Article

Trajectory of Nostalgia in Emerging Adulthood

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Abstract

We examined the change and stability of nostalgia in emerging adulthood. We followed 327 students through their 4 university years with six assessments. Nostalgia demonstrated moderate rank stability (r = .25–.79). A Trait-State-Occasion model analysis indicated that the stable trait component, slowing-change trait component, and state component explained 37% to 43%, 10% to 27%, and 29% to 49% of variation in nostalgia on specific occasions, respectively. Longitudinal multilevel analysis revealed that the mean nostalgia level declined across university years. Greater intensity of negative life events at the start of university was associated with higher initial nostalgia and slower decline of it, while the emotion intensified when experiencing more negative life events. Nostalgia in emerging adulthood displays moderate stability, with negative life events contributing to the shape of its trajectory.

Keywords

nostalgia, nostalgia trajectory, nostalgia change, nostalgia stability, emerging adulthood

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Nostalgia is "a sentimental longing or wistful affection for the past" (The New Oxford Dictionary of English, 1998, p. 1266). The emotion is self-relevant, as the remembered past is meaningful (Van Tilburg et al., 2018), that is, refers to momentous events from one's life, such as birthdays, graduations, or anniversaries (Wildschut et al., 2006). The emotion is also social, given that the nostalgizer's recollections are "peopled" (Hertz, 1990, p. 195), that is, filled symbolically with close others (e.g., family members, friends, and partners; Kneuer et al., 2022; Wildschut et al., 2006). Finally, the emotion is bittersweet, but mostly positive: The nostalgizer feels warm, contented, and happy, but may often yearn for a past that is irredeemably lost (Hepper et al., 2012; Leunissen et al., 2021). Nostalgia is experienced frequently (several times a week; Wildschut et al., 2006), and across ages (Hepper et al., 2021; Zhou et al., 2008) and cultures (Hepper et al., 2014).

Nostalgia can manifest at either the state or trait level. Most research has been concerned with state nostalgia. Although we are also concerned with it, we focus mostly on trait nostalgia, and specifically on its development in emerging adulthood, during which psychological changes are recurrent and the emotion is experienced more frequently and intensely. We examine how trait nostalgia develops in terms of both rank-order stability (stability of nostalgia as an individual difference and of its sources) and normative stability (normative trajectory of the emotion and its moderation).

Nostalgia as State

The literature on state nostalgia has documented a variety of triggers. Most pertinent to the objectives of this research, triggers include aversive stimuli such as cold temperature (Zhou et al., 2012) or inclement weather (e.g., wind, thunder, and rain; Van Tilburg et al., 2018). They also include discomforting psychological conditions such as bad mood (Wildschut et al., 2006), self-discontinuity (a sense of disconnect between one's past and present selves; Sedikides, Wildschut, Routledge, & Arndt, 2015), boredom (Van Tilburg et al., 2013), loneliness (Wildschut et al., 2006), social exclusion (Wildschut et al., 2010), life meaninglessness (Routledge et al., 2011), and death cognitions (Juhl et al., 2010). In turn, the ensuing, or experimentally induced, nostalgia palliates these discomforting conditions.

This literature points to two conclusions. First, the experience of nostalgia is malleable, easily swayed by assorted

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stimuli or psychological conditions. Second, nostalgia can be a momentary response or coping mechanism to aversive stimuli or discomforting psychological conditions, as per the regulatory model of nostalgia discussed below.

Nostalgia as Trait

We define trait nostalgia in terms of proclivity, frequency, and subjective importance of nostalgizing. It is often assessed with the Southampton Nostalgia Scale (SNS; Routledge et al., 2008). Its construct validity is supported by high positive correlations (i.e., convergence) with alternative measures of nostalgia as well as positive correlations with music-evoked and scent-evoked nostalgia (Wildschut & Sedikides, 2022b). Trait nostalgia has been studied in the context of prosociality (J. D. Green et al., 2021; Juhl et al., 2020), political preferences (Fetterman et al., 2021), prejudice expression (W.-Y. Cheung et al., 2017), and organizational behavior (Van Dijke et al., 2015). It is associated with certain patterns of neural activity involving affect and reward processing (Yang et al., 2022), and is genetically influenced (Luo et al., 2016, 2022). Furthermore, trait nostalgia shows some stability over time regardless of changing circumstances (Mallory et al., 2018; Newman et al., 2020). It is positively associated with the Big Five traits: Neuroticism (r = .11–.21), Extraversion (r = .07–.27), Openness to Experience (r = .07–.24), Conscientiousness (r = .06–.11), and Agreeableness (r = .08–.24; Juhl et al., 2020; Luo et al., 2016; Newman et al., 2020; Seehusen et al., 2013; Stephan et al., 2014; Tullett et al., 2015).

Moreover, trait nostalgia is relevant to psychological adjustment. The literature has produced seemingly conflicting results. On the one hand, nostalgia is positively related not only to neuroticism (Frankenbach et al., 2021) but also to rumination (W.-Y. Cheung et al., 2018), threat appraisals (Bialobrzeska et al., 2019), and loneliness (Zhou et al., 2008). On the other hand, nostalgia is positively related to self-continuity (perceived connection of past and present self; Sedikides, Wildschut, Routledge, & Arndt, 2015), self-esteem (Luo et al., 2016), meaning in life (Sedikides & Wildschut, 2018), subjective (Layous et al., 2021; Luo et al., 2022) or eudaimonic well-being (Hepper et al., 2021; Kelley et al., 2022), and adaptive coping (Batcho, 2013).

The regulatory model of nostalgia (Wildschut & Sedikides, 2022a, 2022c) can reconcile these findings. Higher levels of trait nostalgia are often due to the real or imagined presence of aversive stimuli or discomforting psychological conditions. Nostalgia subsequently counteracts those conditions. Nostalgia serves as a homeostatic corrective. For example, Zhou et al. (2008) found that, whereas loneliness was negatively associated with perceived social support, it was positively associated with nostalgia. Nostalgia, in turn, was positively linked to perceived social support. When predicting perceived social support from both nostalgia and loneliness, the negative association between loneliness and perceived social support was strengthened (a suppression effect; Paulhus et al., 2004). Put otherwise, lonely individuals perceive less social support, but also nostalgize to a greater extent, thus augmenting perceptions of social support.

The Development of Nostalgia in Emerging Adulthood

The development of personality is often discussed in terms of rank-order and normative stability. Rank-order stability reflects the degree to which one's relative standing in the population on a given trait remains unchanged over time. Normative stability reflects the mean-level change of a group or population. The two types of stability are independent. Individuals' rank order could change substantially over time without any aggregated group mean changes. Across any two age groups, for instance, nostalgia may increase among some individuals but decrease among others. If the increases and decreases offset each other, a null aggregated mean age-group difference will be observed. Similarly, an age-group mean can change considerably without a shift in the rank order of individuals, if all of them increased or decreased by the same amount. Both stabilities are informative in assessing developmental change, and a thorough understanding requires their simultaneous examination.

Normative Stability

A few studies have explored the normative stability of nostalgia. Batcho (1995) grouped participants into childhood (4–11 years), adolescence (12–17 years), university (18–21 years), early career (22–33 years), mid-career (34–39 years), and late career (over 50). Nostalgia was highest among university students. Madoglou et al. (2017) grouped participants into younger (18–25 years), adult (40–64 years), and older (65–89 years). Nostalgia was highest among older participants, a finding replicated by Turner and Stanley (2021). Finally, Hepper and colleagues (2021) surveyed a large sample of participants ranging from 18 to 91 years of age. Nostalgia declined from young adulthood to middle age and increased in older adulthood. These findings suggest that nostalgia is higher under harsher life circumstances. For example, older persons, faced with challenging physical and social transitions, report more intense and frequent nostalgia, as the emotion helps them to cope with mortality cues and maintain well-being (Hepper et al., 2021).

Albeit pioneering, these studies relied on cross-sectional designs, inferring developmental change from mean age-group differences. Such differences, however, are a product of both developmental change and birth cohort effects (Twenge, 2002), posing interpretational difficulties (Costa & McCrae, 1982). In addition, sampling issues may yield confounds due to low representativeness and comparability across ages. Moreover, cross-sectional designs provide no information about nostalgia's rank-order stability: It is

impossible to determine whether an individual occupying a certain rank at a given age would hold similar rank at a later age. A longitudinal design, which tracks the same individuals over time, is needed.

Rank-Order Stability

Rank-order stability provides information about how stable a trait is. Psychological constructs vary on the degree of rank-order stability, ranging from more (e.g., intelligence, Deary, 2014) to less (e.g., life satisfaction, Lucas & Donnellan, 2007) stable. Highly stable constructs are more likely to be shaped by genetics (Fraley & Roberts, 2005) and be resistant to interventions (Costa & McCrae, 1986).

Research examining the rank-order stability of nostalgia is scarce, although existing studies suggest that it is moderate. One study (Mallory et al., 2018) assessed the relationship nostalgia of 103 participants three times (with a 2-week interval among waves) and reported autoregressive paths ranging from .44 to .70, higher than the autoregressive paths of relationship satisfaction (.22–.40) measured in the same study. Another study (Newman et al., 2020, Study 1d) assessed the general nostalgia of 186 undergraduates twice (with a 10-week interval) and reported a test–retest correlation of $r = .64$ after controlling for measurement error. This correlation is smaller than those of Big Five personality traits ($r = .62$–$.80$, involving an 8-week interval; Anusic et al., 2012), but is comparable to those of life satisfaction and affect ($r = .49$–$.58$; Anusic et al., 2012).

Although test–retest correlations have been used as indicators of rank-order stability (Atherton et al., 2021; Damian et al., 2019), they have their limitations. Raw test–retest correlations do not separate reliability from stability (Heise, 1969); hence, a low raw test–retest correlation may not necessarily indicate low rank-order stability, due to potentially large measurement error. Also, test–retest correlations decrease as the time interval between measurements increases (Anusic et al., 2012; Chmielewski & Watson, 2009), hampering a direct comparison. Moreover, psychological processes comprise both trait-like and state-like aspects (Conley, 1984; Hertzog & Nesselroade, 1987), but mere test–retest correlations offer no information about how much each component contributes to the observed pattern. Accordingly, we partitioned nostalgia into trait-like and state-like components and quantified the degree to which each component contributed to nostalgia's stability over time.

Focus on Emerging Adulthood

We acknowledge the intuitive appeal of the idea that nostalgia becomes more important with age. However, emerging adulthood is a critical period for the prevalence of the emotion (Batcho, 1995; Hepper et al., 2021). This period constitutes a transitional stage from adolescence to adulthood, during which most young adults move away from home to live independently, thus being subjected to personal, relational, and professional instability, uncertainty, and challenges (Arnett, 2000, 2007). As we mentioned, self-discontinuity is an influential elicitor of nostalgia (Sedikides et al., 2022; Sedikides, Wildschut, Routledge, & Arndt, 2015). Thus, the emotion may be frequently experienced in the transition from adolescence to adulthood, likely as a coping strategy. Also, during emerging adulthood, individuals face idiosyncratic setbacks (e.g., academic failures, relationship break-ups, and death of loved ones), which are likely to evoke nostalgia.

How do emerging adults use nostalgia to respond to developmental and social influences? Previous work has examined shifts in reported nostalgia in a broader age span with cross-sectional designs (Batcho, 1995; Hepper et al., 2021; Madoglou et al., 2017; Turner & Stanley, 2021), which are limited in delineating change and stability during emerging adulthood. We focus exclusively on that period using a longitudinal design.

Overview

We conducted a longitudinal study to examine the change and stability of nostalgia during emerging adulthood. We followed a sample of university students from their entrance into university to graduation 4 years later, assessing them six times. To find out how nostalgia would change during that period, we examined rank-order stability as well as normative stability and its moderators.

We first checked for rank-order stability, probing into test–retest correlations and sources underlying it. We used the Trait-State-Occasion (TSO) model to partition the sources of stability into (a) a stable trait component that is time-invariant or stable across all timepoints; (b) a slow-changing trait component, as indicated by autoregression that varies orderly with time; and (c) a state component that includes time-varying or specific variation and measurement error (Cole et al., 2005; Kenny & Zautra, 2001). The scant literature reports a moderate rank-order stability of nostalgia (Mallory et al., 2018; Newman et al., 2020, Study 1d). Moreover, trait nostalgia is shaped by both environmental and genetic influences (Luo et al., 2016, 2022), which are usually enduring. Thus, we expected to observe a moderate rank-order stability of nostalgia, which is partly due to its stable trait component.

We then used multilevel models to examine absolute stability. Past research has established that disruptive events trigger nostalgia (Wildschut & Sedikides, 2022a, 2022c). Entering into university constitutes such an event, as it entails self-discontinuity. Indeed, first-year university students often experience increased stress, given that they have to manage academic challenges, navigate new social networks, and assume more responsibilities (Laursen & Collins, 2009; Taylor et al., 2014). Therefore, we hypothesized that level of nostalgia would be particularly high at the beginning of one's

university career and would decline gradually as students become accustomed to university culture.

We further tested how the trajectory of nostalgia is influenced by negative life events. Specifically, we examined this influence in terms of both its intensity (i.e., perceived severity of negative life events) and quality (i.e., type of negative life event). We reasoned that more intense negative life events would have cumulative adverse consequences on well-being. Indeed, more intense negative life events predict increased risk of depression and anxiety (Stikkelbroek et al., 2016; Zou et al., 2018). Relatedly, as mentioned above, individuals feel more nostalgic when they are confronted with negative events or experience discomforting psychological states (Sedikides, Wildschut, Routledge, Arndt, Hepper, & Zhou, 2015). Thus, we hypothesized that emerging adults would become increasingly nostalgic when experiencing more intensely negative life events.

Moreover, the quality of negative life events matters. Events differ in their personal relevance, and the more personally relevant an event is, the more psychologically impactful it will be (Gebauer et al., 2013; Sedikides et al., 2016). For university students (the current sample), academic events are of high personal relevance. Academic failure, and more generally, maladaptation to university life, would be especially stressful (Zou et al., 2018). Thus, we hypothesized that negative life events pertaining to adaptation to university life would be a particularly strong predictor of change in nostalgia during emerging adulthood.

Method

We received ethical approval from the last author's institution. We report all measures and follow Journal Article Reporting Standards (Kazak, 2018). We did not preregister this study. The raw data, analysis code, codebook, and stimulus materials are available on Open Science Framework (OSF https://osf.io/8bqtz/?view_only=208e9b94440f4d599542f3012ecda765).

Participants

Participants were students at [MASKED] University, China, enrolled in the university's 4-year Longitudinal Project on Well-Being. We recruited them from a first-semester introductory psychology class, which was optional for second-year Science, Technology, Engineering, and Mathematics students. Of participants, only 5.60% chose to major in psychology in their second year, with others electing such majors as biology, chemistry, geography, mathematics, meteorology, pharmacy, and physics. We recruited as many participants as possible.

We assessed participants at the beginning of their first, second, third, and fourth years. We included two extra assessments, one halfway through the first year (6 months after the first assessment) and another halfway through the fourth year (6 months after the fifth assessment) to capture additional timepoints during the academic year. In total, we assessed participants at six timepoints (T1–T6). For each assessment, they completed a 1-hour survey individually while seated in a quiet room, and received 30 Chinese Yuan (US$4.71).

Our T1 sample included 327 first- year students (207 men, 120 women; M_{age} = 18.54, SD_{age} = .75). Due to attrition, the remaining timepoints comprised 310 (T2, 195 men), 290 (T3, 181 men), 257 (T4, 163 men), 236 (T5, 145 men), and 157 (T6, 96 men) participants. We did not exclude any participants.

The TSO model behaves well with sample sizes of 200 and at least four waves of data collection (Cole et al., 2005). We conducted power analysis in *R* (version 4.0.2) with *simr* (P. Green & MacLeod, 2016) to test whether our sample had sufficient power for longitudinal multilevel analysis (LMA). A sensitivity power analysis with 1,000 simulations revealed that our sample size (N = 327) afforded sufficient power (= .80) to detect a small fixed linear effect of time ($\gamma > 0.16$).

Procedure and Measures

Nostalgia. We assessed nostalgia with the 5-item SNS (Routledge et al., 2008; for validation in Chinese samples see: Zhou et al., 2008, 2012).[1] Two items inquire about propensity to nostalgize (e.g., "How prone are you to feeling nostalgic?"; 1 = *not at all*, 7 = *very much*), two about frequency of nostalgizing (e.g., "Generally speaking, how often do you bring to mind nostalgic experiences?"; 1 = *very rarely*, 7 = *very frequently*), and one about the subjective importance of nostalgia (e.g., "How important is nostalgia for you?"; 1 = *not at all*, 7 = *very much*). We assessed nostalgia at each timepoint. We report in Table 1 means, standard deviations, alphas, and omega total reliabilities for all measures at each timepoint. Alphas ranged between .80 and .86. Omega total reliabilities, calculated as alternatives to alphas (Revelle & Zinbarg, 2009), ranged between .83 and .87.

Negative Life Events. We assessed negative life events with the Adolescent Self-Rating Life Events Checklist (ASLEC; X. C. Liu et al., 1997). Participants rated the severity of 27 negative life events—sampled from multiple domains—in the past three months (0 = *did not happen or not at all severe*, 4 = *extremely severe*). We averaged ratings to create a negative-life-events index, with higher values indicating more intensely negative life events. Xin and Yao (2015) re-evaluated the ASLEC in a sample of 10,566 Chinese adolescents and generated five factors: Punishment (e.g., "Physical punishment by parents," "Being fined"), Interpersonal Relationship (e.g., "Conflict with friends or classmates," "Blamed wrongly by others"), Academic Pressure (e.g., "Failure in a test," "High academic expectation from parents"), Loss (e.g., "Death of beloved," "Get sick seriously"), and Maladaptation (e.g., "Unable to be with family," "Maladjustment to university life"). We examined the association of each factor with nostalgia. We assessed the intensity of negative life events at each timepoint. Alphas for the full

Table 1. Means, Standard Deviations, and Internal Consistency of Nostalgia and Negative Life Events at Each Timepoint.

Measures	Number of items	*M*	*SD*	α	ω
SNS					
T1	5	4.82	1.20	.80	.83
T2	5	4.60	1.22	.84	.86
T3	5	4.50	1.22	.85	.87
T4	5	4.33	1.22	.84	.87
T5	5	4.11	1.24	.86	.87
T6	5	4.13	1.18	.82	.85
Negative life events					
T1					
Overall	27	0.60	0.43	.86	.86
Punishment	7	0.25	0.45	.79	.82
Interpersonal relationship	5	0.65	0.63	.75	.74
Academic pressure	4	1.09	0.77	.64	.66
Loss	6	0.49	0.57	.62	.64
Maladaptation	5	0.74	0.61	.55	.56
T2					
Overall	27	0.54	0.44	.89	.89
Punishment	7	0.18	0.38	.80	.81
Interpersonal relationship	5	0.59	0.64	.71	.80
Academic pressure	4	1.02	0.73	.70	.71
Loss	6	0.43	0.59	.73	.74
Maladaptation	5	0.72	0.56	.49	.51
T3					
Overall	27	0.53	0.45	.90	.89
Punishment	7	0.19	0.40	.82	.84
Interpersonal relationship	5	0.61	0.61	.70	.77
Academic pressure	4	0.93	0.68	.62	.63
Loss	6	0.45	0.64	.79	.80
Maladaptation	5	0.70	0.62	.61	.62
T4					
Overall	27	0.46	0.42	.89	.89
Punishment	7	0.14	0.33	.76	.78
Interpersonal relationship	5	0.45	0.55	.75	.75
Academic pressure	4	0.94	0.74	.67	.68
Loss	6	0.37	0.52	.69	.71
Maladaptation	5	0.67	0.61	.62	.63
T5					
Overall	27	0.44	0.44	.90	.90
Punishment	7	0.12	0.30	.73	.74
Interpersonal relationship	5	0.39	0.57	.79	.79
Academic pressure	4	0.94	0.84	.76	.77
Loss	6	0.34	0.55	.72	.74
Maladaptation	5	0.64	0.64	.65	.67
T6					
Overall	27	0.40	0.45	.93	.93
Punishment	7	0.14	0.33	.82	.83
Interpersonal relationship	5	0.42	0.55	.81	.82
Academic pressure	4	0.65	0.70	.71	.72
Loss	6	0.40	0.57	.80	.81
Maladaptation	5	0.53	0.61	.74	.75

Note. α = Cronbach's alpha; ω = omega total coefficient.

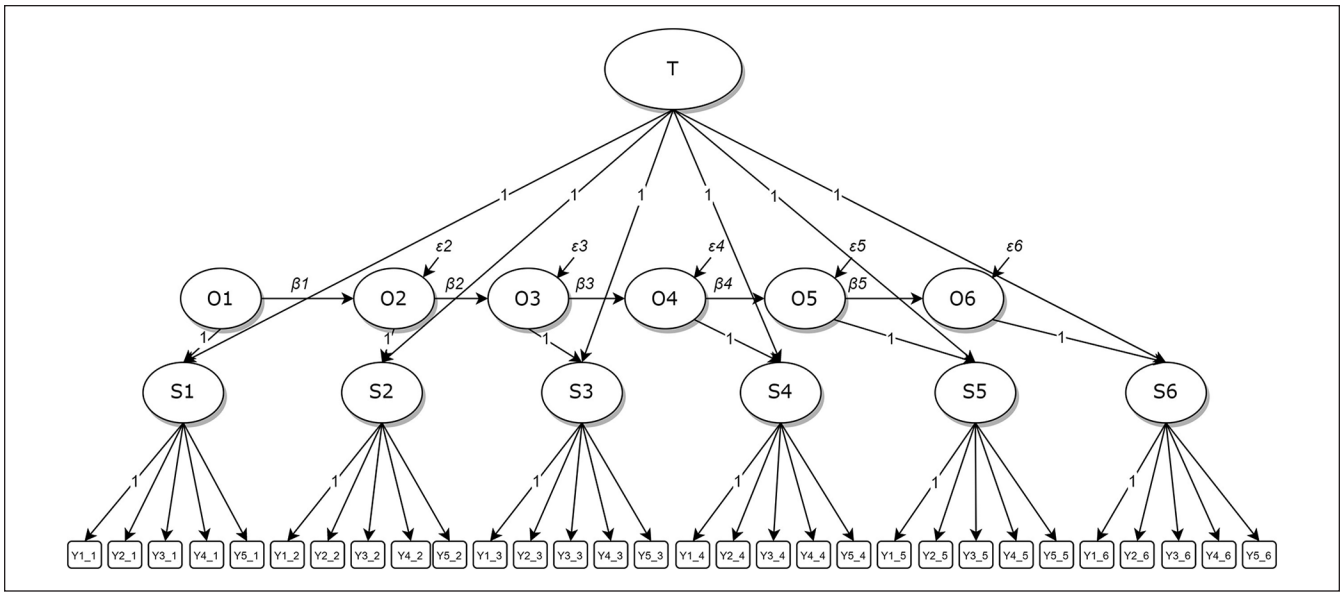

Figure 1. Trait-State-Occasion Model for Nostalgia.
Note. For clarity of presentation, we do not show indicator residual variances and residual correlations. T = stable trait factor; O = occasion-specific factor; S = state factor; Y = indicators of nostalgia.

scale ranged between .86 and .93 across waves, and omega total reliabilities ranged between .86 and .94. Following Xin and Yao, we calculated scores for each factor. Alphas ranged between .49 and .82, and omega total reliabilities ranged between .51 and .83.

Data Analytic Approach

Trait-State-Occasion Model. We used the TSO model to partition and quantify the sources of nostalgia's stability. The TSO treats nostalgia at each timepoint as a latent state factor (S_t), which varies as a function of a trait factor (T) and an occasion factor (O_t; Figure 1). The trait factor (corresponding to the previously described stable trait component) accounts for the variance shared among all timepoints. The occasion factor accounts for the remaining variance related to situational circumstances at a given timepoint. The model further assumes that the influence of situational circumstances on nostalgia may carry over from one timepoint to the next, thus further partitioning the occasion factor into two components: an autoregressive occasion factor (corresponding to the previously described slow-changing trait component) and a residual factor (corresponding to the previously described state component; not to be confused with the state factor). The autoregressive occasion factor explains variance that passes from a previous timepoint to the next. The residual factor explains variance unique to the specific timepoint, which is caused by situational circumstances and measurement error. Thus, the model estimates how much of the variance in nostalgia at each timepoint arises from the stable trait component, slow-changing trait component, and state component.

Longitudinal Multilevel Analysis. We used LMA to examine the developmental trajectory of nostalgia during emerging adulthood and potential moderators of this trajectory. The assessments at repeated timepoints nested within individuals were the Level 1 units of analysis. Individuals were the Level 2 units of analysis. We first tested a full model (Table 2) in which we allowed both the individual-level intercept and the linear slope of time to vary randomly. We explored the basic pattern of normative change in nostalgia (including linear and curvilinear patterns) and then tested the roles of negative life events in shaping nostalgia's trajectory over time.

To address the effect of negative life events on the trajectory of nostalgia, we examined both the between- and within-person effects of such events. The between-person effect refers to the influence of participants' initial level of negative life events (grand-mean centered) on nostalgia's trajectory. The within-person effect refers to the influence of negative life events on nostalgia for a given person at given timepoints. For each participant, we calculated the incremental intensity of negative life events at each timepoint compared with their initial level. The multilevel model included intensity of such events at T1 as a time-invariant (Level 2) covariate (denoted with subscript $_{NLE\_initial}$). The model further included the cross-level interaction between T1 negative life events and the linear effect of time (denoted with subscript $_{NLE\_initial*Time}$). Finally, we incorporated the incremental score of negative life events at each timepoint compared with the initial level as time-varying (Level 1) covariate (denoted with subscript $_{NLE\_TVC}$).

Table 2. Equations for Linear, Quadratic, and Cubic Model for Basic Trajectory.

Level	Linear model	Quadratic model	Cubic model
Level 1	$Nostalgia_{ti} = \beta_{0i} + \beta_{1i}*Time_{ti} + e_{ti}$	$Nostalgia_{ti} = \beta_{0i} + \beta_{1i}*Time_{ti} + \beta_{2i}*Time_{ti}^2 + e_{ti}$	$Nostalgia_{yi} = \beta_{0i} + \beta_{1i}*Time_{ti} + \beta_{2i}*Time_{ti}^2 + \beta_{3i}*Time_{ti}^3 + e_{ti}$
Level 2	$\beta_{0i} = \gamma_{00} + u_{0i}$ $\beta_{1i} = \gamma_{10} + u_{1i}$	$\beta_{0i} = \gamma_{00} + u_{0i}$ $\beta_{1i} = \gamma_{10} + u_{1i}$ $\beta_{2i} = \gamma_{20}$	$\beta_{0i} = \gamma_{00} + u_{0i}$ $\beta_{1i} = \gamma_{10} + u_{1i}$ $\beta_{2i} = \gamma_{20}$ $\beta_{3i} = \gamma_{30}$

Note. The notation i was used to index participant, and the notation t was used to index different timepoints of the study nested in participant. In Level 1 equations, $Time_{ti}$ refers to time for each assessment; $Time_{ti}$ was coded as 0 for the T1 (i.e., 0 year), 0.5 for the T2 (i.e., half year), 1 for T3 (i.e., 1 year), 2 for the T4 (i.e., 2 years), 3 for T5 (i.e., 3 years), and 3.5 for T6 (i.e., 3.5 years), respectively. $Nostalgia_{ti}$ refers to the nostalgia measured for participant i at time t. β_{0i}, β_{1i}, β_{2i}, and β_{3i} refer to the intercept, linear, quadratic, and cubic slope for participant i, respectively; and e_{ti} refers to the Level 1 error. In Level 2 equations, γ_{0i}, γ_{1i}, γ_{2i}, and γ_{3i} refer to the grand mean of the intercept, linear, quadratic, and cubic slope, respectively, while u_{0i} and u_{1i} refer to the differences in the intercept and linear slope between participant i and the grand mean.

Table 3. Means and Correlations for Nostalgia and Negative Life Events Across Six Timepoints.

Measures	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. SNS_1	4.82	1.20											
2. SNS_2	4.60	1.22	.58***										
3. SNS_3	4.50	1.22	.52***	.79***									
4. SNS_4	4.33	1.22	.44***	.65***	.72***								
5. SNS_5	4.11	1.24	.35***	.52***	.66***	.73***							
6. SNS_6	4.13	1.18	.25**	.51***	.57***	.68***	.71***						
7. NLE_1	0.60	0.43	.08	.08	.09	.11	.16*	.11					
8. NLE_2	0.54	0.44	.06	.20***	.18**	.18**	.19**	.25***	.47***				
9. NLE_3	0.53	0.45	.02	.18**	.21***	.16*	.20**	.19*	.41***	.54***			
10. NLE_4	0.46	0.42	.04	.12	.13*	.21**	.17*	.12	.39***	.48***	.57***		
11. NLE_5	0.44	0.44	.09	.20**	.20**	.20**	.24***	.20*	.33***	.51***	.50***	.60***	
12. NLE_6	0.40	0.45	−.10	.12	.15	.23**	.16	.26**	.28***	.51***	.49***	.67***	.65***

Note. SNS = Southampton Nostalgia Scale; NLE = Negative life events.
*$p < .05$. **$p < .01$. ***$p < .001$.

Results

We found no evidence for selective attrition. T1 nostalgia and other variables (i.e., intensity of negative life events, gender, and age) did not differ significantly for participants who completed or did not complete T2/T3/T4/T5/T6 assessments, ts(325) $\leq$|1.592,| ps $\geq$ .112. Also, T1 nostalgia and other variables (i.e., intensity of negative life events, gender, and age) did not differ significantly for those who completed all six assessments (N = 119) or missed at least one assessment (N = 208), ts(325) $\leq$|1.507,| ps $\geq$ .133. Finally, neither nostalgia nor intensity of negative life events at a previous assessment differed significantly for participants who completed or did not complete the subsequent assessments, ts $\leq$|1.800,| ps $\geq$ .073.

We display in Table 3 means and correlations for nostalgia across six timepoints. We hypothesized a basic pattern of normative change: The initial self-discontinuity accompanying the transition to university would prompt greater nostalgia, which would be followed by gradual adjustment to university life and accompanying declines in nostalgia. Consistent with this hypothesis, the mean nostalgia level decreased year-by-year. Moreover, we observed moderate rank-order stability (.25–.79), with the correlation between timepoints decreasing as the time interval increased, but remaining substantial.

Next, we tested latent TSO models and implemented LMA to examine the rank-order stability and normative stability of nostalgia, respectively. We conducted TSO model analyses in *R* (version 4.0.2) with *lavaan* (version 0.6–7; Rosseel, 2012). We used the full information maximum likelihood estimation to address missing data (Schafer & Graham, 2002; Widaman, 2006). We conducted LMA analysis using IBM SPSS Statistics (Version 22). To lay the groundwork for these analyses, we carried out a measurement invariance test examining whether SNS scores were comparable across the six timepoints.

SNS Measurement Invariance

We tested the longitudinal measurement invariance of the nostalgia measurement model with confirmatory factor

Table 4. Proportion of Variance Explained by Model Components.

Parameter	Time 1	Time 2	Time 3	Time 4	Time 5	Time 6
Total variance (unstandardized)	2.27	2.07	1.94	2.18	2.19	2.12
Trait factor variance (unstandardized)	0.84	0.84	0.84	0.84	0.84	0.84
Occasion-specific factor variance (unstandardized)	1.43	1.23	1.10	1.34	1.35	1.28
Proportion of variance due to trait factor (trait component)	.37	.41	.43	.39	.38	.40
Proportion of variance due to autoregressive occasion factor (slow-changing component)	—	.10	.27	.17	.20	.21
Proportion of variance due to occasion residuals (state component)	—	.49	.29	.45	.42	.39
Autoregressive coefficient (unstandardized/standardized)	—	.38/.40	.66/.70	.57/.52	.57/.57	.58/.59

analysis (CFA). We first estimated a baseline CFA model of nostalgia with no constraints, in which the five SNS items loaded on a single factor at each timepoint and the resultant six factors were set to be correlated. Measurement errors for the same item could correlate across timepoints. The model fit the data well, $\chi^2(315) = 393.41$, $p = .002$, Comparative Fit Index (CFI) = .986, Tucker–Lewis Index (TLI) = .981, Root Mean Square Error of Approximation (RMSEA) = .028, and Standardized Root Mean Square Residual (SRMR) = .047. We then constrained all the factor loadings to be equal across time. Again, the model fit well, $\chi^2(335) = 424.90$, $p = .001$, CFI = .984, TLI = .979, RMSEA = .029, and SRMR = .053. The change in chi-square was significant, $\triangle\chi^2(20) = 31.49$, $p = .049$, which may be due to the relatively large sample size (Tucker & Lewis, 1973). Given that changes in other model fit indices met the criteria ($\triangle$CFI ≤ 0.1, $\triangle$RMSEA ≤ 0.015, $\triangle$SRMR ≤ 0.030; Chen, 2007; G. W. Cheung & Rensvold, 2002), we concluded in favor of measurement invariance. Finally, we further constrained all intercepts of the same indicators to be equal across time. Again, the model fit well, $\chi^2(435) = 506.59$, $p < .001$, CFI = .973, TLI = .966, RMSEA = .036, and SRMR = .055. The change in chi-square was not significant, $\triangle\chi^2(100) = 81.69$, $p = .909$, and the majority of other model fit statistic changes also met the criteria, $\triangle$RMSEA = 0.007, $\triangle$SRMR = 0.002, except $\triangle$CFI = 0.11, slightly beyond the 0.1 cutoff. Overall, we concluded in favor of strong invariance. These results set the stage for implementing the TSO model to examine rank-order stability.

Rank-Order Stability: TSO Model Analysis

We fit the TSO model to examine nostalgia's rank-order stability. Before examining the magnitude of each variance component, we tested the tenability of three constraints to improve model identification and parsimony (Cole et al., 2005). The first constraint assumed homogeneity of the autoregressive pathways between assessments with a 1-year interval ($\beta_3 = \beta_4$). The second constraint assumed homogeneity of the autoregressive pathways between assessments with a 6-month interval ($\beta_1 = \beta_2 = \beta_5$). The third constraint assumed that the residual variances of occasion factors were homogeneous ($\varepsilon_2 = \varepsilon_3 = . . . \varepsilon_6$). Only the first constraint was tenable (i.e., did not significantly reduce model fit as assessed by a chi-square difference test). Accordingly, we fit the TSO model with this first restriction imposed ($\beta_3 = \beta_4$) and achieved good model fit, $\chi^2(345) = 448.94$, $p < .001$, CFI = .981, TLI = .976, RMSEA = .030, and SRMR = .062.

We display in Table 4 the parameter estimates of the TSO model and the magnitude of each variance component. The stable trait factor accounted for 37% to 43% of the total variance. The unstandardized autoregressive rate was .38 from T1 to T2, and around .60 for the following time intervals. The slow-changing trait component (indicated by autoregressive occasion factor) explained 10% to 27% of total variance. The state component (indicated by residual occasion factor) explained 29% to 49% of total variance. Overall, the stable trait component accounted for approximately the same amount of variation in nostalgia across the six timepoints. These findings demonstrate the relative contributions to nostalgia of three components: a stable core that remained inert across time, a relatively stable component that may be subject to gradual change, and an unstable component that depends on the situation.

Normative Stability: Longitudinal Multilevel Analysis

Basic Change Trajectory. We examined the developmental trajectory of nostalgia via LMA. First, to calculate intraclass correlation (ICC), we estimated a simple random intercept model with no predictors. The ICC was .552, suggesting that 55.2% of variance in nostalgia was between-persons. Next, to determine the basic shape of change in nostalgia, we tested linear and curvilinear patterns over time by including time, time^2 (a quadratic term), and time^3 (a cubic term) as predictors, respectively (Table 5). The quadratic term was significant, likelihood ratio (LR) $\chi^2(1) = 5.47$, $p = .019$, whereas the cubic term was not, $\triangle\chi^2(1) = 0.93$, $p = .335$. Therefore, we retained the quadratic effect of time in the final model.

The model estimates (Table 6, Model 1) showed that the average nostalgia level was 4.79 when participants entered university, and then decreased across time (as indicated by the linear effect of time, $\gamma_{10} = -0.32$, $SE = 0.06$, $p < .001$,

Table 5. Model Comparison for Linear and Curvilinear Change of Nostalgia.

	Estimate (*SE*)				Model fit		
Model	Intercept	Time	Time^2	Time^3	−2LL	AIC	BIC
Linear model	4.74 (0.06)***	−0.20 (0.02)***	—	—	4277.71	4289.71	4321.89
Quadratic model	4.79 (0.07)***	−0.32 (0.06)***	0.04 (0.02)*	—	4272.24	4286.24	4323.78
Cubic model	4.80 (0.07)***	−0.42 (0.11)***	0.12 (0.09)	−0.02 (0.02)	4271.31	4287.31	4330.21

Note. AIC = Akaike's information criteria; BIC = Bayesian information criterion.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 6. Model Estimates for the Change of Nostalgia During University Years With Time-Invariant and Time-Varying Covariates.

	Model 0		Model 1		Model 2	
Fixed effect	Estimate (*SE*)	95% CI	Estimate (*SE*)	95% CI	Estimate (*SE*)	95% CI
Intercept	4.49***(0.06)	[4.38, 4.59]	4.79***(0.07)	[4.66, 4.92]	4.79***(0.06)	[4.67, 4.92]
Time			−0.32***(0.06)	[−0.44, −0.21]	−0.30***(0.06)	[−0.41, −0.18]
Time^2			0.04*(0.02)	[0.01, 0.07]	0.04*(0.02)	[0.01, 0.07]
Between-person NLE effect					0.31*(0.14)	[0.03, 0.60]
Between-person NLE effect × Time					0.11* (0.06)	[0.00, 0.22]
Within-person NLE effect					0.41***(0.07)	[0.28, 0.54]
Random effect						
σ_{00}: Intercept variance	0.85***(0.08)	[0.71, 1.02]	1.03***(0.10)	[0.85, 1.24]	1.01***(0.10)	[0.84, 1.23]
σ_{11}: Slope variance			0.09***(0.01)	[0.07, 0.12]	0.09***(0.02)	[0.06, 0.11]
ε: Residual variance	0.69***(0.03)	[0.63, 0.74]	0.47***(0.02)	[0.43, 0.51]	0.46***(0.02)	[0.42, 0.50]

Note. Model 0 is the unconditional model for estimating intraclass correlation; Model 1 estimated the basic trajectory of nostalgia over time; Model 2 estimated the between-person (time-invariant) and within-person (time-varying) effects of overall negative life events on the trajectory of nostalgia. CI = confidence interval; NLE = Overall negative life events.
*$p < .05$. **$p < .01$. ***$p < .001$.

95% confidence interval (CI) = [−0.44, −0.21]) and did so at a decelerating rate per year (as indicated by the quadratic effect of time, $\gamma_{20} = 0.04$, $SE = 0.02$, $p = .019$, 95% CI = [0.01, 0.07]). There was significant between-person variation in the initial nostalgia level ($\sigma_{00} = 1.03$, $SE = 0.10$, $p < .001$, 95% CI = [0.85, 1.24]) and its linear rate of change over time ($\sigma_{11} = 0.09$, $SE = 0.01$, $p < .001$, 95% CI = [0.07, 0.12]), suggesting a potential role for moderators. The covariation between the initial level of nostalgia and its linear rate of change over time was also significant, $\sigma_{10} = -0.12$, $SE = 0.03$, $p < .001$, 95% CI = [−0.17, −0.06], suggesting that nostalgia declined less over time for participants who evinced a high nostalgia level at T1.

The Role of Negative Life Events. We then tested both the between-person and within-person effects of negative life events on the trajectory of nostalgia (Table 6, Model 2). The T1 intensity of negative life events was positively associated with T1 nostalgia ($\gamma_{NLE\_initial} = 0.31$, $SE = 0.14$, $p = .030$, 95% CI = [0.03, 0.60]) and significantly moderated the linear decrease in nostalgia over time ($\gamma_{NLE\_initial*Time} = 0.11$, $SE = 0.06$, $p = .048$, 95% CI = [0.00, 0.22]). To be precise, participants reporting high (+1 *SD*) intensity of negative life events at the start of university evinced a slower decline in nostalgia over time ($\gamma_{Time} = -0.25$, $SE = 0.07$, $p < .001$, 95% CI = [−0.38, −0.12]) than those reporting low (−1 *SD*) initial intensity of negative life events ($\gamma_{Time} = -0.35$, $SE = 0.07$, $p < .001$, 95% CI = [−0.48, −0.22]). We examine this moderation pattern in greater detail below, in the context of domain-specific analyses. We also tested a model that included the interaction between T1 intensity of negative life events and the quadratic change in nostalgia over time ($\gamma_{NLE\_initial*Time^2}$). Adding this interaction term did not significantly improve model fit, $\triangle\chi^2(1) = 1.44$, $p = .230$, $\triangle$AIC = −0.56, $\triangle$BIC = −5.92. These findings indicate that participants who experienced more intensely negative life events at the start of university felt higher initial levels of nostalgia and evinced a slower decline in nostalgia over time.

Moreover, analysis of within-person effects revealed that incremental intensity of negative life events (relative to T1) was associated with higher nostalgia levels at a given timepoint ($\gamma_{NLE\_TVC} = 0.41$, $SE = 0.07$, $p < .001$, 95% CI = [0.28, 0.54]). That is, at timepoints when participants faced more intensely negative life events (compared with initial level), they felt greater nostalgia.

In addition, we examined the kinds of negative life events that predicted nostalgia over time by distinguishing between

Table 7. Models Predicting Nostalgia Trajectory With Time-Invariant and Time-Varying Covariates: Separate Negative Life Events Domains.

	Negative life events domains as predictors of nostalgia: Estimate (*SE*)				
Fixed effects	Punishment	Interpersonal Relationship	Academic Pressure	Loss	Maladaptation
Intercept	4.79*** (0.07)	4.79*** (0.06)	4.80*** (0.06)	4.79*** (0.07)	4.80*** (0.06)
Time	−0.31*** (0.06)	−0.31*** (0.06)	−0.31*** (0.06)	−0.32*** (0.06)	−0.33*** (0.06)
Time^2	0.04* (0.02)	0.04* (0.02)	0.04* (0.02)	0.04* (0.02)	0.04** (0.02)
Between-person effect	0.07(0.14)	0.05 (0.04)	0.17* (0.08)	0.10 (0.11)	0.32** (0.10)
Between-person effect × Time	0.13* (0.06)	0.18 (0.10)	0.03(0.03)	0.08 (0.04)	0.04 (0.04)
Within-person effect	0.22** (0.07)	0.15** (0.04)	0.18*** (0.04)	0.11* (0.05)	0.42*** (0.05)
Random effects					
Intercept variance	1.04*** (0.10)	1.02*** (0.10)	1.01*** (0.10)	1.03*** (0.10)	1.00*** (0.10)
Slope variance (time)	0.09*** (0.01)	0.09*** (0.01)	0.09*** (0.01)	0.09*** (0.01)	0.08*** (0.01)
Residual variance	0.47*** (0.02)	0.47*** (0.02)	0.47*** (0.02)	0.47*** (0.02)	0.45*** (0.02)

Note. Between-person effects refer to time-invariant effects of negative life events domains. Within-person effects refer to time-varying effects of negative life events domains.
*$p < .05$. **$p < .01$. ***$p < .001$.

the five ASLEC domains (Table 7). We tested the same multilevel model as described above, replacing the overall negative life events score with each of the five domains, in turn. Initial Maladaptation scores predicted higher levels of T1 nostalgia ($\gamma_{Maladaptation\_initial} = 0.32$, $SE = 0.10$, $p = .002$, 95% CI = [0.12, 0.52]). Participants who reported poorer adjustment to university (at T1) experienced greater nostalgia at the start of university. Furthermore, within-person incremental change in Maladaptation scores (relative to T1) predicted higher nostalgia levels at a given timepoint ($\gamma_{Maladaptation\_TVC} = 0.42$, $SE = 0.05$, $p < .001$, 95% CI = [0.33, 0.51]). At timepoints when participants suffered increased maladjustment to university (relative to T1), they became more nostalgic.

Similarly, within-person incremental change in Interpersonal Relationship ($\gamma_{Interpersonal\ Relationship\_TVC} = 0.15$, $SE = 0.04$, $p = .001$, 95% CI = [0.06, 0.24]), Academic Pressure ($\gamma_{Academic\ Pressure\_TVC} = 0.18$, $SE = 0.04$, $p < .001$, 95% CI = [0.11, 0.26]), Loss ($\gamma_{Loss\_TVC} = 0.11$, $SE = 0.05$, $p = .014$, 95% CI = [0.02, 0.20]), and Punishment ($\gamma_{Punishment\_TVC} = 0.22$, $SE = 0.07$, $p = .001$, 95% CI = [0.09, 0.36]) scores (relative to T1) predicted greater nostalgia at a given timepoint. That is, at timepoints when participants experienced severe interpersonal conflict, high academic pressure, poignant loss, or harsh punishment (relative to T1), they felt more nostalgic.

Participants who experienced more intensely negative life events at the start of university (overall ASLEC score) evinced a slower decline in nostalgia over time. Interestingly, domain-specific analyses revealed this moderation pattern for Punishment only. Participants who scored higher on Punishment at the start of university evinced a slower linear decline in nostalgia across time ($\gamma_{Punishment\_initial*Time} = 0.13$, $SE = 0.06$, $p = .026$, 95% CI = [0.02, 0.24]). Figure 2 depicts how low (−1 *SD*) and high (+1 *SD*) levels of Punishment at the beginning of university were related to nostalgia's trajectory over the university years. Participants scoring high (+1 *SD*) on Punishment at the start of university evinced a slower decline in nostalgia over time ($\gamma_{Time} = -0.25$, $SE = 0.06$, $p < .001$, 95% CI = [−0.38, −0.12]) than those scoring low (−1 *SD*) on Punishment ($\gamma_{Time} = -0.37$, $SE = 0.07$, $p < .001$, 95% CI = [−0.49, −0.25]). Given that Punishment was the only ASLEC domain that moderated nostalgia's trajectory over time, this finding should be interpreted with caution and requires replication in future research.

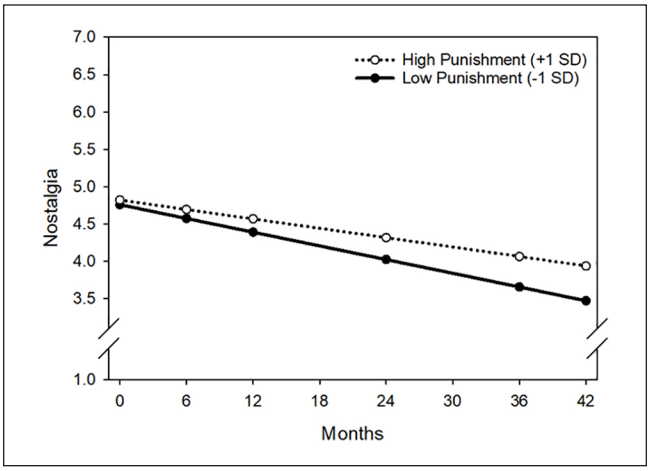

Figure 2. Change in Nostalgia During University Years as a Function of Initial Level of Punishment.

Discussion

Cross-sectional studies have suggested that nostalgia varies across the lifespan (Batcho, 1995; Hepper et al., 2021; Madoglou et al., 2017). In this longitudinal study, we focused

on emerging adulthood by following a sample of students over six timepoints, from their entrance into university to their graduation. We demonstrated that the SNS scale is psychometrically invariant and comparable across the six timepoints. Overall, we found moderate rank-order stability of nostalgia and a normative decrease in nostalgia during university years. The TSO analysis further revealed that the stable trait component contributed considerably to the stability of nostalgia. The LMA results showed that the level of nostalgia declined during the university years. Furthermore, participants who experienced more intensely negative life events at university entrance manifested higher initial nostalgia levels, and evinced slower decline of nostalgia over time. Crucially, participants felt more nostalgic at times when they experienced more intensely negative life events, with maladaptation to university life having the strongest impact. Harsh punishment from parents or school was associated with the trajectory of nostalgia over time, such that those who reported high levels of punishment at the beginning of university experienced slower declines in nostalgia during their time at university. This result awaits replication.

Implications

Rank-Order Stability of Nostalgia. Our findings enrich understanding of nostalgia as a moderately stable individual difference. Results revealed a moderate rank-order stability (.25–.79) across 4 university years. An enduring trait component accounted for a moderate proportion of variation (37%-43%). Nostalgia is less stable than other individual differences, such as Big Five personality traits (82%-94%; Anusic et al., 2012; Prenoveau et al., 2011), anxiety (73%-79%; Prenoveau et al., 2011), or chronic stress (61%-74%; Conway et al., 2016), but is as stable as self-esteem (34%-51%; Donnellan et al., 2012), life satisfaction (around 38%; Lucas & Donnellan, et al., 2007), or depression (54%-55%; Wu, 2016). Our findings suggest that nostalgia comprises substantial trait and state components during emerging adulthood. At any given timepoint, it simultaneously reflects an enduring tendency to nostalgize and situational circumstances. The TSO model enabled us to quantify the proportions of stable trait, slow-changing trait, and state component, respectively.

The TSO model results have implications for antecedents of nostalgia. From a developmental perspective, individual differences may arise from developmental constancy factors, person–environment transactions, or stochastic processes (Fraley & Roberts, 2005). The developmental constancy factor corresponds to the stable trait component, which functions to preserve individual differences over long periods of time. This component may be due to genetic or environmental influences experienced at very early age (Fraley et al., 2013). The person–environment transactions correspond to the slow-changing trait component. Finally, the stochastic mechanism corresponds to the state component, which accounts for short-term variability in individual differences. Hence, the moderate proportion of variance accounted for by the stable trait component suggests that nostalgia is partly shaped by genetic influences or early experiences. The incremental role of the slow-changing component attests to the increased importance of person–environmental transactions in shaping nostalgia over time.

The T1 to T2 test–retest correlation for nostalgia (.58) was lower than in subsequent adjacent timepoints (.71–.79). The lower initial rank-order stability suggests that there were more situational factors at play during this initial 6-month period, when students were transitioning from living at home to living independently at university. The slow-changing trait component explained more variance in nostalgia as time went by, from 10% to over 20% for most later timepoints. This coincided with increased rank-order stability and may reflect how adjustment to the university environment gradually contributed to greater stability in nostalgia.

Normative Stability of Nostalgia. Our findings add to a burgeoning literature on lifespan changes in nostalgia by delineating the trajectory of nostalgia during emerging adulthood. Participants reported high nostalgia at the start of university, which gradually declined over time. These results are consistent with findings that self-discontinuity in times of transition augments nostalgia (Sedikides, Wildschut, Routledge, & Arndt, 2015). For most students, starting university marks the first time they leave home to live independently. The attendant self-discontinuity and stress contribute to greater nostalgia. Yet, over time, as students adjust to university life, self-discontinuity subsides and nostalgia declines. According to the regulatory model (Wildschut & Sedikides, 2022a, 2022c), nostalgizing may help young adults to adapt to new environments by fostering self-continuity.

Relevance of Negative Life Events. Our work also contributes to the literature by showcasing how adverse occurrences shape nostalgia's trajectory. Existing research has pointed to harmful influences of negative life events on well-being (Nolen-Hoeksema & Morrow, 1991), personality (Jeronimus et al., 2013), and self-concept (Orth & Luciano, 2015), as well as to coping and resilience in response to such events (Fletcher & Sarkar, 2013). Our work also indicates that adversity prompts coping. We found that the initial adversity level was associated with greater initial nostalgia level and slower decline of nostalgia over time. Moreover, students experienced greater nostalgia when they encountered more negative life events. In these cases, nostalgia may have helped students to cope with adversity (Wildschut & Sedikides, 2022a).

As hypothesized, poor adjustment to university life (as captured by the Maladaptation subscale) was one of the strongest predictors of concurrent level of nostalgia at a given timepoint, while other negative occurrences, including high academic pressure, interpersonal conflict, loss, and punishment, were also influential. The Developmental Task Approach has conceptualized some negative life events as age-graded demands

(Havighurst, 1972). For university students, adjusting to university life on their own, including managing academic work and social life, is a critical challenge that they need to address in emerging adulthood. At times when students struggled to meet these demands (relative to T1), they evinced higher levels of nostalgia, consistent with the view that nostalgia is a response, or coping mechanism, to aversive stimuli or discomforting psychological conditions.

Interestingly, level of punishment (e.g., harsh discipline from parents or tutors) reported at the start of university moderated nostalgia's trajectory over time, with those mentioning high initial levels of punishment evincing slower declines in nostalgia. We offer a speculative interpretation, given the exploratory character of this finding. Extensive research in child discipline has documented the long-lasting adverse effects of harsh parental and school punishment, showing that it places children at risk for lower self-esteem, increased depression, and higher delinquency (Ferguson, 2013). Perhaps, students who experienced high (compared with low) levels of punishment were uniquely ill-equipped to absorb the shock of transition to university and navigate their new environment, thus seeking refuge in nostalgia for a more extended time period. This is an important direction for future research.

The Psychology of Emerging Adulthood. Our findings additionally contribute to the psychology of emerging adulthood by delineating the trajectory of nostalgia during this period. The past decade has witnessed an increased emphasis on emerging adulthood as a transitional stage. This developmental period is characterized by identity exploration and feeling in-between (Arnett, 2000; Arnett & Mitra, 2020). Also, during that period, individuals may experience frequent changes in residence, work, and relationships (Benetsky et al., 2015). Thus, emerging adults are especially vulnerable to self-discontinuity and distress (Sedikides et al., 2008). Nostalgia may help young adults navigate challenges and discomfort (Best & Nelson, 1985; Sedikides et al., 2008). We observed a surge in nostalgia following stressful occurrences. Nostalgia likely acted as a self-regulatory resource, aiding in stress management.

The abovementioned period is also critical for socio-emotional development, as its greatest task is the personal transformation from an adolescent to a fully socialized adult. Indeed, research has documented substantial changes in personality traits (Roberts et al., 2004), identity (Chung et al., 2014), morality (Padilla-Walker, 2016), socially adaptability (Bleidorn & Schwaba, 2017), and reported stability (Arnett & Mitra, 2020). Consistent with these findings, nostalgia—in its regulatory capacity—decreased as individuals gradually adapted to their social lives and settled into their roles.

Limitations

Our research has several limitations. To begin, some measures of negative life events evinced relatively low reliabilities at some timepoints, perhaps partly due to their brevity (Maladaptation subscale: T1: $\alpha = .55$; T2: $\alpha = .49$). Also, we assessed nostalgia at six timepoints, with an interval of at least 6 months. Limited sampling of timepoints may fail to capture shorter-term fluctuations in nostalgia. More sampling timepoints and more reliable scales are needed to test the replicability of our findings.

Furthermore, we focused on a particular life stage. Examining the stability and change of nostalgia during other life periods—from their last year of high school to retirement—presents a promising research direction. Relatedly, we only sampled university students (for emerging adults) and negative events in university life. Follow-up investigations would do well to expand on samples or settings. Finally, the current sample was restricted to young adults in China. Although nostalgia is conceptualized similarly across cultures (Hepper et al., 2014), it is unclear whether the developmental properties of nostalgia are culturally invariant. Future work should test the generalizability of our findings to other cultures.

Coda

As a foray into nostalgia's trajectory, this study revealed that nostalgia declines during emerging adulthood, with more negative life events associated with greater nostalgia. This study also demonstrated moderate rank-order stability of nostalgia, with substantial contributions from both trait and state components. The findings are consistent with the regulatory model of nostalgia.

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Note

1. A later SNS version added two items about the subjective importance of nostalgia (Barrett et al., 2010).

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