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Daily Subjective Age in Emerging Adults: “Now We’re Stressed Out”

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Abstract

During the emerging adulthood years individuals explore their identities and often report feeling in-between adolescence and adulthood. These characteristics may correspond to greater variability in how old individuals feel. This study examined the daily variability in emerging adults' subjective ages, as well as its association with daily stressors and the psychological dimensions of identity exploration and feeling in-between. Using a 9-day daily diary design, the study measured 106 emerging adults' (18-22 years old) daily stressors, daily subjective ages, and endorsement of the Inventory of the Dimensions of Emerging Adulthood (IDEA). Findings indicated that over half the variability in emerging adults' subjective ages occurred within-person and daily stressors could predict this variability. Furthermore, those high in identity exploration and feeling in-between were most likely to respond to daily stressors by feeling older. Results suggest that psychological identification with emerging adulthood amplifies responses to daily stressors and predicts feeling subjectively older.

Daily Subjective Age in Emerging Adults: “Now We’re Stressed Out”

Emerging adulthood has been characterized as a time when individuals explore their identities whilst feeling no longer like an adolescent yet not quite like an adult (Arnett, 2015). Studies of subjective age (i.e., how old one feels internally) allow researchers to capture these subjective perceptions of aging which often do not match an individual’s chronological age (Kastenbaum, Derbin, Sabatini, & Artt, 1972). Previous research indicates that during this time period, from the late teens through the 20s, individuals are more likely to base their perceptions of subjective age on their self-perceived psychological maturity than on objective role-transitions, for example: working, marriage, and parenthood (Galambos, Turner, & Tilton-Weaver, 2005). Furthermore, emerging adulthood has been characterized as the time of the “cross-over effect,” defined as the chronological age when individuals switch from feeling subjectively older to subjectively younger (Galambos et al., 2005).

Typically teens report feeling older than their chronological years (Hubley & Arim, 2012), whereas middle-age and older individuals typically report feeling younger (Rubin & Berntsen, 2006). The exact timing of the cross-over effect varies across study samples, but is often located somewhere in the early to mid-twenties (Galambos et al., 2005; Montepare & Lachman, 1989). It has been suggested that when this cross-over takes place varies between individuals based on factors such as culture (Galambos et al., 2005), disability (Galambos, Darrah, & Magill-Evans, 2007), and substance use (Galambos, Albrecht, & Jansson, 2009). As individuals approach the cross-over they may experience greater daily fluctuations in how old they feel. That is, during emerging adulthood individuals may be more likely to experience days where they feel older and days where they feel younger than their chronological years. Emerging adulthood may best be characterized as a period of high levels of intraindividual fluctuation or

adjustment in subjective age (Montepare, 2009) although this possibility has yet to be empirically tested on a daily basis using a within-person design.

Although often defined by chronological age boundaries (e.g., 18 to 25-29), the characteristics that define emerging adulthood are subjective and vary across individuals and groups (Arnett, 2015, 2016). The Inventory of the Dimensions of Emerging Adulthood (IDEA; Lisha et al., 2014; Reifman et al., 2007; Skulborstad & Hermann, 2016) aims to assess the five psychological correlates of emerging adulthood including identity exploration, feeling in-between, experimentation/possibilities, negativity/instability, and self-focused. The identity exploration scale builds on Erikson's (1968) concept of an identity moratorium wherein individuals search for their sense of self as a person independent from their parents or guardians. Individuals who identify strongly with this component of emerging adulthood are actively working to construct an independent identity (Arnett, 2015). During their exploration, they may be more open to situational influences and events, for example stressors, in determining their sense of self. Daily events and stressors may make salient the ways they are (or are not yet) an adult. Similarly, the feeling in-between scale addresses feelings of being no longer a child, but not yet an adult (Reifman et al., 2007). In terms of subjective age, these may be individuals who report greater variability in how old they feel. For example, on carefree days they may feel more connected to their youth, whereas days overloaded with stressors and responsibilities may create an aging effect.

There are three remaining scales of emerging adulthood (Reifman et al., 2007). The experimentation/possibilities scale captures the optimism characteristic of this period, when many life choices remain available. However, the multitude of options may prove unnerving to some, and these sentiments are assessed in the negativity/instability scale. Finally, the self-

focused scale refers to emerging adults' focus on their own growth and development, as well as taking responsibility for themselves (Arnett, 2015). Although these scales could conceivably influence how old individuals feel, we initially chose to focus our analysis on the identity exploration and feeling in-between scales as these seem most directly related to possible daily fluctuations in subjective age.

Prior research finds stress to be an important contributor to subjective age. The “subjective weathering hypothesis” suggests that exposure to stressors can cause individuals to feel older than their years (Foster, Hagan, & Brook-Gunn, 2008). Adolescents exposed to abuse and neglect report feeling subjectively older than their peers (Foster et al., 2008), as do middle-aged adults who experience family stressors (Schafer & Shipee, 2010). Additionally, on days when older adults experience stressors they report comparatively older subjective ages than on days when they experience no stressors (Bellintier, Neupert, & Kotter-Grühn, 2017). Emerging adulthood has been characterized as a period of instability (Arnett, 2015) and as a time of stress (Nelson, Willoughby, Rogers, & Padilla-Walker, 2015). Fang and Galambos (2015) found that higher mean levels of daily stressors and greater variability in the amount of daily stressors are associated with older subjective ages in college students. However, this study assessed subjective age once at baseline and therefore could not assess within-person variability in it. Thus the covariation of daily stressors and subjective age has yet to be investigated in emerging adults (i.e., on days when emerging adults experience a stressor do they feel older than on days without daily stressors). Fluctuations in daily events have previously been associated with daily well-being in emerging adults (Maher, Pincus, Ram, & Conroy, 2015). We propose that daily stressors may be one factor associated with daily fluctuations in how old emerging adults feel.

Arnett suggests that “in many ways, the American college is the emerging adult environment par excellence” (2016; pp. 219). He elaborates that the college environment provides ample opportunities for emerging adults to explore their identity, for example: trying out different courses, culture activities, and friend groups (Arnett, 2016). It is also a time when many emerging adults report feeling in-between, for example: living away from their parents yet still receiving some financial assistance (Arnett, 2015). Furthermore, the transition to the college environment is often accompanied by an increase in reported stress levels (Conley, Kirsch, Dickson, & Bryant, 2014). For these reason, the college environment provides an appropriate setting for investigating the relationships between emerging adulthood characteristics, subjective age, and stressors.

In the current study we used daily diary methodology to examine daily subjective ages and stressors in a collegiate sample of emerging adults and their interaction with the key psychological components of emerging adulthood. We chose to focus on two key psychological dimensions of emerging adulthood: identity exploration and feeling-in-between, as they most directly relate to potential shifts in subjective age. Our first aim was to establish daily variability in the subjective ages of individuals chronologically in the typical emerging adulthood years. Our second aim was to establish if individuals who identify more strongly with the emerging adulthood psychological characteristics of identity exploration and feeling in-between would report more variation in their daily subjective ages than individuals of similar chronological age, but who identify less strongly with these attributes. Our third aim was to examine if on days when emerging adults experience stressors they would also report older subjective ages than on stressor free days. Finally, our fourth aim was to examine the interaction of the psychological components of emerging adulthood and daily stressors on daily subjective ages. We predicted

that individuals who identify more strongly with identity exploration and feeling in-between would be more likely than those who do not identify with these psychological components to report older subjective ages on days with daily stressors (i.e., we expected those more psychologically identified with emerging adulthood to be more reactive to daily events when reporting their subjective ages).

Method

Participants

Participants were part of the younger adult sample of the Mindfulness and Anticipatory Coping Everyday (MACE) online daily diary study (Neupert & Bellingtier, 2017, 2018b) and were current university students who participated in exchange for partial course credit. The 106 participants ranged in age from 18 to 22 (one additional 36 year old participant was excluded from the current analyses) and were evenly split between men and women. The majority ($n = 80$) identified as European American (non-Hispanic) with the remainder identifying as African American ($n = 6$), Asian American ($n = 8$), Hispanic ($n = 4$), other ($n = 6$), or not responding ($n = 2$). The average education of both participants' mothers and fathers was a bachelor's degree or equivalent, and 35 participants indicated that they worked part-time or were self-employed. On Day 1 participants reported how old they feel most of the time; 17% selected an age younger than their chronological age, 28% selected the same age as their chronological age, and 55% selected an age older than their chronological age.

Procedure

Each morning for 9 consecutive days, participants received a link to complete a survey via Qualtrics. The study duration was selected to optimize our ability to detect intraindividual variation while not over-burdening our participants (Neupert & Bellingtier, 2018a). Participants

were divided into 3 flights that began the study on different days of the week to reduce bias associated with any particular study day. All surveys were completed in the middle of the fall semester prior to holidays or final exams. On Day 1, the survey contained sociodemographic variables, personality, and the IDEA. The Days 2-9 surveys assessed daily stressors and daily subjective age. Participants who had not yet completed the survey were sent an email reminder in the evening (7PM) prompting them to complete the day's survey. In total, the participants provided 871 days of data, and the majority (69%) completed all 9 days (compliance rate = 91%). Number of days completed was unrelated to the participants' ages, neuroticism, subjective age, and scores on the IDEA (identity exploration, negativity/instability, self-focused, and feeling-in-between). However, participants who completed fewer days reported higher scores on the IDEA experimentation/possibilities scale ($r = -.26, p < .05$) and more average daily stressors ($r = -.47, p < .05$). This study was approved by the internal review board at North Carolina State University.

Measures

The Inventory of the Dimensions of Emerging Adulthood. Participants' identification with the key psychological components of emerging adulthood as theorized by Arnett (2004) were measured with the Inventory of the Dimensions of Emerging Adulthood (IDEA; Reifman et al., 2007). The complete scale includes 31 items with seven items tapping identity exploration (e.g., "Is this period of your life a time of defining yourself?"), Cronbach's alpha = .84; three items tapping feeling in-between (e.g., "Is this period of your life a time of feeling adult in some ways but not others?"), Cronbach's alpha = .67; five items tapping experimentation/possibilities (e.g., "Is this period of your life a time of open choices?") Cronbach's alpha = .80; seven items tapping negativity/instability (e.g., "Is this period of your life a time of confusion?") Cronbach's

alpha = .83; and six items tapping self-focus (e.g., “Is this period of your life a time of self-sufficiency?”) Cronbach’s alpha = .69. Items were answered on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*) and participants were assigned a mean score for each scale.

Daily stressors. Daily stressors were measured on Days 2 through 9 using a written version of the Daily Inventory of Stressful Events (DISE; Almeida et al., 2002). Participants indicated whether or not they had experienced seven types of stressors within the past 24 hours, these included: disagreements, potential disagreements, stressful events in the workplace/volunteer setting, stressors at home, network stressors, (e.g., stressors occurring to one’s family and friends), personal health stressors, (e.g., problems receiving treatment, medication-related issues, and illnesses) and other stressors. Individuals received a summed total stressor score for each day with higher scores indicating more stressors.

Daily subjective age. Subjective age was assessed on Days 2 through 9 with a single item asking “How old do you feel today?” (cf. Kastenbaum, et al., 1972). Participants indicated their response by filling in the appropriate number of years. Discrepancy scores were created by subtracting chronological age from subjective age with positive scores reflecting how many years older an individual felt. Discrepancy scores help to control for the influence of chronological age and allow for more precise measurement of subjective age beyond feeling older, younger, or no different from one’s chronological age (Bellintier et al., 2017; Diehl et al., 2014; Westerhof & Barrett, 2005).

Covariates (chronological age and neuroticism). Covariates were included to control for their association with subjective age (i.e., chronological age) or daily stressors (i.e., neuroticism, Cronbach’s alpha = 0.70--measured via the Revised Midlife Development Inventory

[MIDI] Personality Scales; Lachman & Weaver, 1997, 2005). Individuals high in neuroticism tend to report higher reactivity to daily stressors (Mroczek, & Almeida, 2004; Neupert, Mroczek, & Spiro, 2008), however there are mixed findings regarding the association of neuroticism and subjective age (c.f., Hubley & Hultsch, 1996; Stephan, Demulier, & Terracciano, 2012).

Analysis

Befitting our interest in intraindividual variability (Howard, 2015), data were analyzed using multilevel modeling (MLM; Raudenbush & Bryk, 2002). This method uses all available data from every participant and does not rely on complete cases. Thus, we did not impute any values for missing data; however, participants with more days of information were given more weight in the estimates. Scores on the IDEA and neuroticism, as well as chronological age, were grand-mean centered by subtracting the sample mean from each individual's score. In line with Kreft, de Leeuw, and Aiken (1995), we entered the raw scores at Level 1, rather than creating a deviation score. Daily stressors were person-mean centered by adding each individual's mean score across study days as a variable at Level 2 (between-person) to adjust for the fact that some participants might experience more daily stressors on a regular basis than others. This approach allows us to control for individual differences in daily stressor exposure at the between-person level when interpreting the within-person effects.

To control for outliers, daily subjective age scores falling outside the bottom and top 2.5% of responses were recoded to the nearest score (95% windsorization). The original scores ranged from feeling 16 years younger to 112 years older ($M = 4.07$, $SD = 12.31$, skewness = 4.10, Kurtosis = 21.00). The windsorized scores ranged from feeling 5 years younger to 42 years older ($M = 3.62$, $SD = 9.34$, skewness = 2.82, Kurtosis = 7.83) and were used in all further analyses. We examined models controlling for linear time (i.e., day of study) as a within-person

(Level 1) variable and study start date and number of study days completed as a between-person (Level 2) variables to ensure that any shifts in subjective age were not due to time spent in the study nor timing of study participation. All patterns of results remained unchanged.

The equation for the multilevel models used in aims 3 and 4 is shown below. γ_{00} refers to the grand mean of subjective age on days with no stressors. The main between-person effects of average daily stressors, age, and neuroticism are represented by γ_{01} , γ_{02} , and γ_{03} respectively. In all but the daily stressor model, γ_{04} represents the main between-person effect of the specified IDEA component. γ_{10} refers to the within-person relationship between daily stressors and subjective age, and γ_{11} captures the cross-level interaction of daily stressors and the specified IDEA component predicting daily subjective age. The unexplained variance at the between and within-person levels are modeled by r_{it} and u_{0i} respectively.

$$\text{Level 1: Subjective Age}_{it} = \beta_{0it} + \beta_{1it}(\text{daily stressors}) + r_{it}$$

$$\text{Level 2: } \beta_{0i} = \gamma_{00} + \gamma_{01}(\text{avg. stressors}) + \gamma_{02}(\text{age}) + \gamma_{03}(\text{neuroticism}) + [\gamma_{04}(\text{IDEA})] + u_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{IDEA})$$

Results

Descriptive statistics and correlations amongst study variables are presented in Table 1. The psychological components of emerging adulthood were significantly positively correlated with each other. Although not significantly correlated with chronological or subjective age, possibly due to low power, it is interesting to note that all the psychological components of emerging adulthood are positively correlated with subjective age. Across the 8 days of daily stressor reporting, participants reported 359 stressors. At least 1 stressor was reported on 31% of study days, at least 2 on 8% of study days and 3 or more on 3% of study days. The most commonly reported stressor were potential disagreements (28% of all reported stressors) and

disagreements (20%), followed by other stressors (16%), work/school stressors (11%), health stressors (11%), network stressors (7%), and home stressors (7%).

To address our first aim regarding intraindividual variability in daily subjective ages we conducted a fully unconditional model (Raudenbush & Bryk, 2002) to parse the within (Level 1) and between (Level 2) person variance in daily subjective age. The model yielded evidence of significant variability at both levels of analysis, with 44% ($\tau_{00} = 38.18, z = 6.06, p < .0001$) due to between-person differences and 56% ($\sigma^2 = 49.05, z = 2.72, p < .0001$) due to within-person fluctuations.

As a follow-up to the Aim 1, we coded each daily subjective age variable as either younger, older, or same age as participants' chronological ages. We then investigated how many participants had "days" in each category. 42% of participants reported daily subjective ages from only one category (e.g., the subjective ages they reported were always older than their chronological age), 40% reported switching between two categories (e.g., reported days when they felt older and days when they felt the same age), and 18% reported all three types of days (i.e., they reported days when they felt younger, older, and the same age).

Our second aim addresses differences in daily subjective age variability related to identification with emerging adulthood dimensions. We correlated individuals' scores on the IDEA scales with their within-person standard deviation score on daily subjective age, consistent with Kotter-Grühn, Neupert, and Stephan (2015). Both identity exploration ($r(101) = 0.16, p = .10$) and feeling in-between ($r(101) = 0.10, p = .31$) were positively, but non-significantly, related to variability in daily subjective age. Daily subjective age means were strongly related to within-person standard deviations ($r(103) = 0.87, p < .0001$), however controlling for mean daily

subjective age with partial correlations did not alter the pattern of findings nor did correlating the coefficient of variation with the IDEA scales.

To address our third aim examining the relationship between daily stressors and daily subjective ages we conducted a multilevel model predicting daily subjective age from daily stressors while controlling for average daily stressors, neuroticism, and chronological age. As seen in Table 2, there was a significant effect of average daily stress indicating that individuals who on average experienced one more daily stressor than their peers tended to feel nearly 5 years older. Importantly, there was also a main effect of daily stressors beyond the average stressor score indicating that for each additional daily stressor experienced beyond his or her own average level of stressors, the participant felt nearly an additional year older (.84 years) on that day. The pattern of findings remained unchanged when neuroticism was removed from the model.

To address our fourth aim related to the moderating effect of emerging adulthood dimensions we expanded the multilevel model used in Aim 3 to include the main effect of psychologically identifying as an emerging adult (identity exploration or feeling in-between) as well as the interaction of the emerging adult dimension and daily stressors. Results from these models can be seen in Table 2. In neither model was there a main effect of psychologically identifying with either of the dimensions of emerging adulthood, however there was a significant interaction with daily stressors in both models. As can be seen in Figures 1 and 2, participants who more strongly identified with the emerging adulthood dimensions were more reactive to daily stressors as indicated by a significant increase in their subjective age scores on days when they experienced daily stressors.

We followed up on the significant interactions with tests of the simple effects. The pattern of simple effects was the same in both models. The slope of the high identification with IDEA line was significant: $b = 9.31$, $t(639) = 3.85$, $p = 0.0001$ for identity exploration and $b = 10.04$, $t(639) = 4.24$, $p < 0.0001$ for feeling in-between, whereas the slope of the low identification with IDEA line was nonsignificant: $b = -0.50$, $t(639) = -0.18$, $p = 0.85$ for identity exploration and $b = -1.43$, $t(639) = -0.54$, $p = 0.59$ for feeling in-between. On days with no daily stressors, there was no difference between those high and low on the IDEA: $b = -0.07$, $t(639) = -0.10$, $p = 0.92$ for identity exploration and $b = -0.04$, $t(639) = -0.06$, $p = 0.95$ for feeling in-between, however on days high in daily stressors there was a significant difference between those high and low on the IDEA dimensions: $b = 4.84$, $t(639) = 2.74$, $p < 0.01$ for identity exploration and $b = 5.70$, $t(639) = 3.47$, $p < 0.001$ for feeling in-between.

The pattern of findings remained unchanged when neuroticism was removed from the models, and when the identity exploration was added as a covariate to the feeling in-between model (and vice versa).

Ancillary Analyses

Given the similarity of the identity exploration and the feeling in-between models addressing our fourth aim, it seemed plausible that the findings reflected a general tendency to identify with emerging adulthood regardless of the dimension measured. Thus we ran four additional models. First, we modeled the relationship between subjective age, stressors, and each of the three remaining emerging adulthood dimensions: experimentation/possibilities, negativity/instability, and self-focused while controlling for average daily stressors, neuroticism, and chronological age. Second, we ran an all-inclusive model containing all five dimensions and all five interactions.

As can be seen in Table 3, the models for experimentation/possibilities, negativity/instability, and self-focused are similar to the identity exploration and the feeling in-between models in regards to the main effects of average daily stressors (γ_{01}), and daily stressors (γ_{10}), but diverge in regards to the interaction between the emerging adulthood dimension and daily stressors (γ_{11}). This interaction is not significant in any of the additional models, nor is the main effect for any of the emerging adulthood dimensions (γ_{04}). Thus, identity exploration and the feeling in-between are unique in predicting differential stressor reactivity regarding daily subjective age. The results of the all-inclusive model can be seen in Table 4. When considering all dimensions of emerging adulthood simultaneously, the interaction of daily stressors with the dimensions of identity exploration and the feeling in-between remains significant (and similar to the interactions depicted in Figures 1 and 2). Additionally, the interaction of experimentation/possibilities dimensions, which had been nonsignificant in its own model, became significant in the all-inclusive model. Given the near parallel lines (see Figure 3) and the exploratory nature of the analysis, this finding should be interpreted with caution.

Discussion

The current study adds to our understanding of subjective age in emerging adults. To the best of our knowledge, this is the first study to demonstrate significant within-person variability in the daily subjective ages of emerging adults age 18 to 22. Furthermore, we add to previous work examining the between-person relationship between daily stressors and subjective age (Fang & Galambos, 2015) by demonstrating that not only do more stressed individuals report older subjective ages, but on days when individuals experience more stressors than their average they feel older still. Additionally, our findings suggest that the relationship between daily

stressors and daily subjective ages is stronger for those who experience emerging adulthood as a period of identity exploration and feeling in-between (Arnett, 2015).

The emerging adult years mark a period of transition from adolescence to adulthood (Arnett, 2015). During this time period individuals typically move from reporting older subjective ages to younger subjective ages (Galambos et al., 2005). Our findings suggest that for some emerging adults this transition period is marked by daily fluctuations in how old they feel. Our participants' reports indicated that over half of the variability in subjective age occurred within individuals (56%). In comparison, older adults (60-96) in a similar daily diary study reported lower levels of within person variability in subjective age (23%) (Kotter-Grühn et al., 2015). This high level of variability includes individuals who report always feeling older or younger, but show variability within those designations. For example, individuals might feel 12 one day, but 16 the next, yet never feel at or above their chronological age. However, the majority of our participants (58%) reported at least one "cross-over" where they moved between feeling younger, older, or the same age, and 18% reported experiencing all three. These findings align with the notion of emerging adulthood as a time of instability and feeling in-between (Arnett, 2015).

This high level of variability in subjective age held for our entire sample, and did not correlate with higher levels of identification with emerging adulthood dimensions of identity exploration or feeling in-between. It may be that these dimensions are more useful for helping us understand how individuals adjust to specific daily events, as opposed to providing information on their overall level of fluctuation (Montepare, 2009), although it may also be the case that the relatively low Level 2 (between-person) power explains the positive but non-significant correlations.

In regards to daily stressors, our findings support previous work indicating that daily stress is associated with older subjective ages in emerging adults (Fang & Galambos, 2015). Montepare's (2009) lifespan framework for subjective age posits that individuals determine their subjective ages by anchoring to internal models of development (i.e., distal reference points), and adjusting based on more proximal influences. Our findings suggest that daily stressors are an important proximal reference point for emerging adults. Individuals with overall higher levels of daily stress felt significantly older than their less stressed peers. Furthermore, on days when emerging adults experienced daily stress beyond their typical level they felt older still. These findings support the subjective weathering hypothesis (Foster et al., 2008) which contends that stress is associated with feeling aged, as well as similar findings of an association between days with stressors and older daily subjective ages in older adults (Kotter-Grühn et al., 2015). They also indicate that stressors do not need to be major to require adaptation (Almeida, 2005; Scott, Ram, Smyth, Almeida, & Sliwinski, 2017) and that daily stressors are as important for understanding fluctuations in subjective age as major life-event stressors (Bellintier et al., 2017).

Our findings regarding the association of daily stressors with subjective age were modified by identification with the emerging adulthood dimensions of identity exploration and feeling in-between. In both instances, individuals who reported higher levels of endorsement of these components reported older subjective ages on days with daily stressors but those with lower levels of endorsement maintained relatively consistent levels of subjective age on days with and without stressors. For individuals actively searching for their identity and feeling in-between life stages, daily events may play an important role in determining how they feel (Arnett, 2015). This effect remained when considering all of the emerging adulthood dimensions

simultaneously, and did not hold for the other psychological components (possibilities, instability, and self-focus) when considered individually. Daily stress may stir feelings of world-weariness associated with older age (Foster et al., 2008) whereas stress-free days may be associated with the carefree days of childhood.

These findings suggest that the ways individuals conceptualize emerging adulthood could have important implications for their daily well-being (Nelson & Luster, 2016) and complement previous work suggesting that strong identification with the psychological components of emerging adulthood is associated with risky alcohol and drug use (Baggio et al., 2015) as well as internalizing problems (Lanctot & Poulin, 2018). For those who identify strongly with the psychological components of identity exploration and feeling in-between, days with more stressors have a more substantial impact on how they view themselves. It would be interesting to track these individuals over the subsequent years to determine how the association of daily stressors and subjective aging affects long-term perceptions of subjective age and subjective weathering (Foster, Hagan, & Brook-Gunn, 2008). It may be that these individuals also reach the subjective-age cross-over sooner than those less identified with these psychological components of emerging adulthood (Galambos et al., 2005). This in turn could have implications for their health, as feeling older is associated with a higher likelihood of commencing smoking (Galambos et al., 2009). Thus, our findings suggest that considering the psychological components of emerging adulthood may be an effective tool for counselors, therapists, and others interested in the well-being of adults in this age range. Furthermore, it is possible that individuals' views of their aging in emerging adulthood may relate to their later views of aging. In this regard, previous research suggests that a positive views of aging in older adults predict less reactivity to stressors (Bellingtier & Neupert, 2016).

In interpreting our findings it is important to consider that our sample consisted of primarily European-American college students with well-educated parents between the ages of 18 and 22. The college environment provides many opportunities for identity exploration and feeling in-between, but the relationships found in our sample of collegiate emerging adults cannot be assumed to generalize to other emerging adult groups (Arnett, 2016). For example, Katsiaficas, Suárez-Orozco, and Dias (2015) note that first-generation immigrant community college students, in a similar age-range to our sample, have less of an opportunity to feel in-between and generally must adopt the adult-role at an early age. Identification with the feeling in-between dimension of emerging adulthood likely has different ramifications for these students. Overall, there is great variety in the ways emerging adulthood is experienced across cultures and social contexts (Benson & Elder, 2011; Hendry, & Kloep, 2010; Munson, Lee, Miller, Cole, & Nedelcu, 2013) and future work examining these relationships in more diverse populations is an important next step. Although the aims for the present study rely on day-level information, we also report between-person (level 2) correlations for which we have limited power. Thus future work is needed to clarify the between-person relationships. Additionally, although our emerging adults reported significant within-person variability in subjective age we were unable to compare our estimates to individuals in adolescence or middle-age or track our participants longitudinally across years. Previous work suggests that emerging adults are more variable than older adults (Bellingtier et al., 2017; Kotter-Grühn et al., 2015), but it is unknown how they compare to those in nearby developmental stages. Future work using a micro-longitudinal burst design would allow for the evaluation of developmental differences in intraindividual change (Sliwinski, 2008).

In conclusion, on days when emerging adults experience more stressors they report feeling older than stress-free days, and this is especially the case for those who experience this time of their lives to be one of identity exploration and feeling in-between. Although our findings indicate that stressors have an aging effect on emerging adults, prior research finds that the negative impact of subjective weathering is mitigated by psychosocial maturity (Benson, 2014; Benson, Johnson, & Elder, 2012) and many emerging adults report stress-related growth following even their most stressful life events (Arpawong et al., 2016). This suggests that the relationship between daily stressors and subjective age may be multifaceted and ripe for future research.

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Table 1.

Descriptive Statistics and Correlations for Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Age	18.8	1.10								
2. Neuroticism	2.46	0.64	-0.15							
3. Identity Exploration	3.51	0.46	-0.10	0.07						
4. Feeling In-Between	3.40	0.54	-0.11	0.16	0.50*					
5. Experimentation/Possibilities	3.56	0.46	-0.01	-0.10	0.63*	0.42*				
6. Negativity/Instability	2.97	0.55	-0.10	0.50*	0.37*	0.50*	0.26*			
7. Self-Focused	3.47	0.41	-0.16	-0.16	0.61*	0.40*	0.75*	0.22*		
8. Avg. Daily Stress	0.52	0.57	0.23*	0.12	0.20*	-0.06	0.19	0.15	0.10	
9. Avg. Daily Subjective Age	3.82	6.89	-0.06	0.19	0.13	0.08	0.11	0.18	0.09	0.29*

Note: * $p < .05$. Avg. daily subjective age is a discrepancy score indicating that on average the sample felt 3.82 years older than their chronological age.

Table 2

Unstandardized Coefficients (and Standard Errors) of Multilevel Models predicting Daily

Subjective Age

Fixed Effects	Daily Stressors	Identity Exploration	Feeling In-Between
Subjective Age, β_0			
Intercept, γ_{00}	1.03 (0.85)	1.27 (0.87)	0.93 (0.84)
Avg. Stressors, γ_{01}	4.92* (1.33)	4.16* (1.39)	5.14* (1.34)
Age, γ_{02}	-0.74 (0.55)	-0.69 (0.56)	-0.61 (0.55)
Neuroticism, γ_{03}	1.07 (0.96)	1.09 (0.98)	1.03 (0.97)
IDEA, γ_{04}		-0.14 (1.38)	-0.07 (1.16)
Daily Stressor slope, β_1			
Intercept, γ_{10}	0.84* (0.37)	0.88* (0.37)	0.86* (0.37)
IDEA, γ_{11}		2.10* (0.77)	2.12* (0.63)
Random Effects			
Between-person (τ_{00})	29.27* (5.28)	30.94* (5.54)	29.40* (5.30)
Within-person (σ^2)	49.09* (2.74)	46.43* (2.60)	46.41* (2.60)
R ² within-person	10%	11%	13%
R ² between-person	23%	19%	23%

Note. * $p < .05$. In the identity exploration model estimates for the IDEA refer to scores on the identity exploration scale. Similarly, in the feeling in-between model estimates for the IDEA refer to scores on the feeling in-between scale. Effect sizes calculated based on Snijders & Bosker, 2012.

Table 3

Unstandardized Coefficients (and Standard Errors) of Multilevel Models predicting Daily Subjective Age from Remaining IDEA Dimensions

Fixed Effects	Experimentation/ Possibilities	Negativity/ Instability	Self-Focused
Subjective Age, β_0			
Intercept, γ_{00}	0.76 (1.10)	0.72 (1.09)	0.82 (1.09)
Avg. Stressors, γ_{01}	4.42* (1.40)	4.60* (1.36)	4.22* (1.38)
Age, γ_{02}	-0.73 (0.55)	-0.73 (0.55)	-0.67 (0.57)
Neuroticism, γ_{03}	1.16 (0.98)	0.76 (1.10)	1.25 (1.00)
IDEA, γ_{04}	0.51 (1.37)	0.61 (1.31)	0.40 (0.1.59)
Daily Stressor slope, β_1			
Intercept, γ_{10}	1.08* (0.40)	1.01* (0.42)	1.10* (0.40)
IDEA, γ_{11}	0.37 (0.83)	0.44 (0.69)	1.48 (0.87)
Random Effects			
Between-person (τ_{00})	30.42* (5.47)	30.03* (5.54)	30.46* (5.49)
Within-person (σ^2)	47.09* (2.64)	47.14* (2.65)	46.88* (2.63)
R ² within-person	11%	12%	11%
R ² between-person	20%	21%	20%

Note. * $p < .05$. In the experimentation/possibilities model estimates for the IDEA refer to scores on the experimentation/possibilities scale. Similarly, in the negativity/instability model estimates for the IDEA refer to scores on the negativity/instability scale and in the self-focused model estimates for the IDEA refer to scores on the self-focused scale. Effect sizes calculated based on Snijders & Bosker, 2012.

Table 4

Unstandardized Coefficients (and Standard Errors) of a Multilevel Model predicting Daily Subjective Age from All the IDEA Scales

Fixed Effects	
Subjective Age, β_0	
Intercept, γ_{00}	0.58 (1.12)
Avg. Stressors, γ_{01}	4.82* (1.48)
Age, γ_{02}	-0.49 (0.59)
Neuroticism, γ_{03}	1.09 (1.21)
Identity Exploration, γ_{04}	-0.98 (1.97)
Feeling In-Between, γ_{05}	-0.45 (1.54)
Experimentation/Possibilities, γ_{06}	0.75 (2.21)
Self-Focused, γ_{07}	0.54 (2.52)
Negativity/Instability, γ_{08}	0.84 (1.57)
Daily Stressor slope, β_1	
Intercept, γ_{10}	1.10* (0.42)
Identity Exploration, γ_{11}	2.26* (1.00)
Feeling In-Between, γ_{12}	2.21* (0.82)
Experimentation/Possibilities, γ_{13}	-2.78* (1.33)
Self-Focused, γ_{14}	1.44 (1.34)
Negativity/Instability, γ_{15}	-1.17 (0.83)
Random Effects	
Between-person (τ_{00})	31.37* (5.73)
Within-person (σ^2)	46.03* (2.59)
R ² within-person	11%
R ² between-person	18%

Note. * $p < .05$. Effect sizes calculated based on Snijders & Bosker, 2012.

Figure Caption

Figure 1. Interaction of daily stressors by identity exploration as measured by the IDEA (IDEAie) predicting daily subjective age. Low and high IDEA scores were operationalized as one standard deviation below and above the mean, respectively. We modeled a linear effect of daily stressors so we chose the observed range (0 to 5) as the anchors. The interaction, simple slope for high IDEAie, and contrast at 5 daily stressors are all significant.

Figure 2. Interaction of daily stressors by feeling in-between as measured by the IDEA (IDEAfib) predicting daily subjective age. Low and high IDEA scores were operationalized as one standard deviation below and above the mean, respectively. We modeled a linear effect of daily stressors so we chose the observed range (0 to 5) as the anchors. The interaction, simple slope for high IDEAfib, and contrast at 5 daily stressors are all significant.

Figure 3. Interaction of daily stressors by experimentation/possibilities as measured by the IDEA (IDEAep) predicting daily subjective age. Low and high IDEA scores were operationalized as one standard deviation below and above the mean, respectively. We modeled a linear effect of daily stressors so we chose the observed range (0 to 5) as the anchors.





