However, as expected, this effect was attenuated for those in the *debiased predictor* condition. *Debiased predictors'* anticipated nostalgia ($M = 4.55$, $SD = 1.78$) did not differ from

experiencers' actual nostalgia, $t(478) = .41$, $p = .685$, but was significantly greater than *control predictors'* anticipated nostalgia, $t(478) = 2.01$, $p = .041$. These results are consistent when entering the *routine* ($F(2, 477) = 3.69$, $p = .026$, $\eta^2 = .015$) and *frequency* ($F(2, 477) = 3.30$, $p = .038$, $\eta^2 = .014$) measures as covariates. We report these full analyses in the web appendix.

Imagery of the broader context. We also found a significant effect of role on the *imagery of the broader context* measure, $F(2, 478) = 6.82$, $p = .001$, $\eta^2 = .028$. Replicating previous results, *experiencers* reported imagining the broader context of their routine ($M = 4.87$, $SD = 1.51$) to a greater extent than *control predictors* reported that they did ($M = 4.25$, $SD = 1.73$), $t(478) = 3.49$, $p < .001$. This difference was attenuated for those in the *debiased predictor* condition. *Debiased predictors* imagined the broader context of their routines ($M = 4.70$, $SD = 1.50$) no differently than *experiencers,* $t(478) = 1.00$, $p = .345$, but more so than *control predictors*, $t(478) = 2.47$, $p = .012$. These results are consistent when entering the *routine* ($F(2, 477) = 6.81$, $p = .001$, $\eta^2 = .028$) and *frequency* ($F(2, 477) = 6.79$, $p = .001$, $\eta^2 = .028$) measures as covariates (full results reported in the web appendix).

Transportation. The effect of role on the *transportation* scale was also significant, $F(2, 478) = 8.96$, $p < .001$, $\eta^2 = .036$. Replicating previous results, *experiencers* reported that they felt more transported ($M = 5.22$, $SD = 1.14$) than *control predictors* expected to feel in the future ($M = 4.66$, $SD = 1.27$), $t(478) = 4.18$, $p < .001$. This difference was reduced, but still significant, for those in the *debiased predictor* condition. *Debiased predictors* indicated they expected to feel less transported ($M = 4.86$, $SD = 1.20$) than *experiencers,* $t(478) = 2.63$, $p = .011$. *Debiased predictors* also expected to feel directionally more transported than *control predictors*, $t(478) = 1.48$, $p = .129$. These results are consistent when entering the *routine* ($F(2, 477)$ 8.66, $p < .001$,

η^2 = .035) and *frequency* (F(2, 477) 8.91, p < .001, η^2 = .036) measures as covariates (full results reported in the web appendix).

Mediation analysis. Though not part of our preregistered analysis plan, we also ran the same serial mediation analysis reported in Study 2. In order to test our model, and whether it was attenuated for *debiased predictors,* we ran the same mediation model from Study 2 three times, individually comparing each condition to the other two.

First, we tested a serial mediation model using the SPSS PROCESS macro version 3.1 (Hayes, 2013, Model 6) and 10,000 bootstraps with role as the independent variable (*cold predictor* = 0, *experiencer* = 1), *imagery of the broader context* as the first mediator, *transportation* as the second mediator, and *nostalgia* as the dependent variable. Replicating previous results, we found a significant indirect effect (indirect effect = .16 *SE* = .05, 95% CI [0.07, 0.28]). Relative to *control predictors*, *experiencers* imagined the broader context of their routine more (b = .62 *SE* = .18, p < .001), which in turn, led them to feel more transported to the past than predictors expected to feel in the future (b = .34 *SE* = .04, p < .001). As *experiencers* felt more transported, they felt more nostalgic for their routines than *control predictors* anticipated (b = .80, *SE* = .07, p < .001). Once we included the serial mediation in our model, the effect of role condition on nostalgia decreased from c = .48, p = .011, to c' = -.07, p = .649.

Similarly, we found a significant indirect effect when comparing *debiased predictors* (1) and *control predictors* (0; indirect effect = .08 *SE* = .03, 95% CI [0.02, 0.14]). Relative to *control predictors*, *debiased predictors* imagined the broader context of their routine more (b = .45 *SE* = .18, p = .014), which in turn, led them to feel more transported to the past than predictors expected to feel in the future (b = .34 *SE* = .04, p < .001). As *debiased predictors* anticipated feeling more transported, they also anticipated feeling more nostalgic for their routines than

control predictors did (b = .90, *SE* = .06, $p < .001$). Once we included the serial mediation in our model, the effect of role condition on nostalgia decreased from c = .40, $p = .041$, to c' = .15, $p = .298$.

In contrast, when comparing *debiased predictors* (0) to *experiencers* (1), the indirect effect was not significant (indirect effect = .02, *SE* = .02, 95% CI [-.02, .07]). *Debiased predictors* and *experiencers* imagined the broader context of their routine to the same degree (b = .17 *SE* = .17, $p = .320$) which, for both groups, led them to feel or expect to feel transported by the routine (b = .27, *SE* = .04, $p < .001$). As before, the more each group felt transported, the more nostalgic they felt or anticipated feeling (b = .87, *SE* = .07, $p < .001$).

Supplemental analyses. Though not part of our preregistered analysis plan, we also tested whether the routines differed across conditions in how social or hedonic they were. Across conditions, participants did not differ in how likely they were to think of social routines (*experiencer:* 50.9%, *control predictors:* 56%, *debiased predictors*: 53.4%), $\chi^2(N = 481, df = 2) = .851$, $p = .653$, nor did they differ in how hedonic (versus utilitarian) they rated their routines ($M_{experiencer} = 2.96$, $SD_{experiencer} = 2.00$ *vs.* $M_{control\ predictor} = 3.02$, $SD_{control\ predictor} = 1.93$ *vs.* $M_{debiased\ predictor} = 3.14$, $SD_{debiased\ predictor} = 1.91$), $F(2, 478) = .33$, $p = .716$. Moreover, the effect of condition on *nostalgia* remained when controlling for the hedonic nature of the routines, $F(2, 477) = 3.91$, $p = .021$ $\eta^2 = .016$. *Control predictors* expected to feel less nostalgic than *experiencers* actually felt ($t(477) = 2.69$, $p = .008$). In contrast, *debiased predictors* anticipated more nostalgia than *control predictors* ($t(477) = 1.97$, $p = .049$) and this anticipated nostalgia was similar to *experiencers'* actual nostalgia ($t(477) = .63$, $p = .527$).

Discussion

The results of this study show that the misprediction of nostalgia for routines can be attenuated with a relatively small intervention. After considering a routine from their past, participants were better able to imagine how their current routines may make them feel in the future. Notably, the reminder did not specifically ask participants to reflect on the broader context of their past routine, but participants who received the prompt spontaneously made this connection with their current routine, which led to them feeling more transported by future memories and thus anticipate greater nostalgia. Similar to interventions for other projection biases, the reminder put people into a state where they could better understand what their future self would feel and find valuable. We will discuss how this has the potential to help people make better decisions in the General Discussion.

General Discussion

Across five studies and four replications, in both real world and controlled lab settings, we found that routines generate more nostalgia than people expect. People underestimate their nostalgia for past routines from both general and specific life periods (Study 1), and this effect cannot be explained by potential differences in the types of routines people bring to mind (including how frequently they occurred, how social they were, or how important or enjoyable they were; Studies 1-5). Indeed, we showed that the same people mispredicted how nostalgic they would feel about the exact same routine across time (Study 2). Importantly, people are less likely to underestimate their future nostalgia for momentous experiences (Study 4), which has been the focus of previous research on what content makes up nostalgic memories.

Across these studies, we also demonstrated that people do not expect to feel as nostalgic for routines because they do not anticipate how these routines will change meaning over time. More specifically, they do not spontaneously imagine the broader context that surrounds their ongoing routines, and thus fail to anticipate the extent to which memories of these routines will one day transport them back to that time period. We provided empirical support for this mechanism through both mediation (Study 2-3) and moderation (Studies 4-5). Finally, we showed that this prediction error can be debiased through a reminder intervention (Study 5). When people consider how they feel about their past routines, they are better able to anticipate how nostalgic they will feel in the future about their current routines.

Theoretical Implications and Practical Applications

Our research makes two primary contributions, which together provide important insights into the psychology of nostalgia. We are the first to: (1) empirically document nostalgia for routines; and (2) show that people's lay beliefs about nostalgia are sometimes mistaken.

A great deal of research has studied the downstream consequences of nostalgia for behavior and well-being (Cheung et al., 2013; Routledge, Wildschut, Sedikides, & Juhl, 2013; Sedikides & Wildschut, 2018; for a detailed review see Sedikides, Wildschut, Routledge, Arndt, et al., 2015). Relatively less research has examined which types of experiences make up nostalgic memories. Of this existing research, the focus has been on what makes up people's *most* nostalgic memories. Common in these descriptions are momentous events, in addition to broader categories such as important others or places (Biskas et al., 2019b; Wildschut et al., 2006b). There has been much less attention to the role of more common, everyday experiences in generating nostalgia. In our research, we find that people also feel nostalgic from their mundane routines. This helps to broaden our understanding of nostalgia, painting a fuller picture about

what types of life experiences inspire these feelings. While reliving important moments in one's life is a strong and consistent source of nostalgia, our work shows that nostalgia can also stem from reliving mundane moments.

Through this investigation, we also uncover a more nuanced view of the process that leads to the emotion of nostalgia. We show that feeling nostalgic arises when people are transported to the past to relive their past experiences (Evans et al., 2020) and that this occurs when experiences bring to mind imagery associated with the broader time period in one's life. We argue that people do not necessarily expect nostalgia for routines because they do not realize how routines will come to have these associations and thus change in meaning over time. Consistent with themes from several previous investigations (Cheung et al., 2019a; Hepper et al., 2014b; Wildschut et al., 2006a), our work also underscores how nostalgia arises from reflecting on personally significant past experiences. However, ours is the first to show that what seems personally meaningful in retrospect may not be the same as what appears important in prospect.

This disconnect is also an important contribution to emerging research on anticipated nostalgia. Cheung and colleagues (2019) began to define anticipated nostalgia and identified some of the experiences that people expect to lead to nostalgia. Just as Barack Obama expected to miss riding in Air Force One, people in their studies primarily anticipated nostalgia arising from momentous events. We expand on this by explicitly testing the accuracy of people's predictions and demonstrating the types of experiences people tend to overlook when anticipating future nostalgia, namely routine experiences. Our work is thus the first to show that people's lay understanding of nostalgia is not always correct, and that people sometimes do not know which aspects of their lives will inspire nostalgia when they revisit those periods later on.

This misprediction is also in line with broader streams of research on the role of big and small moments in people's lives and how they construct their life stories (McAdams, 2001; McAdams & McLean, 2013). As people live day to day, it may seem to them that their life narrative is marked by the most important moments—a wedding day, a graduation, the birth of a child. These events are, of course, self-defining (Bhattacharjee & Mogilner, 2014) and important in how people tell their stories (McAdams, 2001). Interestingly, while a great deal of work on focalism (and related processes) has shown that momentous events are often not as influential as people expect (e.g., Schkade & Kahneman, 1998; Wilson et al., 2000), we show that mundane moments like routines can have more influence than people expect. As such, our research suggests that lives are not just the sum of big momentous events, but can also be represented by the smaller, more mundane ways people go about their daily lives (cf. Conway & Pleydell-Pearce, 2000).

This could have important implications, not only for the experiences people choose to engage in, but also how they view experiences as they engage in them. Routines may seem like an ordinary part of everyday life in the present, but then be the first thing people miss after a life change. For instance, someone with a morning run routine, who doesn't realize how nostalgic they will feel for this routine after moving to a new neighborhood, might fail to consider "running trail access" into their decision criteria for where to live next (and then feel regret if they can't continue that routine). As another example that most people can relate to, we asked online participants ($N = 245$) at the start of COVID-19 what they missed most from their lives before the pandemic. Though COVID-19 halted both ordinary and extraordinary life events, the majority (75%) of the experiences participants listed were routines, $\chi^2(1, N = 243) = 62.26$, $p < .001$. Of course, these results could be driven by the fact that more common routine

experiences were more top of mind than less common momentous experiences. Nonetheless, we also found that participants indicated that they now valued these lost everyday routines (e.g., commutes) much more than they did before the pandemic ($M = 5.85$, $SD = 1.16$), $t(243) = 24.77$, $p < .001$. In fact, some companies noticed this potential void left by past routines during the quarantine period, and offered ways for people to recapture them. For example, Microsoft developed a "virtual commute" feature within its Teams product (Bass, 2020), and some airlines offered "flights to nowhere" that took off and landed at the same airport (Sullivan, 2020). Thus, people may not appreciate their routines until they cease, and spark unexpected nostalgia.

Building on this, our work contributes to a growing body of research showing the different ways repeated or everyday experiences contribute to people's lives (Bhattacharjee & Mogilner, 2014; Heintzelman & King, 2019b; O'Brien, 2019). Typically, people are advised to pursue novel, varied experiences in order to promote their well-being (Dunn & Norton, 2014; Lyubomirsky, 2008). Indeed, variety seeking is important, as it can foster social connection (Aron et al., 2000), disrupt hedonic adaptation (Sheldon et al., 2012), and expand one's "experiential CV" (Keinan & Kivetz, 2011). That being said, our research reveals that people may also benefit from cultivating routines throughout their lives, and commemorating them when they're gone. This is consistent with existing work showing that people enjoy rediscovering ordinary moments from the past (e.g., through photos) more than extraordinary ones, and thus fail to document these moments as much as they would have liked (Zhang et al., 2014). Extending this finding, our research shows how a specific type of ordinary experience—routines—activates emotional consequences beyond rediscovery, and provides insight into the psychological mechanisms that drive unexpected nostalgia.

Directions for Future Research

Our research examines unexpected nostalgia for routines, broadly defined. Still, while the routines participants considered in our studies varied across a number of dimensions (e.g., importance, socialness), they tended to be neutral to positive. Thus, one open question is the extent to which negative routines will also inspire nostalgia. Our theory would suggest that even less appealing routines could come to represent broader life periods from the past, leading them to transport people and generate nostalgia similarly. Indeed, exploratory analyses in Studies 2 and 3 showed that people felt (and underestimated) nostalgia even for somewhat negative routines, like chores and exercise. Future research should continue investigating how different types of experiences come to be tied to life periods and what factors encourage versus inhibit this connection.

Relatedly, since participants in our studies were allowed to reflect on any time in their lives (with a few exceptions), it is likely that they mostly chose to consider routines from positive life periods (cf. Morewedge, 2013; Walker et al., 1997, 2003),. Given that past research has conceptualized nostalgia as arising primarily towards parts of one's life that are valued and remembered fondly(Hepper et al., 2012; Sedikides, Wildschut, Routledge, Arndt, et al., 2015), it's possible that routines from negative life periods would not generate as much (unexpected) nostalgia. An initial (underpowered) exploration of this in Study 3 found that participants' underestimation of nostalgia for their routines held even when they rated the time period it came from neutrally or negatively. That being said, negative feelings towards unpleasant experiences tend to dampen over time (Mitchell et al., 1997; Wirtz et al., 2003; Ritchie et al., 2006), so it is possible that by the time they rated their nostalgia, they remembered the time period more positively than it actually was (which could even exacerbate the prediction error), Future

research may benefit from explicitly examining nostalgia towards differently valanced life periods, and how these emotions evolve over longer periods of time.

In many of our studies, we recruited online participants (e.g., Mturk workers) and asked them to reflect on their routines and nostalgia. This approach provides many advantages, such as utilizing samples with a wide range of ages, socioeconomic backgrounds, and life experiences. At the same time, Mturk participants may be similar on other dimensions (e.g., US-based) that could limit the generalizability of our findings. We also have several studies involving a student population in the Northeast U.S., as well as a study involving masters students at a large European school from many countries, and found similar effects across these various groups.

Though our studies collectively include a range of populations from various backgrounds, we did not explicitly measure participants' cultural background, and thus could not test how the effects differ across populations. Given that past work on nostalgia has broadly shown that people from various cultures view nostalgia similarly (Hepper et al., 2014a), it could be that the underestimation of nostalgia for routines is universal. However, other research suggests that those from more collectivist cultures recall memories of routines more frequently than those from individualistic cultures (Conway & Jobson, 2012; Wang & Conway, 2004), and that . they tend to predict greater change over time (Alter & Kwan, 2009). As such, it's possible that collectivists will be better able to anticipate how their feelings towards their routines will change in the future, and thus be more accurate in predicting their future nostalgia.

Future research might also want to investigate other conditions under which people come to recognize the nostalgic value of their routines. For example, as life eras come to an end (e.g., approaching graduation, changing jobs), people might start to anticipate (or even actually feel) nostalgia for the routines associated with those eras (as suggested by our data in Study 3; see also

Cheung et al., 2019b). Indeed, previous research shows that an upcoming ending itself can generate a sense of poignancy (Ersner-hershfield et al., 2010) and lead people to seek out familiar experiences (Winet & O'Brien 2022), and that advertisements take on more nostalgic themes towards the end of a century (Stern, 1992). Just as our reminder intervention improved predictions in Study 5, the emotional nature of imminent endings could thus help people better anticipate their future feelings and even prioritize their routine experiences as that life phase comes to a close.

Routines make up a large portion of our lives. While we might only view them in the present as ordinary moments between the things that really matter, our research shows that these everyday experiences provide real and unexpected value in the future.

References

Alter, A. L., & Kwan, V. S. Y. (2009). Cultural sharing in a global village: Evidence for extracultural cognition in European Americans. *Journal of Personality and Social Psychology*, *96*(4), 742.

Aron, A., Aron, E. N., Norman, C. C., McKenna, C., & Heyman, R. E. (2000). Couples' shared participation in novel and arousing activities and experienced relationship quality. *Journal of Personality and Social Psychology*, *78*(2), 273–284. https://doi.org/10.1037/0022-3514.78.2.273

Avni-Babad, D. (2011). Routine and feelings of safety, confidence, and well-being. *British Journal of Psychology*, *102*(2), 223–244.

Barrett, F. S., Grimm, K. J., Robins, R. W., Wildschut, T., Sedikides, C., & Janata, P. (2010). Music-evoked nostalgia: Affect, memory, and personality. *Emotion*, *10*(3), 390.

Bass, D. (2020, September 23). Microsoft has a solution for work days that blend into home life: a virtual commute. *Fortune.Com*.

Batcho, K. I., & Shikh, S. (2016). Anticipatory nostalgia: Missing the present before it's gone. *Personality and Individual Differences*, *98*, 75–84.

Bhattacharjee, A., & Mogilner, C. (2014). Happiness from Ordinary and Extraordinary Experiences. *Journal of Consumer Research*, *41*(1), 1–17. https://doi.org/10.1086/674724

Biskas, M., Cheung, W.-Y., Juhl, J., Sedikides, C., Wildschut, T., & Hepper, E. (2019a). A prologue to nostalgia: savouring creates nostalgic memories that foster optimism. *Cognition and Emotion*, *33*(3), 417–427.

Biskas, M., Cheung, W.-Y., Juhl, J., Sedikides, C., Wildschut, T., & Hepper, E. (2019b). A prologue to nostalgia: savouring creates nostalgic memories that foster optimism. *Cognition and Emotion*, *33*(3), 417–427.

Brewer, W. F. (1986). *What is autobiographical memory?*

Campbell, C. (2015, November 17). OBAMA: Here's the presidential perk I'll miss the most. *Business Insider*.

Cheung, W.-Y., Hepper, E. G., Reid, C. A., Green, J. D., Wildschut, T., & Sedikides, C. (2019a). Anticipated nostalgia: Looking forward to looking back. *Cognition and Emotion*, 1–15.

Cheung, W.-Y., Hepper, E. G., Reid, C. A., Green, J. D., Wildschut, T., & Sedikides, C. (2019b). Anticipated nostalgia: Looking forward to looking back. *Cognition and Emotion*, 1–15.

Cheung, W.-Y., Wildschut, T., Sedikides, C., Hepper, E. G., Arndt, J., & Vingerhoets, A. J. J. M. (2013). Back to the future: Nostalgia increases optimism. *Personality and Social Psychology Bulletin*, *39*(11), 1484–1496.

Clark, F. A. (2000). The concepts of habit and routine: A preliminary theoretical synthesis. *The Occupational Therapy Journal of Research*, *20*(1_suppl), 123S-137S.

Conway, M. A. (2005). Memory and the self. *Journal of Memory and Language*, *53*(4), 594–628.

Conway, M. A., & Jobson, L. (2012). On the nature of autobiographical memory. *Understanding Autobiographical Memory: Theories and Approaches*, 54–69.

Conway, M. A., & Pleydell-Pearce, C. W. (2000). The construction of autobiographical memories in the self-memory system. *Psychological Review*, *107*(2), 261.

Dunn, E., & Norton, M. (2014). *Happy money: The science of happier spending*. Simon and Schuster.

Ersner-hershfield, H., Mikels, J. A., & Sullivan, S. J. (2010). Poingnancy: mixed emotions in meaningful endings. *Journal of Personality*, *94*(1), 158–167. https://doi.org/10.1037/0022-3514.94.1.158.Poignancy

Evans, N. D., Reyes, J., Wildschut, T., Sedikides, C., & Fetterman, A. K. (2020). Mental transportation mediates nostalgia's psychological benefits. *Cognition and Emotion*, 1–12.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191.

FioRito, T. A., & Routledge, C. (2020). Is Nostalgia a Past or Future-Oriented Experience? Affective, Behavioral, Social Cognitive, and Neuroscientific Evidence. *Frontiers in Psychology*, *11*.

Gilbert, D. T., Gill, M. J., & Wilson, T. D. (2002). The future is now: Temporal correction in affective forecasting. *Organizational Behavior and Human Decision Processes*, *88*(1), 430–444.

Gilbert, D. T., Morewedge, C. K., Risen, J. L., & Wilson, T. D. (2004). Looking forward to looking backward: The misprediction of regret. *Psychological Science*, *15*(5), 346–350.

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, *79*(5), 701.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Heintzelman, S. J., & King, L. A. (2019a). Routines and Meaning in Life. *Personality and Social Psychology Bulletin*, *45*(5), 688–699.

Heintzelman, S. J., & King, L. A. (2019b). Routines and Meaning in Life. *Personality and Social Psychology Bulletin*, *45*(5), 688–699.

Helson, H. (1964). *Adaptation-level theory: an experimental and systematic approach to behavior.*

Hepper, E. G., Ritchie, T. D., Sedikides, C., & Wildschut, T. (2012). Odyssey's end: Lay conceptions of nostalgia reflect its original homeric meaning. *Emotion*, *12*(1), 102.

Hepper, E. G., Wildschut, T., Sedikides, C., Ritchie, T. D., Yung, Y.-F., Hansen, N., Abakoumkin, G., Arikan, G., Cisek, S. Z., & Demassosso, D. B. (2014a). Pancultural nostalgia: Prototypical conceptions across cultures. *Emotion*, *14*(4), 733.

Hepper, E. G., Wildschut, T., Sedikides, C., Ritchie, T. D., Yung, Y.-F., Hansen, N., Abakoumkin, G., Arikan, G., Cisek, S. Z., & Demassosso, D. B. (2014b). Pancultural nostalgia: Prototypical conceptions across cultures. *Emotion*, *14*(4), 733.

Hobson, N. M., Schroeder, J., Risen, J. L., Xygalatas, D., & Inzlicht, M. (2017). The Psychology of Rituals: An Integrative Review and Process-Based Framework. *Personality and Social Psychology Review*, 108886831773494. https://doi.org/10.1177/1088868317734944

Holak, S. L., & Havlena, W. J. (1998). Feelings, fantasies, and memories: An examination of the emotional components of nostalgia. *Journal of Business Research*, *42*(3), 217–226.

Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review*, *93*(2), 136.

Kahneman, D., & Snell, J. (1992). Predicting a changing taste: Do people know what they will like? *Journal of Behavioral Decision Making*, *5*(3), 187–200.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*(2), 263–292.

Keinan, A., & Kivetz, R. (2011). Productivity Orientation and the Consumption of Collectable Experiences. *Journal of Consumer Research*, *37*(6), 935–950. https://doi.org/10.1086/657163

Khan, U., & Dhar, R. (2006). Licensing effect in consumer choice. *Journal of Marketing Research*, *43*(2), 259–266.

Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes*, *65*(3), 272–292.

Loewenstein, G., O'Donoghue, T., & Rabin, M. (2003). Projection bias in predicting future utility. *The Quarterly Journal of Economics*, *118*(4), 1209–1248.

Loewenstein, G., & Schkade, D. (1999). Wouldn't it be nice? Predicting future feelings. *Well-Being: The Foundations of Hedonic Psychology*, 85–105.

Ludwig, F. M. (1997). How routine facilitates wellbeing in older women. *Occupational Therapy International*, *4*(3), 215–230.

Lyubomirsky, S. (2008). *The how of happiness: A scientific approach to getting the life you want*. Penguin.

McAdams, D. P. (2001). The psychology of life stories. *Review of General Psychology*, *5*(2), 100–122.

McAdams, D. P., & McLean, K. C. (2013). Narrative identity. *Current Directions in Psychological Science*, *22*(3), 233–238.

Mitchell, T. R., Thompson, L., Peterson, E., & Cronk, R. (1997). Temporal adjustments in the evaluation of events: The "rosy view." *Journal of Experimental Social Psychology*, *33*(4), 421–448.

Mogilner, C., Hershfield, H. E., & Aaker, J. (2018). Rethinking time: Implications for well-being. *Consumer Psychology Review*, *1*(1), 41–53.

Montoya, A. K., & Hayes, A. F. (2017). Two-condition within-participant statistical mediation analysis: A path-analytic framework. *Psychological Methods*, *22*(1), 6.

Morewedge, C. K. (2013). It was a most unusual time: How memory bias engenders nostalgic preferences. *Journal of Behavioral Decision Making*, *26*(4), 319–326.

Neisser, U. (1986). *Nested structure in autobiographical memory.*

Nordgren, L. F., Banas, K., & MacDonald, G. (2011). Empathy gaps for social pain: Why people underestimate the pain of social suffering. *Journal of Personality and Social Psychology*, *100*(1), 120.

Nosofsky, R. M. (2011). The generalized context model: An exemplar model of classification. *Formal Approaches in Categorization*, 18–39.

O'Brien, E. (2019). Enjoy it again: Repeat experiences are less repetitive than people think. *Journal of Personality and Social Psychology*, *116*(4), 519.

Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology*, *45*(4), 867–872.

Oxford English Dictionary. (2003). Oxford University Press.

Paolacci, G., Chandler, J., & Ipeirotis, P. G. (2010). Running experiments on amazon mechanical turk. *Judgment and Decision Making*, *5*(5), 411–419.

Phipps, M., & Ozanne, J. L. (2017). Routines disrupted: Reestablishing security through practice alignment. *Journal of Consumer Research*, *44*(2), 361–380.

Quoidbach, J., Gilbert, D. T., & Wilson, T. D. (2013). The end of history illusion. *Science*, *339*(6115), 96–98.

Read, D., & Loewenstein, G. (1999). Enduring pain for money: Decisions based on the perception and memory of pain. *Journal of Behavioral Decision Making*, *12*(1), 1–17.

Ritchie, T. D., Skowronski, J. J., Wood, S. E., Walker, W. R., Vogl, R. J., & Gibbons, J. A. (2006). Event self-importance, event rehearsal, and the fading affect bias in autobiographical memory. *Self and Identity*, *5*(02), 172–195.

Rook, D. W. (1985). The Ritual Dimension of Consumer Behavior. *Journal of Consumer Research*, *12*, 251–264.

Rosch, E. H. (1973). Natural categories. *Cognitive Psychology*, *4*(3), 328–350.

Routledge, C., Wildschut, T., Sedikides, C., & Juhl, J. (2013). Nostalgia as a resource for psychological health and well-being. *Social and Personality Psychology Compass*, *7*(11), 808–818.

Schkade, D. A., & Kahneman, D. (1998). Does Living in California Make People Happy ? A Focusing Illusion in Judgments of Life Satisfaction. *Psychological Science*, *9*(5), 340–346.

Sedikides, C., Cheung, W. Y., Wildschut, T., Hepper, E. G., Baldursson, E., & Pedersen, B. (2018). Nostalgia motivates pursuit of important goals by increasing meaning in life. *European Journal of Social Psychology*, *48*(2), 209–216. https://doi.org/10.1002/ejsp.2318

Sedikides, C., & Wildschut, T. (2018). Finding meaning in Nostalgia. *Review of General Psychology*, *22*(1), 48–61. https://doi.org/10.1037/gpr0000109

Sedikides, C., Wildschut, T., Routledge, C., & Arndt, J. (2015). Nostalgia counteracts self-discontinuity and restores self-continuity. *European Journal of Social Psychology*, *45*(1), 52–61.

Sedikides, C., Wildschut, T., Routledge, C., Arndt, J., Hepper, E. G., & Zhou, X. (2015). To nostalgize: Mixing memory with affect and desire. In *Advances in experimental social psychology* (Vol. 51, pp. 189–273). Elsevier.

Sheldon, K. M., Boehm, J., & Lyubomirsky, S. (2012). Variety is the spice of happiness: The hedonic adaptation prevention (HAP) model. In I. Boniwell & S. David (Eds.), *Oxford Handbook of Happiness*. Oxford University Press.

Smith, A. (2017, April 28). Obama: Here's what I miss most about the White House. *Business Insider*.

Stern, B. B. (1992). Historical and personal nostalgia in advertising text: The fin de siecle effect. *Journal of Advertising*, *21*(4), 11–22.

Sullivan, M. (2020, October 12). Airlines Offering "Flights To Nowhere" Amid COVID-19 Travel Restrictions. *NPR*.

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*(2), 440.

Wagemans, J., Feldman, J., Gepshtein, S., Kimchi, R., Pomerantz, J. R., van der Helm, P. A., & van Leeuwen, C. (2012). A century of Gestalt psychology in visual perception: II. Conceptual and theoretical foundations. *Psychological Bulletin*, *138*(6), 1218.

Walker, W. R., Skowronski, J. J., & Thompson, C. P. (2003). Life is pleasant—and memory helps to keep it that way! *Review of General Psychology*, *7*(2), 203–210.

Walker, W. R., Vogl, R. J., & Thompson, C. P. (1997). Autobiographical memory: Unpleasantness fades faster than pleasantness over time. *Applied Cognitive Psychology: The Official Journal of the Society for Applied Research in Memory and Cognition*, *11*(5), 399–413.

Wang, Q., & Conway, M. A. (2004). The stories we keep: Autobiographical memory in American and Chinese middle-aged adults. *Journal of Personality*, *72*(5), 911–938.

Wildschut, T., Sedikides, C., Arndt, J., & Routledge, C. (2006a). Nostalgia: content, triggers, functions. *Journal of Personality and Social Psychology*, *91*(5), 975.

Wildschut, T., Sedikides, C., Arndt, J., & Routledge, C. (2006b). Nostalgia: content, triggers, functions. *Journal of Personality and Social Psychology*, *91*(5), 975.

Williams, H. L., Conway, M. A., & Cohen, G. (2008). Autobiographical memory. *Memory in the Real World*, *3*, 21–90.

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. *Advances in Experimental Social Psychology*, *35*(35), 345–411.

Wilson, T. D., Wheatley, T., Meyers, J. M., Gilbert, D. T., & Axsom, D. (2000). Focalism: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology*, *78*(5), 821.

Winet, Y. K., & O'Brien, E. (2022). Ending on a familiar note: Perceived endings motivate repeat consumption. *Journal of Personality and Social Psychology*.

Wirtz, D., Kruger, J., Scollon, C. N., & Diener, E. (2003). What to do on spring break? The role of predicted, on-line, and remembered experience in future choice. *Psychological Science*, *14*(5), 520–524.

Wood, W., & Rünger, D. (2016). Psychology of Habit. *Annual Review of Psychology*, *67*(1), 289–314. https://doi.org/10.1146/annurev-psych-122414-033417

Zhang, T., Kim, T., Brooks, A. W., Gino, F., & Norton, M. I. (2014). A "Present" for the Future: The Unexpected Value of Rediscovery. *Psychological Science*, *25*(10), 1851–1860. https://doi.org/10.1177/0956797614542274

Zhou, X., Sedikides, C., Wildschut, T., & Gao, D.-G. (2008). Counteracting loneliness: On the restorative function of nostalgia. *Psychological Science*, *19*(10), 1023–1029.

Zisberg, A., Young, H. M., Schepp, K., & Zysberg, L. (2007). A concept analysis of routine: relevance to nursing. *Journal of Advanced Nursing*, *57*(4), 442–453.