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Employing a Cohort-Sequential Design Spanning 30 Years to Understand Trajectories of Maturity Fears

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Societal and cultural shifts can influence psychological well-being and development in adulthood. Maturity fears, an individual's desire to retreat to the security of childhood, have been found to be increasing in younger generations. The present study explored how maturity fears change over adult development in three cohorts of university students assessed in 1982, 1992, and 2002 and followed over time. The study employed a sequential design in which university students ($N = 2,482$, 69.8% female) completed self-report surveys in college and at 10-year and 20-year follow-up. At baseline, female in the 2002 cohort showed the highest maturity fears, followed by 1992 and then 1982, with all cohorts having decreases in maturity fears over time. There was a significant Cohort × Time interaction, such that compared to the 1982 cohort, both the 1992 and 2002 cohorts demonstrated significantly greater declines in maturity fears over time. Males in the 1992 and 2002 cohorts showed greater maturity fears than those in the 1982 cohort. As with the females, for males there was a significant Cohort × Time interaction. Compared to the 1982 cohort, both the 1992 and 2002 cohorts demonstrated significantly greater declines in maturity fears over time. Overall, the pattern of findings indicates higher levels of maturity fears during college in more recent cohorts, a decrease in maturity fears during adult development, and greater declines in more recent generations. Additional research is needed to not only replicate these findings but also explore potential mechanisms underlying cohort differences.

Public Significance Statement

This study found that recent generations of college students fear maturity more than older generations, potentially due to economic, environmental, and other pressures linked to adulthood. Additionally, maturity fears decreased with age in younger generations more so than in older generations. This developmental and generational context is useful for public health practitioners, educators, and clinicians working with these age groups.

Keywords: emerging adulthood, maturity fears, aging, university students, cohort-sequential design

Supplemental materials: https://doi.org/10.1037/dev0002219.supp

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By many metrics, it is becoming more difficult—and frightening—to enter adulthood than in prior decades. Economic pressures and housing shortages are mounting (Wetzstein, 2017). Crises from global warming (Lawrence et al., 2022) and contagious and fatal outbreaks loom large (Anderson & Gettings, 2022). Additionally, the pressure to retain a youthful appearance for as long as possible is ever increasing (Jenull et al., 2018). For some individuals, these various demands may contribute to a desire to remain young or retreat to the perceived comforts and benefits of youth. Indeed, although many emerging adults begin this developmental period with optimism about the future, confronting the realities and demands of adulthood may ultimately require substantial adjustment of those expectations (Arnett, 2023). In support of this, prior work found that maturity fears (which refers to an individual's desire to retreat to the security of childhood) increased over generations of college students, such that more recent cohorts of emerging adults reported greater maturity fears than previous cohorts (Smith et al., 2017).

The present study set out to replicate and extend these findings by using a sequential design to determine whether maturity fears increase over adult development from emerging adulthood to midlife. In general, we expected maturity fears to increase during adult development (i.e., from the 20s to the 40s). This is in line with research which finds that happiness and life satisfaction decline over this period as the first half of a "U"-shaped curve of happiness (Blanchflower & Oswald, 2008). Additionally, we hypothesized that cohorts would demonstrate different trajectories of maturity fears as they aged. In particular, we predicted that younger cohorts would demonstrate more pronounced increases in maturity fears relative to older cohorts over development.

Evidence for maturity fears increasing over recent decades comes from two studies of multiple cohorts of college studies (Smith et al., 2017). Specifically, the first study assessed over 3,000 undergraduate student cohorts in 1982, 1992, 2002, and 2012 and found that both males and females increased in their maturity fears over the decades. The second study confirmed these findings in an independent sample over a narrower time frame (i.e., cohorts were assessed in 2001, 2003, 2009, and 2012) to provide a more detailed analysis of the rate of change.

However, a notable limitation of this work is that changes in maturity fears were not examined by cohort over time. This type of investigation is important because factors that may be related to maturity fears, like life satisfaction and happiness, change across time within individuals. For instance, as noted, happiness has been found to follow a "U curve," such that life satisfaction declines until middle age, after which it begins to rebound (Graham & Ruiz Pozuelo, 2017). These findings highlight the importance of assessing maturity fears not only by cohort but also over time.

Indeed, several lines of research suggest that the trajectory of maturity fears may become steeper among more recent cohorts relevant to older cohorts. Although delayed attainment of adult roles has become more common, these delays often occur in the context of persistent social expectations regarding independence, productivity, and adulthood, alongside increased economic precarity. Recent cohorts are taking longer to achieve developmental milestones, such as graduating college and moving out of their parents' homes (Loo, 2024), marrying (Cohn et al., 2011), and having children (Mathews & Hamilton, 2009), and are more likely to experience underemployment compared to prior cohorts (Abel & Deitz, 2017; Blanchflower, 2021). While such delays may normalize later transitions for some individuals, they may also intensify concerns about falling behind or failing to meet adult expectations, particularly as individuals age. Consistent with this interpretation, the period of "emerging adulthood" (ages 18–25) has been conceptualized as marked by prolonged role instability (Arnett, 2000), and mental health concerns have increased substantially among younger generations (Twenge, 2020; Twenge et al., 2018; Zheng & Echave, 2021). Alternatively, generational shifts in both levels and maintenance of maturity fears could explain longer latencies to reach developmental milestones related to adult roles and responsibilities. Together, these trends suggest that more recent cohorts may experience greater increases in maturity fears over time compared to more distal cohorts.

A sequential design is ideally suited to distinguish generational from developmental trends over time and to evaluate how developmental changes may differ across generations. However, to our knowledge, no studies have assessed maturity fears over time across cohorts. Our first aim was to examine how maturity fears change over adult development. We predicted increasing maturity fears with age based on our conceptualization of factors underlying cohort differences in maturity fears (Smith et al., 2017). Our second aim was to determine whether changes in maturity fears differed across cohorts. We predicted greater increases in maturity fears among more recent cohorts relative to older cohorts. That is, during the transition from their 20s to their 40s, we predicted that Millennials would demonstrate the greatest increases in maturity fears compared to Generation X and Baby Boomers. As prior work suggested no sex differences in increasing maturity fears (Smith et al., 2017), we had no a priori hypotheses regarding differences between females and males, and analyses by sex are exploratory.

Method

Participants and Procedure

Data were drawn from an epidemiological study of health and eating patterns. In 1982, 1992, and 2002, $N = 1,200$ students from a private northeastern university were randomly selected in a 2:1 female–male ratio to complete self-report surveys. Of the randomly selected sample, 68.7% completed the survey (1982 cohort $N = 900$, 1992 cohort $N = 799$, 2002 cohort $N = 783$). Individuals who participated at baseline were sought to complete follow-up surveys 10 and 20 years later. Twenty-year follow-up data from the 2002 cohort were provided on February 09, 2024. Additional procedural details of the epidemiological study are reported elsewhere (Keel et al., 2006).

At baseline (Time = 0), participants had a mean age of 19.9 (SD = 1.7). The racial breakdown of the sample was 6% African American or Black ($n = 148$), 13.4% Asian ($n = 333$), 67.8% Caucasian (n = 1,682), 0.3% American Indian or Alaska Native ($n = 8$), 0.3% Native Hawaiian or other Pacific Islander ($N = 8$), 1.9% other (n = 47), and 20.7% missing ($n = 246$). The self-reported ethnic breakdown was 5.7% Hispanic ($N = 142$) and 84% non-Hispanic ($N = 2084$), with 10.3% not reporting. Approximately 69.8% (N = 1,732) of the sample identified as female and 30.2% ($N = 750$) as male. Additionally, 74.1% and 64.6% of the sample provided data on the outcome of interest at 10-year (Time + 10) and 20-year (Time + 20) follow-up, respectively. Study procedures were approved by the institutional review boards where data were collected and analyzed, and participants provided written informed consent prior to participation.

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Measures

Demographic information including sex (female or male), age, race, and ethnicity was self-reported.

Maturity fears were measured using the Maturity Fears subscale of the Eating Disorders Inventory (Garner, 1983), which comprised four items that were available in 1982. Each item was rated on a 1 (*never*) to 6 (*always*) scale, and the latter two items were reverse scored. Previous work on the construct validity of the Eating Disorders Inventory demonstrated convergent validity and internal consistency reliability of the Maturity Fears subscale (Espelage et al., 2003). Further, research supports its factor invariance across females and males (Keel et al., 2007; Spillane et al., 2004), across age groups through age 40 (Keel et al., 2007), and across ethnoracial groups (Ali et al., 2026). In the present study, internal consistency of the subscale was $\alpha = .73$ at baseline, .70 at 10-year follow-up, and .68 at 20-year follow-up. For a breakdown of the maturity fears item means by cohort, sex, and time, please see Supplemental Table 1.

Transparency and Openness

Data for this study may be requested from the corresponding author. Code for analyses may be requested from the first author. This study was not preregistered.

Analyses

SPSS Statistics Version 29 was used to complete all analyses. Maturity fears scores were normally distributed across cohorts and waves (skew and kurtosis values all within ±1). Little's Missing completely at random test for Maturity Fears was nonsignificant, $\chi^2(9) = 10.16$, $p = .338$, indicating that the data do not provide evidence of biased attrition. Full information maximum likelihood estimation was used, which incorporates all available observed data without imputing missing values and provides unbiased parameter estimates under Missing completely at random and missing at random assumption (Enders, 2022). This approach also introduces minimal bias in large samples ($N \geq 250$) with low attrition ($\leq 30\%$; McNeish, 2016).

Multilevel models were employed to test whether trajectories of maturity fears varied by cohort. At Level 1, within-person changes in maturity fears were modeled as a function of time, capturing the trajectory of changes across repeated measurements. At Level 2, cohort membership was included as a predictor to examine between-group differences. The interaction between time and cohort was modeled to assess whether the rate of change over time differed by cohort. The model included random intercepts and slopes, allowing participants' initial levels of maturity fears and their rates of change over time to vary. The Huynh–Feldt covariance structure was selected to account for the correlated nature of repeated measurements within-subjects. Cohorts were dummy coded as 1982 = 1, 1992 = 2, and 2002 = 3 and then recoded to 2002 = 1, 1992 = 2, and 1982 = 3 to produce estimates of all three pairwise comparisons.

Bayesian information criterion (BIC) and Akaike information criterion (AIC) values were assessed to select the best fitting models. We tested models with sex as a moderator, covariate, and by running models separately in males and females. Although we initially planned to examine whether sex moderated changes over time, model fit (as assessed with AIC and BIC) was significantly improved by analyzing males and females separately (combined sample AIC = 30375.01, BIC = 30481.92; females only AIC = 21646.53, BIC = 21709.95; males only AIC = 8725.27, BIC = 8779.65). In addition to producing superior model fit, running analyses separately in females and males follows the analytic strategy used in Smith et al. (2017).

Results

For females, there were significant fixed effects of cohort, $F(2, 1714.94) = 25.13$, $p < .001$, and time, $F(1, 1425.48) = 268.19$, $p < .001$. As reported in Smith et al. (2017), maturity fears at Time = 0 were significantly lower in the 1982 cohort compared to the 1992 cohort ($t = -4.72$, $p = <.001$), in the 1992 compared to the 2002 cohort ($t = -2.16$, $p = .03$), and the 1982 compared to the 2002 cohort ($t = -6.884$, $p < .001$). However, inconsistent with hypotheses, across the entire sample of females, maturity fears decreased over time ($t = -9.66$, $p < .001$).

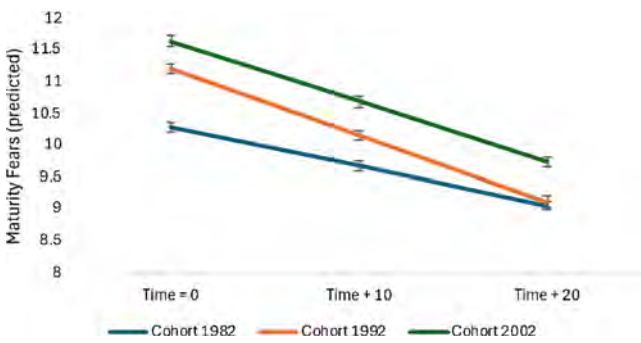
These main effects were qualified by a significant Cohort × Time interaction, $F(2, 1422.40) = 6.60$, $p < .001$. Compared to the 1982 cohort, both the 1992 and 2002 cohorts demonstrated significantly greater declines in maturity fears over time, 1982 versus 1992, $b(SE) = -0.04$ (.01); $t(1397.04) = -3.45$, $p < .001$; 1982 versus 2002 cohorts, $b(SE) = -0.03(.01)$; $t(1432.78) = -2.58$, $p = .01$. There was no difference in trajectory for maturity fears between the 1992 and 2002 cohorts, $b(SE) = -0.01(.01)$; $t(1442.67) = -0.72$, $p = .47$; see Figure 1. At Time + 10, there were no significant differences in maturity fears by cohort ($ps > .051$). However, at Time + 20, the 2002 cohort was significantly higher than 1992 ($p = .004$) and 1982 ($p < .001$), who did not differ from each other ($p = .17$); see Table 1.

For males, there were similar overall patterns; there were significant fixed effects of cohort, $F(2, 743.79) = 19.50$, $p < .001$, and time, $F(1, 566.17) = 68.30$, $p < .001$. At Time = 0, maturity fears were significantly lower in the 1982 cohort compared to both the 1992 ($t = -4.50$, $p < .001$) and 2002 ($t = -5.91$, $p < .001$) cohorts. However, they did not differ for the 1992 cohort as compared to the 2002 cohort ($t = -1.32$, $p = .19$). Across the entire sample of males, maturity fears decreased over time ($t = -5.00$, $p < .001$).

These main effects were qualified by a significant Cohort × Time interaction, $F(2, 564.92) = 14.06$, $p < .001$. Compared to the 1982 cohort, both the 1992 and 2002 cohorts demonstrated significantly greater declines in maturity fears over time, 1982 versus 1992,

Figure 1

Changes in Females' Maturity Fears Over Time Across Cohorts



Note. See the online article for the color version of this figure.

Table 1
Impact of Cohort on Maturity Fears Over 20-Year Follow-Up in Females

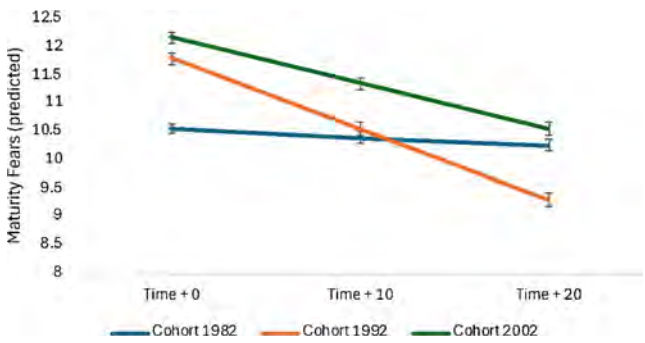
Variable	*F* (*df*)	*p*
Fixed effects		
Intercept	18698.30 (1, 1715.26)	<.001
Cohort	25.13 (2, 1714.94)	<.001
Time	268.19 (1, 1425.48)	<.001
Cohort × Time	6.60 (2, 1422.40)	.001
Variance		
Within-person (residual)	5.92 (0.25)	<.001
Between-person (intercept)	5.97 (0.44)	<.001
Time	0.007 (0.002)	<.001
Conditional R^2	.53	
Fit indices		
AIC	21646.53	
BIC	21709.95	

				95% CI	
Parameter	Unstandardized *b*	*SE*	*p*	*LL*	*UL*
Intercept	11.64	.14	<.001	11.36	11.93
Time	−0.10	.01	<.001	−0.11	−0.08
Cohort (vs. 2002)					
1982	−1.36	.20	<.001	−1.74	−0.97
1992	−0.44	.20	.03	−0.83	−0.04
Cohort × Time (vs. 2002)					
1982 × Time	0.03	.01	.01	0.008	0.06
1992 × Time	−0.01	.01	.47	−0.04	0.02

Note. *SE* = standard error; AIC = Akaike information criterion; BIC = Bayesian information criterion; *LL* = lower limit; *UL* = upper limit; CI = confidence interval.

$b(SE) = -0.11$ (.02); $t(555.41) = -5.22$, $p < .001$;1982 versus 2002 cohorts, $b(SE) = -1.63$ (.28); $t(743.28) = -5.91$, $p < .001$. There was no difference in trajectory for maturity fears between the 1992 and 2002 cohorts, $b(SE) = -0.38$ (.29); $t(748.22) = -1.32$, $p = .19$; see Figure 2. At Time + 10, there were no significant differences in maturity fears by cohort (*p*s > .06). However, at Time + 20, the 1982 cohort was significantly higher than the 1992 cohort ($p = .001$), and the 2002 cohort was significantly higher than the 1992 cohort ($p = .001$); there were no differences between the 1982 and 2002 cohorts ($p = .34$); see Table 2.

Figure 2
Changes in Males' Maturity Fears Over Time Across Cohorts



Note. See the online article for the color version of this figure.

Discussion

Given prior research demonstrating higher maturity fears in younger cohorts (Smith et al., 2017) and decreases in life satisfaction across early adulthood to midlife (Graham & Ruiz Pozuelo, 2017), we expected to see maturity fears increase over the study period with steeper increases in more recent cohorts. Contrary to predictions, maturity fears decreased in both males and females over time, and the 1992 and 2002 cohorts showed sharper decreases than the 1982 cohort. For both males and females, the 1982 cohort remained more stable in endorsement of their (fairly low to begin with) level of maturity fears over time. Although research has indicated that happiness follows a U-shaped curve with decreases in life satisfaction from the 20s to the 40s, other researchers have noted that such changes in life satisfaction and negative affect are minimal, with limited practical significance (Jebb et al, 2020). Our findings of small but significant decreases in maturity fears across early adulthood are somewhat consistent with these more nuanced findings of associations between life satisfaction and age, and they suggest the "U-shaped" happiness curve may not be as linked to aging-related anxiety as it is to other parameters related to well-being.

Indeed, the observed pattern of decreasing maturity fears across all cohorts and sexes may reflect the fact that people's fears tend to decrease through exposure to that feared outcome or situation (e.g., Foa & Kozak, 1986). In the case of maturity fears, the process of aging can be viewed as a natural exposure in which people may be less likely to experience aging-related fears as they continue to age. This process could be due to habituating to aging-related anxiety or learning that their anxieties about aging were not as bad as anticipated. It is also possible that maturity fears develop, in part, when individuals perceive aging as being out of their control and that these fears would subside when these low perceptions of control are disconfirmed (Knowles & Tolin, 2022; Mineka & Thomas, 1999). For example, during the ages of 18–38 years, individuals were likely becoming more financially independent and established in their careers, which may have contributed to increased freedoms, choices, or sense of control and, in turn, decreased fears related to maturing. This may be particularly the case for the present study sample, which consisted of students from a highly selective college.

Although maturity fears decreased across cohorts, fears remained higher in more recent cohorts, consistent with our original hypotheses regarding cohort effects of aging (Smith et al., 2017). Specifically, the most recent cohort—Millennials—had higher maturity fears (descriptively if not significantly) at all time points relative to the other two cohorts, Generation X and Baby Boomers. For females, the consistently decreasing trend suggests that as females age, maturity fears tend to lessen—possibly due to increased confidence, life experience, or societal roles becoming more comfortable over time. However, the higher baseline in 2002 could reflect rising pressures on younger women in the early 2000s (e.g., media emphasis on youth, shifting work/life balance expectations).

The pattern of findings was less clear for males, such that males in the 1982 and 2002 cohorts showed greater maturity fears than males in the 1992 cohort at the 20-year follow-up. It is worth considering national and global events that may have contributed to maturity fears at the 20-year follow-up. The last observation for the 1982 cohort (Baby Boomers) was in 2002, shortly after the 9/11 bombings, which brought a heightened sense of threat and insecurity; the last observation for the 1992 cohort (Generation X) was

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Table 2

Impact of Cohort on Maturity Fears Over 20-Year Follow-Up in Males

Variable	*F* (*df*)	*P*
Fixed effects		
Intercept	10115.39 (1, 744.03)	<.001
Cohort	19.50 (2, 743.79)	<.001
Time	68.30 (1, 566.17)	<.001
Cohort × Time	14.06 (2, 564.92)	<.001
Variance		
Within-person (residual)	5.89 (0.41)	<.001
Between-person (intercept)	4.36 (0.62)	<.001
Time	0.01 (0.004)	.001
Conditional R^2	.49	
Fit indices		
AIC	8725.27	
BIC	8779.65	

				95% CI	
Parameter	Unstandardized *b*	*SE*	*p*	*LL*	*UL*
Intercept	12.16	.20	<.001	11.76	12.55
Time	−0.08	.02	<.001	−0.11	−0.05
Cohort (vs. 2002)					
1982	−1.63	.28	<.001	−2.16	−1.09
1992	−0.38	.29	.19	−0.94	0.19
Cohort × Time (vs. 2002)					
1982 × Time	0.07	.02	.002	0.03	0.11
1992 × Time	−0.04	.02	.06	−0.09	0.001

Note. *SE* = standard error; AIC = Akaike information criterion; BIC = Bayesian information criterion; *LL* = lower limit; *UL* = upper limit; CI = confidence interval.

2012, a period marked by relative economic stabilization following the 2008 banking crisis; the last observation for the 2002 cohort (Millennials) was 2022, when concerns about COVID-19 and related deaths remained salient. As such, for the 1982 and 2002 cohorts, there were more recent major crises that created societal shifts in American's sense of safety, which may have contributed to their higher maturity fears scores, relative to the 1992 cohort of males. Additionally, the 1982 cohort may reflect a generation with more rigid gender role expectations and/or fewer emotional support resources. In contrast, the decreasing fears in the later cohorts of university males could suggest a shifting of norms for males with greater emotional openness or emotional supports.

Taken together, findings suggest that researchers should revisit frameworks on emerging adulthood and psychological development. Maturity fears may naturally decrease with age, but this trend could be interrupted or shaped by societal context. Overall, the pattern of findings reveals both cohort effects (differences at specific time points depending on societal context) and developmental effects (long-term change within individuals). The 1992 and 2002 cohorts may have benefited from environments that allowed for smoother transitions into adulthood. Males and females both showed decreases in maturity fears over time (except 1982 males), suggesting maturation and life experience generally reduce such fears. Regarding 1982 males (born in approximately 1964), it strikes us as possible that childhood in the 1960s and 1970s was generally such that it accelerated the loss of maturity fears, as compared, for instance, to childhoods in the 2000s and thereafter, resulting in (a) low maturity fears by age 18 and (b) less room to become less fearful after age 18. Cohort effects show that societal context at the time of young adulthood significantly influences the baseline levels of maturity fears. Sex differences also reflect broader cultural pressures: Females may face greater pressure to remain youthful, while males may feel more pressure to demonstrate competence (Brunton & Scott, 2015).

Moreover, findings could inform mental health interventions targeting fear of aging. These findings fit well within interpersonal therapy, which highlights the importance of navigating life transitions, and changes in social roles or relationships, and the interpersonal stress that these transitions can cause (Lipsitz & Markowitz, 2013). Indeed, interpersonal therapy discusses the importance of assisting individuals during life transitions by grieving for the loss of "what used to be"; identifying the emotional impact of life transitions; and processing feelings of anxiety, sadness, and loss associated with life changes. Within this framework, therapists equip individuals with tools to navigate the new social roles, relationships, and expectations; develop new social skills; and build new relationships that can serve as social support during the transition. The ultimate goal would be to assist clients in creating happiness and life satisfaction in adulthood. This brief interpersonal therapy treatment could not only reduce maturity fears in the present moment but, based on our findings, facilitate the continual decrease of maturity fears longitudinally.

The present study had several strengths, including the use of a cohort-sequential design spanning over 30 years, large sample size, and rigorous statistical approach. Despite these strengths, the findings may not generalize to more diverse samples. In particular, the present study used data from individuals at a top university in the Northeastern United States, and their experiences with aging may differ from individuals from other universities and nonuniversity educated samples. Moreover, the present study used self-report measures which are influenced by individuals' self-awareness and recall biases. Although the long duration of the study was a strength, data were collected at 10-year intervals; more fine-grained analysis of maturity fears during these decades would provide a more nuanced understanding of the stability of these cognitions over time.

Overall, the pattern of findings indicates a decrease in maturity fears over time within cohort but higher levels of maturity fears in more recent cohorts. Further research is needed to replicate these findings and explore potential mechanisms that might be driving cohort differences. For example, future research should consider the extent that ecological and environmental contexts, such as economic crises and sociocultural crises (e.g., global warming), are driving maturity fears. Given that the COVID-19 pandemic was a major ecological negative event, it would be interesting to examine if and how the pandemic influenced maturity fears or other developmental factors in these age cohorts. Research has documented that the rise of social media bombards individuals with news and negative events occurring in communities, countries, and globally (Thompson et al., 2019). This inundation of information has been found to increase worry and anxiety which may potentially drive increases in maturity fears in this current generation of young adults (Schmidt et al., 2022; Thompson et al., 2019). Additional research is needed to explore this possibility.

Understanding the levels, trajectory, and potential consequences of maturity fears represents a significant issue. Research on this topic informs adult development in general, as well as key phenomena such as intergenerational understanding; preparation to take

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on essential life roles (e.g., those involving work and love; Erikson, 1950); and how current generations are waiting longer to settle into a career, get married, have children, and so forth. In sum, the trajectory of maturity fears over time represents one specific window into human development.

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