



The Stress Process Among Emerging Adults: Spirituality, Mindfulness, Resilience, and Self-compassion as Predictors of Life Satisfaction and Depressive Symptoms

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Abstract

The present study examines the stress and coping process among a sample of emerging adults (ages 18–30) recruited through TurkPrime who completed at least some post-secondary education. Sources of stress and four positive personal coping resources, mindfulness, self-compassion, resilience, and spirituality, served as predictors, with all showing significant zero-order correlations with outcomes of satisfaction with life (SWL) and depressive symptoms. Controlling for personality and stressors, resilience, self-compassion, and spirituality each accounted for significant variance in SWL, and mindfulness and self-compassion were unique predictors of depressive symptoms. Spirituality also served as a moderator of the relation of stressors to each criterion variable. Results are discussed with respect to the previous research, along with limitations and strengths of the study and suggestions for future research.

Keywords Stress and coping · Mindfulness · Spirituality · Resilience · Emerging adults

Levinson (1986) suggested that the *novice* stage of adulthood (ages 17–33) is marked by high energy as the individual establishes a career and niche in society and enters into adult relationships but also encounters the potential for high levels of stress from family, financial, and career obligations. This stage of development comprises what Arnett (2000, 2016) has termed emerging adulthood (ages 18 through 25 or 29) during which many emerging adults are studying in colleges and universities and making the transition to work in their 20s. Given the potentially high levels of stressors and their impact on well-being (see also Huang et al., 2021), the present study examines the stress and coping process among

emerging adults between the ages of 18 and 30 who have at least some post-secondary attendance. This study includes the roles of spirituality, mindfulness, self-compassion, and resilience, all of which are psychological resources that can be employed to reduce the potentially damaging effects of stressful life experiences (Hou et al., 2019) during this transitional period of emerging adulthood.

Stress and Coping Process

There is no dearth of research on the relationship of stressful life experiences and events to measures of emotional and psychological well-being. The transactional model of the stress process, proposed by Folkman and Lazarus (1986), Folkman (2010), and Folkman et al. (1986), posited that the relation of stressful events to indicators of well-being is mediated by coping processes. Coping processes include the thoughts, dispositions, and behaviors people utilize to manage internal and external stressors (Folkman, 2010; Grech et al., 2016). Folkman's (2010) later work identified meaning-focused coping resources that can motivate and sustain effective coping behaviors. Wethington et al. (2015), in a review of the history of stress and coping research, suggested that more recent research has examined the roles of

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personal coping resources as resilience factors that affect the relation of acute and chronic sources of stress to indicators of well-being. Some of these resources that have been examined include a sense of mastery, optimism, hardiness, religiousness, meaning-making, and, more recently, spirituality, mindfulness, self-compassion, and resilience (e.g., Braam & Koenig, 2019; Neff & Germer, 2017; Park et al., 2010; Taylor & Stanton, 2007).

Consistent with the transactional model of the stress and coping process, the present study examines four personal coping resources—spirituality, mindfulness, self-compassion, and resilience—as potential influences on well-being in the face of daily stressors experienced by emerging adults. Consistent with Bronfenbrenner’s (1979; Bronfenbrenner & Evans, 2020; Merçon-Vargas et al., 2020) ecological model of human development, these coping resources mature through a complex process whereby one’s changing personal qualities interact with one’s environment or experience. Consistent with previous work (Beasley et al., 2003; Dolbier et al., 2007; Fabricatore et al., 2000) on the stress process, the present study examines direct and moderator effects of these personal coping resources. The present study is also built on previous work and contributes to the field in the following ways: (a) it includes personality factors as covariates in the multivariate analyses as have been employed in only a few studies that address the influence of religiousness and spirituality on well-being (Piedmont & Wilkins, 2013; Piedmont et al., 2009), but not in stress and coping research; (b) it increases the age range and diversity of emerging adults beyond typical college undergraduates found in many studies of this developmental period; and (c) it examines the role of a measure of spirituality that more reflects the spiritual orientation of a growing number of emerging adults who do not identify as religious or with any religious tradition (Pew Research Center, 2020). More importantly, the present study examines the relative contributions of mindfulness, self-compassion, and resilience, along with spirituality, that extends the kinds of coping resources beyond what has appeared in stress and coping research to date (Wethington et al., 2015). This approach of incorporating several predictors and potential moderators also recognizes the multiplicity of factors that individuals could employ to reduce potentially damaging effects of stressors. Similar to a number of studies of the effects of stressors, this study includes criterion variables that assess general life satisfaction as well as symptoms of depression. By employing these two criterion variables, this study provides an opportunity to determine whether different combinations of personal coping resources predict the criterion measures.

Personal Coping Resources

Spirituality

Recent research has viewed religiousness and spirituality as two relatively distinct phenomena, with the former focused more on specific belief systems and rituals and the latter reflecting a more personal, non-denominational quality concerned with transcendence or meaning, what Pargament (1997, 2013) considered a process of searching for and engaging with that which is sacred. Such an orientation toward honoring and pursuing the sacred in one’s life need not involve formal religious involvement or a belief in a transcendent deity and could include experiencing a sense of being connected with others and the wider world and finding time to contemplate (see Gall & Guirguis-Younger, 2013). Piedmont et al. (2009) defined spirituality as “concerned with one’s personal relationships to larger, transcendent realities, such as God or the universe” (p. 163).

It is widely recognized that emerging adults have become less religiously affiliated in recent years with increasing numbers self-identifying as “spiritual but not religious” (Exline et al., 2020; Pew Research Center, 2020). This trend among emerging adults, including college students, may reflect their attention to the developmental tasks of identity formation and intimacy, along with reactions to media reports of clergy abuse and extreme religious actions and views (Bengtson et al., 2018). There is some indication that during emerging adulthood religion and spirituality (R/S) are expressed more internally and reflectively and less externally as through direct participation in religious services (Koenig, 2015). The increased visibility of Buddhist-inspired mindfulness in the U.S. and its value in treating stress and symptoms of depression and anxiety may also be contributing to increased interiority in the expression of R/S among emerging adults (Rosmarin et al., 2021). The developmental tasks of making tentative identity and intimacy commitments suggest a spiritual process that leads toward a greater sense of life’s meaning and one’s purpose in the world (Benson & Roehlkepartain, 2008).

A number of studies have documented significant relationships between measures of spirituality and positive and negative measures of mental health or well-being, with a majority of studies showing a beneficial effect for religious and spiritual beliefs and behaviors, although less of a benefit for engaging in religious pursuits (Braam & Koenig, 2019; Gall & Guirguis-Younger, 2013). With respect to spirituality, Womble et al. (2013), in a study of undergraduate and graduate students, reported that spirituality was the best positive predictor of physical, emotional, and

cognitive outcomes, and Mathad et al. (2019) reported significant positive relationships between spiritual well-being and satisfaction with life (SWL) among nursing students in India. In studies of students at religiously affiliated universities, Fabricatore et al. (2000) reported personal spirituality among undergraduate students to moderate the relationship between stressors and subjective well-being. Other research (Fenzel, 2005; Fenzel & Patel, 2003) reported possessing an active faith life lessened the probability of students engaging in risk behaviors associated with heavy alcohol consumption.

In a study of U.S. adults that controlled for personality, Wilkins et al. (2012) reported spirituality to be a strong predictor of positive mental health. Also, Hettler and Cohen (1998) found intrinsic religiousness to moderate the relation of stressors to symptoms of depression among Protestant adults, and Reutter and Bigatti (2014) reported spirituality to moderate the relation of stress to health outcomes among adults. One focus of the present study, then, is to examine the relation of a measure of emerging adult spirituality, focused on the perception of life as sacred and the personal experience of connectedness to “all of life,” to positive and negative well-being, controlling for the influence of personality traits and daily stressors. In addition, we examine whether this type of spirituality moderates the relation of stressors to well-being.

Mindfulness

Considered the heart of Buddhist meditation (Kabat-Zinn, 2003), mindfulness, the non-judgmental awareness of present-moment experience (Brown & Ryan, 2003; Kabat-Zinn, 1990/2005), is cultivated through “purposefully paying attention to things we ordinarily never give a moment’s thought to” (Kabat-Zinn, 1990/2005, p. 2). Rather than avoiding or railing against emotional or psychological pain, someone who has developed a mindful life orientation is able to experience personal pain and difficulty without expending internal resources to suppress it, which tends to prolong the difficulty (Neff & Germer, 2017).

Mindfulness, developed through the practice of meditation (Gunaratana, 2014), has shown consistent significant positive correlations with positive measures of well-being and affect and negative correlations with negative appraisals of well-being and affect (Brown & Ryan, 2003; Weinstein et al., 2009). Anastasiades et al. (2017) reported that lower levels of mindfulness predicted greater stress, depressive symptoms, and suicidal ideation among U.S. undergraduate women. In addition, Raphiphatthana et al. (2016) reported that one particular aspect of mindfulness, acting with awareness, was the strongest predictor of lower levels of depressive symptoms among New Zealand undergraduates. Similarly, Zubair et al. (2018) showed that the mindfulness

component of present-moment awareness worked as a coping skill that enhanced students’ overall well-being and adaptive psychological functioning.

A number of studies using mindfulness-based interventions have shown positive effects with respect to mental health symptoms and well-being. For example, Jagielski et al. (2020) reported that an intervention of Mindfulness Based Stress Reduction (MBSR) among Danish women with breast cancer significantly decreased the long-term distress among those high in neuroticism. In addition, Ireland et al. (2017) found that medical interns who participated in a 10-week mindfulness intervention reported decreased levels of stress and burnout. Developing a capacity for mindfulness would conceivably help emerging adults better manage stress and difficult emotions as they make initial forays into adult life. In the present study, mindfulness was expected to predict positive and negative well-being, in zero-order correlations and while controlling for personality traits and levels of daily stressors.

Self-compassion

The construct of self-compassion emerged from researchers’ and theorists’ pursuit of improvements to self-esteem as a valid conceptualization of healthy attitudes toward oneself (Neff, 2003). Unlike self-esteem, which involves an evaluation of one’s worth and is often associated with narcissism (Neff, 2011), self-compassion perceptions tend to be free of self-evaluations and comparisons with others and are negatively related to perfectionism (Neff, 2011; Neff & Germer, 2017). Self-compassion is defined as being caring and accepting of oneself, recognizing that one’s shortcomings are part of a shared human experience, and being mindfully aware of emotional states and thoughts that arise in a balanced manner (Neff, 2011).

With respect to the Self-Compassion Scale (SCS), Neff et al. (2018) explained that when measuring self-compassion, people seek to understand how they respond to pain, failure, stress, or crisis and tune into and respond to their own suffering. People low in self-compassion tend to over-identify with mistakes and judge themselves harshly, whereas others connect with the three components of self-compassion of self-kindness rather than self-judgment, recognizing one’s common humanity versus feeling isolated, and the use of mindfulness (Neff, 2011; Neff & Germer, 2017; Neff & McGehee, 2010).

Since Neff’s (2003) early work, self-compassion has been linked to a number of positive outcomes, including higher levels of life satisfaction and well-being (Neff & Germer, 2017; Neff & McGehee, 2010; Yang et al., 2016) and lower levels of negative emotions (Arimitsu & Hofmann, 2017; Neff et al., 2018). Johnson and O’Brien (2013) suggested that self-compassion, a potentially powerful contributor to

interpersonal and intrapersonal well-being (Neff & Germer, 2017), may enhance mental health and decrease symptoms of depression by reducing one's tendency to apply dysfunctional interpretations to negative events. Programs, such as Mindful Self-Compassion (MSC), through which people develop the inner resource of self-compassion that enables them to address difficulties that arise more effectively, have shown success in reducing negative affect and enhancing positive well-being (Neff & Germer, 2017). In the present study, self-compassion was expected to show the same benefits in zero-order correlations and when controlling for the effects of personality traits and daily stressors.

Resilience

Resilience research has emerged from examinations of factors contributing to outcomes for children at elevated risk for mental health problems (Masten, 2016). Wright et al. (2013) identified resilience as experiencing "positive adaptation in the face of risk or adversity" (p. 18) and has been viewed more dynamically as a quality that exists in the interaction of the person and the person's environmental context (Masten, 2014). Considering the effects of child abuse on adult health and well-being, Masten (2018) noted that resilience can be developed through supportive relationships during the life course and can contribute to successful adult adaptation.

The value of resilience as a contributor to emerging adult well-being is supported by several cross-cultural studies. For example, Zubair et al. (2018) reported resilience to predict well-being among Russian and Pakistani university students. Resilience was also reported to contribute to life satisfaction among Chinese medical students who demonstrate symptoms of attention deficit hyperactivity disorder (ADHD; Shi et al., 2018), as well as among Turkish university students (Satici, 2016).

Konradt et al. (2018) reported that emerging adults with major depressive disorder who had higher level of resilience at baseline showed greater reduction in depressive symptoms following a brief therapeutic intervention. In addition, Li and Yang's (2016) study demonstrated that resilience predicted positive coping among U.S and Chinese students and suggested that resilience fosters positive emotions and emotional self-regulation among emerging adults from multiple contexts. In the present study, resilience is hypothesized to be significantly related to well-being in zero-order correlations and when controlling for personality and stressors.

Personality and Well-Being

In a review of the literature on the personality trait of neuroticism, Lahey (2009) pointed out its significance in predicting a number of physical and mental health problems. People

high in neuroticism tend to have exceedingly strong negative emotional reactions to challenging situations (Lahey) and Womble et al. (2013) reported that the Big Five personality factors, led by neuroticism, explained more than 30% of the variance in health resilience. Other studies (e.g., Olesen et al., 2013; Smith et al., 2017; Wilkins et al., 2012) have used personality traits as covariates in examinations of predictors of emotional and psychological well-being to control for the effects of more stable, biologically based traits. Consistent with this and other work (Piedmont & Wilkins, 2013), a brief measure of the Big Five personality traits is used as a set of covariates in the present study to enhance the meaningfulness of any demonstrated relations between personal coping resources and well-being.

Research Questions

The present study examines the zero-order and partial influences of four coping resources to two measures of subjective well-being, satisfaction with life (SWL) and depressive symptoms. Specifically, we predict that mindfulness, resilience, self-compassion, and spirituality will each predict SWL and symptoms of depression in both zero-order correlations and partial analyses, controlling for personality traits and sources of stress. Based on previous findings, we also hypothesize that spirituality will moderate the relationship between stressors and the two measures of subjective well-being, controlling for the effects of personality traits and stressors.

Method

Participants

Participants were recruited and paid through the online crowdsourcing service TurkPrime managed by Amazon.com that recruits and screens "workers" to complete surveys. For the present study 324 participants who were adult residents of the United States, ages 18 through 30 (Mean = 24.5 years, SD = 3.5), and who were either attending or had attended a post-secondary educational institution, completed all surveys (6 surveys contained incomplete demographic information that were subsequently included in regression analyses because none of the demographic variables were significantly related to the criterion variables). With respect to participants, 41% had earned a Bachelor's degree or higher, 76% were women, and 80% identified as heterosexual. With respect to race/ethnicity, 62% identified as *White*, 16% as *African American or Black*, 11% as *Hispanic/Latina/o or Caribbean*, 5% as *Asian, Indian Asian, or Asian American*, and 4% as *Multiracial or other racial category*. With respect

to employment, 47% were employed full time and another 20% part time. Although most participants (66%) identified as affiliating with some theistic religion, 16% identified as either Atheist or Agnostic, and 17% reported no religious or spiritual orientation. Also, 25% responded *very true*, and 43% *somewhat true*, when asked to what extent they identified as being “spiritual but not religious.”

Researchers recruited TurkPrime participants with at least some college attendance up to 30 years of age who were U.S. residents to provide some continuity with previous research on the stress and coping process that has used university students as participants in studies of emerging adulthood (e.g., Chao, 2011; Fabricatore et al., 2000; Nima et al., 2013). At the same time, using a crowdsourcing platform provided a more heterogeneous sample than those limited to one type of educational institution. TurkPrime, which pays workers a higher salary than does MTurk, offered better control over participant demographics than would MTurk (Burnham et al., 2018). The study was approved by the university IRB with which the authors were associated.

Measures

Personality Traits

Utilized as covariates in the analyses, personality traits were assessed with the Mini-IPIP (Donnellan et al., 2006), a 20-item scale that is a shortened version of the 50-item International Personality Item Pool-Five-Factor Model (IPIP-FFM; Goldberg, 1999). The Mini-IPIP assesses traits of neuroticism ($\alpha = 0.63$ in the present study), extraversion ($\alpha = 0.76$), conscientiousness ($\alpha = 0.58$), agreeableness ($\alpha = 0.69$), and imaginativeness ($\alpha = 0.65$), with 4 items addressing each of the five personality factors on a 5-point Likert scale indicating the extent to which participants agreed or disagreed with each statement. Although relatively low, the alpha levels obtained in the present study are similar to those reported by Donnellan et al. (2006), who suggested that the Mini-IPIP is a useful tool in situations when it is important to keep the number of survey items at a practical level to ensure greater participant completion.

Stressors

Stressors were assessed with the Perceived Stress Scale (Cohen et al., 1983), a 10-item instrument on which respondents indicate the frequency with which they were unable to control important things, experienced not being on top of things or able to overcome life’s difficulties, and the like in the previous month. Two of the items that addressed specific emotional reactions to stressors (feeling nervous or angered) were removed. The resulting 8-item measure of stressors

used a 5-point Likert scale indicating the extent to which participants agreed or disagreed with each statement and had an alpha reliability of 0.86.

Mindfulness

Brown and Ryan (2003) developed the Mindful Attention Awareness Scale (MAAS) to measure attention to present-moment awareness, or mindfulness. Items are worded to reflect the extent to which respondents report being on “automatic pilot” rather than attending to their experiences. Participants rate the frequency of their experience on a 6-point scale, from *Almost Never* (1) to *Almost Always* (6), with higher scores reflecting less likelihood of losing focus or attention. Shortened versions of the MAAS have been examined and utilized (Chiesi et al., 2017). For the present study, an 8-item version of the MAAS was used ($\alpha = 0.87$).

Self-compassion

The Self-Compassion Scale-Short Form (SCS-SF) was used to measure overall self-compassion. The scale contains 12 self-report items, each rated from 1 to 5 (1 = *almost never* to 5 = *almost always*), indicating the frequency with which respondents indicate they “behave in the stated manner.” Raes et al. (2011) have shown the SCS-SF to be a valid and reliable alternative to the long form of the scale for measuring overall self-compassion. To avoid overlap with mindfulness, 8 of the 12 items, which reflect components of self-kindness (or self-judgment) and common humanity, were used to assess self-compassion, showing an alpha of 0.77. Items include “I see my failings as part of the human condition” and “I am disapproving and judgmental about my own flaws and inadequacies” (reverse scored).

Resilience

To measure levels of resilience, the 10-item short form (Campbell-Sills & Stein, 2007) of the Connor–Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) was used. Campbell-Sills and Stein reported that the short form captured well a single factor related to one’s ability to effectively contend with change, personal difficulties, pressures, failures, and the like. Participants indicate the extent to which a statement is true or not true for them on a 5-point Likert scale. Alpha reliability for the short-form scale in the present study was 0.90. Sample items include “Under pressure, I focus and think clearly,” “I tend to bounce back after a hardship or illness,” and “I am able to adapt to change.”

Spirituality

Spirituality was assessed by a measure of Spiritual Integration, an 8-item scale that was developed from items included in the Spiritual Involvement Scale (Fenzel, 1996, 2002) and the Brief Multidimensional Measure of Religiousness/Spirituality (Johnstone et al., 2012). Given the nature of the emerging adult participants in the study and the number of these adults who identify as “spiritual but not religious” or *nones* (Pew Research Center, 2020), the Spiritual Integration Scale (SIS) contains no references to a Higher Power or deity. Instead, the SIS addresses themes of how one’s spirituality provides a source of strength, comfort, or relief from stress or a sense of the sacredness of life or a connectedness to “all of life.” Each item in the scale is scored from 1 to 5, indicating the extent to which participants feel a statement is true or not true for them. Alpha reliability for the scale was 0.91.

Satisfaction with Life

Global life satisfaction was assessed using the Satisfaction with Life Scale (Diener et al., 1985), a commonly used measure of subjective well-being. This 5-item scale, which does not seek to capture levels of positive affect, assesses participants’ general cognitive appraisal of their overall satisfaction with life and of their lives as being close to ideal. Participants indicate on a 7-point scale the extent to which they agree or disagree with each statement. The alpha level was 0.88 for the present study.

Depressive Symptoms

Depressive symptoms were assessed using 10 items from the depression subscale of the Symptom Checklist, or SCL-90-R (Derogatis & Melisaratos, 1983) that assesses levels of depressive symptoms ($\alpha = 0.93$). Participants indicated the extent to which they were bothered by each symptom, such as feeling trapped, blue, lonely, or worthless, over the previous seven days by responding on a 5-point scale ranging from *not at all* to *extremely*.

Procedure

Respondents received a link to the survey which recorded the date and amount of time taken to complete, in addition to a number of demographic characteristics, some of which (i.e., race/ethnicity, gender) have showed a relation to symptoms of distress among emerging adults in previous research (Burriss et al., 2009). Four demographic variables, age, gender, racial/ethnic identity, and college degree attainment, were dichotomized due to the lack of normality

of distributions and included in the analyses. For example, racial/ethnic identity was dichotomized as being White or other-than-White, and college attainment was operationalized as having at least a two-year college degree or less. Age was operationalized as younger than 25 or age 25 or older. All responses were downloaded to a Qualtrics data set, which included two validity check items. For each quantitative variable, scores were summed and divided by the number of items for each scale. Analyses of data were carried out using SPSS.

Results

Reliability and Correlation Analyses

Table 1 presents (a) means, standard deviations, and alpha reliability coefficients for each of the quantitative variables and (b) the zero-order correlations between the criterion variables of satisfaction with life (SWL) and symptoms of depression, the five personality types, sources of stress, and the four predictors (coping resource variables). With respect to correlations, none of the demographic variables had a significant relationship with either SWL or symptoms. All personality factors were significantly related to SWL and 4 of the 5 correlations were significantly related to depressive symptoms. Stressors showed a strong significant correlation with each outcome variable. In support of the first hypothesis, each of the four coping resource variables was significantly related to both SWL and depressive symptoms.

Regression Equation Building

Regression analyses involved a hierarchical block process, making use of both forward and forced entry methods (clarified below). Initially in the first block, the four demographic variables were tested for inclusion. Finding that none of these variables, nor their combination, was a significant predictor of either criterion variable, we removed them from the hierarchical regression analyses. Doing so also increased the number of participants included in the regression from 318 to 324. There were no missing values for any of the quantitative variables.

To examine the partial relationships of each of the coping resources to each of the criterion variables, one regression equation was built for each criterion variable, with personality variables tested for inclusion in the first block using forward entry. Stressors were then entered in the second block. In the third block, the four coping resources were entered together. In the final block, the four interaction terms involving stress and each coping resource were tested for inclusion

Table 1 Means (SD) and alpha reliabilities with zero-order correlations of study variables ($N=324$)

	Mean (SD)	Alpha	SWL	Symptoms	Stress	Spiritual	Mindful	Self-comp	Resilience
Criterion variables									
Satisfaction with life	3.86 (1.48)	0.88							
Depressive Symptoms	2.75 (1.05)	0.93	- 0.48***						
Personality									
Neuroticism	3.21 (0.87)	0.64	- 0.43***	0.48***	0.66***	- 0.21***	- 0.46***	- 0.56***	- 0.48***
Extraversion	2.67 (0.99)	0.76	0.30***	- 0.21***	- 0.19**	0.17**	0.15**	0.32***	0.34***
Conscientiousness	3.46 (0.79)	0.58	0.28***	- 0.38***	- 0.37***	0.16**	0.36***	0.27***	0.31***
Agreeableness	3.68 (0.81)	0.69	0.45***	- 0.19***	- 0.10**	0.20***	0.15**	0.01	0.13*
Imaginativeness	3.63 (0.78)	0.65	- 0.14*	- 0.06	- 0.04	0.06	0.16**	<0.01	0.23***
Predictors									
Stress	3.17 (0.74)	0.86	- 0.50***	0.74***	-				
Spirituality	3.02 (1.05)	0.91	0.26***	- 0.13*	- 0.09	-			
Mindfulness	3.51 (1.02)	0.87	0.50***	- 0.50***	- 0.59***	0.12*	-		
Self-compassion	2.74 (0.68)	0.77	0.34***	- 0.57***	- 0.58***	0.32***	0.44***	-	
Resilience	3.49 (0.77)	0.90	0.48***	- 0.37***	- 0.45***	0.32***	0.34***	0.54***	-

*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$

using forward entry. Interaction terms were created by taking the products of the variables tested after they were centered.

To examine the nature of significant interaction effects, regression equations using the unstandardized regression coefficients were plotted using the constant term along with stressors, the particular coping resource variable, and the interaction term, all taken from the final step in the regression. Consistent with procedures outlined by Aiken and West (1991), low, moderate, and high levels of the moderator were used (the mean and one standard deviation below and above the mean). Except as noted, two-tailed significance levels are reported.

Regression Findings: SWL

Table 2 summarizes the results of the multiple regression analysis predicting satisfaction with life (SWL). All personality variables with the exception of agreeableness entered the equation in the first block, accounting for a combined 29% of the variance in SWL ($p < 0.001$), and stressors accounted for an additional 6% of the variance in the second block, $F(1,318) = 29.01$, $p < 0.001$. In the next block, the set of the four coping resource variables accounted for an additional 8.3% of the variance in SWL, $F(4,314) = 11.51$, $p < 0.001$. With respect to the four coping resource predictors

Table 2 Results of hierarchical multiple regression analysis predicting satisfaction with life ($N=324$)

Predictor	R^2 change	F (change)	Beta (Last step)	B (SE_B) (Last step)
<i>Block 1</i>				
Neuroticism	0.188	74.45***	0.008	0.01 (0.10)
Extraversion	0.049	20.58***	0.114***	0.17 (0.07)
Imaginativeness	0.026	11.35***	- 0.236***	- 0.45 (0.09)
Conscientiousness	0.028	12.70***	0.093	0.18 (0.09)
<i>Block 2: Stress</i>	0.059	29.10***	- 0.241***	- 0.49 (0.13)
<i>Block 3:</i>	0.083	11.51***		
Resilience			0.234***	0.46 (0.11)
Self-compassion			0.138*	0.30 (0.13)
Spirituality			0.088 ^a	0.12 (0.07)
Mindfulness			0.037	0.05 (0.08)
<i>Block 4</i>				
Stress \times spirituality	0.006	3.15 ^a	0.079 ^a	0.14 (0.08)
Total R^2	0.438			

^aOne-tailed significance level

*** $p \leq 0.001$; * $p \leq 0.05$

of SWL, analyses of Beta coefficients in the final regression model showed the following: resilience, $Beta = 0.234$, $p < 0.001$; self-compassion, $Beta = 0.138$, $p = 0.024$; spirituality, $Beta = 0.088$, $p = 0.031$ (one-tailed); and mindfulness, $Beta = 0.037$, $p = 0.506$. These provide partial support for the hypothesized partial relationships of the coping resource variables to SWL in that resilience, self-compassion, and spirituality were significantly and positively related to SWL.

In the final block, none of the interaction terms entered the regression equation at the $p < 0.05$ level of significance, but among the four, only the interaction of stressors \times spirituality, which accounted for an additional 0.6% of the variance in SWL, was significant at the $p < 0.10$ level, $F(1,313) = 3.15$, $p = 0.077$. Given that the interaction effect was consistent with predictions of a buffering effect, a one-tailed test of significance suggests that this interaction effect is statistically significant. All VIF levels were well within acceptable bounds.

The simple regression line was plotted at three levels of spirituality. As shown in Fig. 1, the results indicated that, for emerging adults who reported lower levels of spirituality, higher stress levels predicted lower levels of SWL at a greater rate of decline, $b = -0.63$, $p < 0.001$, as compared to participants with moderate, $b = 0.52$, $p < 0.001$, or higher levels of spirituality, $b = -0.41$, $p = 0.005$. At even higher

levels of spirituality (+2 SDs above the mean), the slope of the regression line is not significantly different from zero, $b = -0.29$, $p = 0.124$. This pattern is consistent with the hypothesized moderation, or buffering, effect of spirituality on the relation between stressors and SWL, such that those higher in spirituality were less adversely affected by higher levels of stressors compared to those lower in spirituality. Although a test of the difference in the slopes shown in Fig. 1 was not significant at the $p < 0.05$ level, $t(321) = 1.40$, $p = 0.081$, Aiken and West (1991) indicated that the significance of the differences among slopes (the coefficient of the interaction term) is established in the regression analysis, thus providing clear support for the hypothesized interaction effect (p. 20–21).

Regression Findings: Depressive Symptoms

Table 3 summarizes the results of the multiple regression analysis predicting depressive symptoms. As none of the four demographic variables were significantly related to depressive symptoms, they were not used in building the regression model. In the first block of the analysis, the forward method selected three personality variables that entered the equation in the following order: Neuroticism, Conscientiousness, and Agreeableness, accounting for a combined

Fig. 1 Interaction effect of stressors and spirituality on SWL

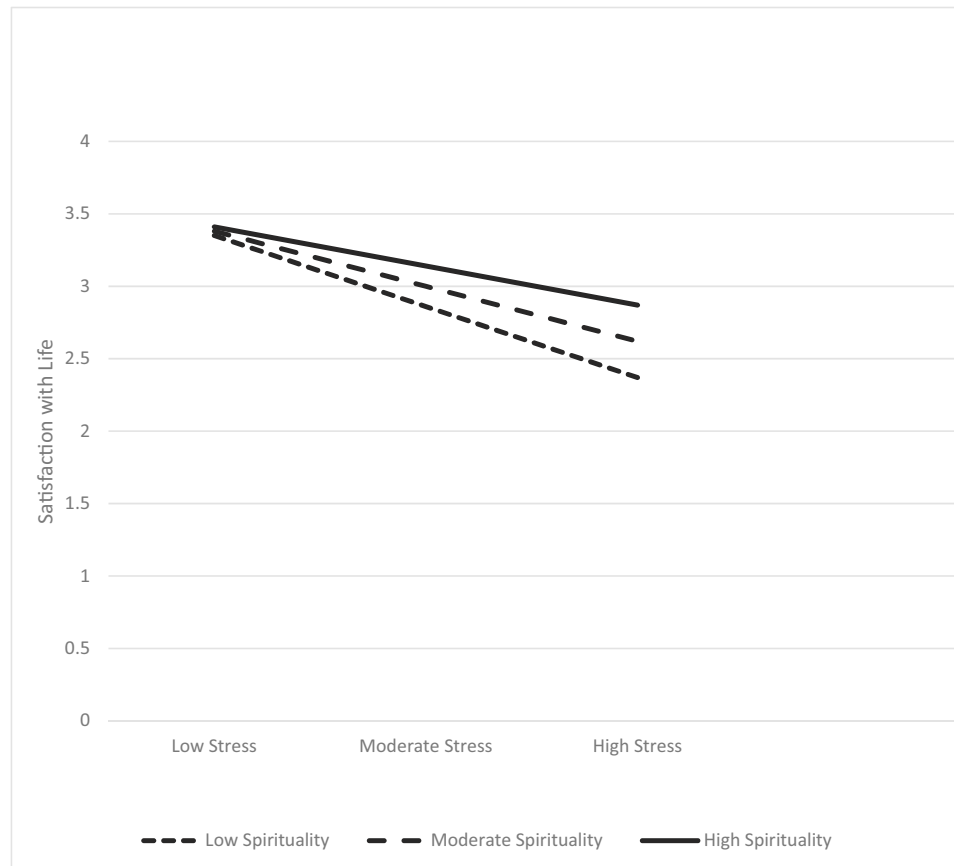


Table 3 Results of hierarchical multiple regression analysis predicting depressive symptoms ($N=324$)

Predictor	R^2 change	F (change)	$Beta$ (last step)	B (SE_B) (last step)
<i>Block 1</i>				
Neuroticism	0.238	100.80***	- 0.060	- 0.07 (0.06)
Conscientiousness	0.058	26.68***	- 0.123**	- 0.16 (0.05)
Agreeableness	0.022	10.29***	- 0.102**	- 0.13 (0.05)
<i>Block 2: Stress</i>	0.254	189.08***	0.578***	0.82 (0.08)
<i>Block 3</i>				
Mindfulness	0.023	4.70**	- 0.158***	- 0.16 (0.05)
Self-compassion			- 0.114*	- 0.18 (0.08)
Spirituality			0.008	0.01 (0.04)
Resilience			0.036	0.05 (0.06)
<i>Block 4</i>				
Stress \times spirituality	0.007	5.22*	- 0.085*	- 0.11 (0.05)
Total R^2	0.601			

*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$

32% of the variance in depressive symptoms ($p < 0.001$). In the next block, levels of stressors accounted for an additional 25% of the variance, $F(1,319) = 189.08$, $p < 0.001$. In block 3, the four personal coping variables together accounted for an additional 2.3% of the variance, $F(4,315) = 4.47$, $p = 0.002$. Analyses of Beta coefficients in the final regression model showed the following: mindfulness, $Beta = -0.158$, $p = 0.001$; self-compassion, $Beta = -0.114$, $p = 0.025$; resilience, $Beta = 0.036$, $p = 0.426$; and spirituality, $Beta = 0.008$, $p = 0.849$. These results provide partial support for the hypothesized partial relationships of the four coping resource variables with depressive symptoms, in that mindfulness and self-compassion each accounted for significant additional variance in symptoms.

In the final block, the stress-X-spirituality interaction term, which accounted for approximately 1% additional variance in depressive symptoms, $F(1,314) = 5.22$, $p = 0.023$, entered the equation, thereby providing support for the hypothesized moderation effect of spirituality on the relation of stressors to depressive symptoms. VIF levels were well within acceptable bounds.

Figure 2 illustrates the relation of stressors to depressive symptoms at three levels of spirituality (the mean and 1 SD below and above the mean). All three lines show higher levels of depressive symptoms at higher levels of stressors: lower spirituality, $b = 0.90$, $p < 0.001$, moderate spirituality, $b = 0.82$, $p < 0.001$, and higher spirituality, $b = 0.74$, $p < 0.001$. The moderation effect is demonstrated in that the higher the level of spirituality, the less the increment in symptoms as stressors increase. Similar to the finding above with SWL, although the regression analysis shows that the relationship between stressors and depressive symptoms differs significantly at different levels of spirituality, the difference in slopes at levels of spirituality one standard deviation

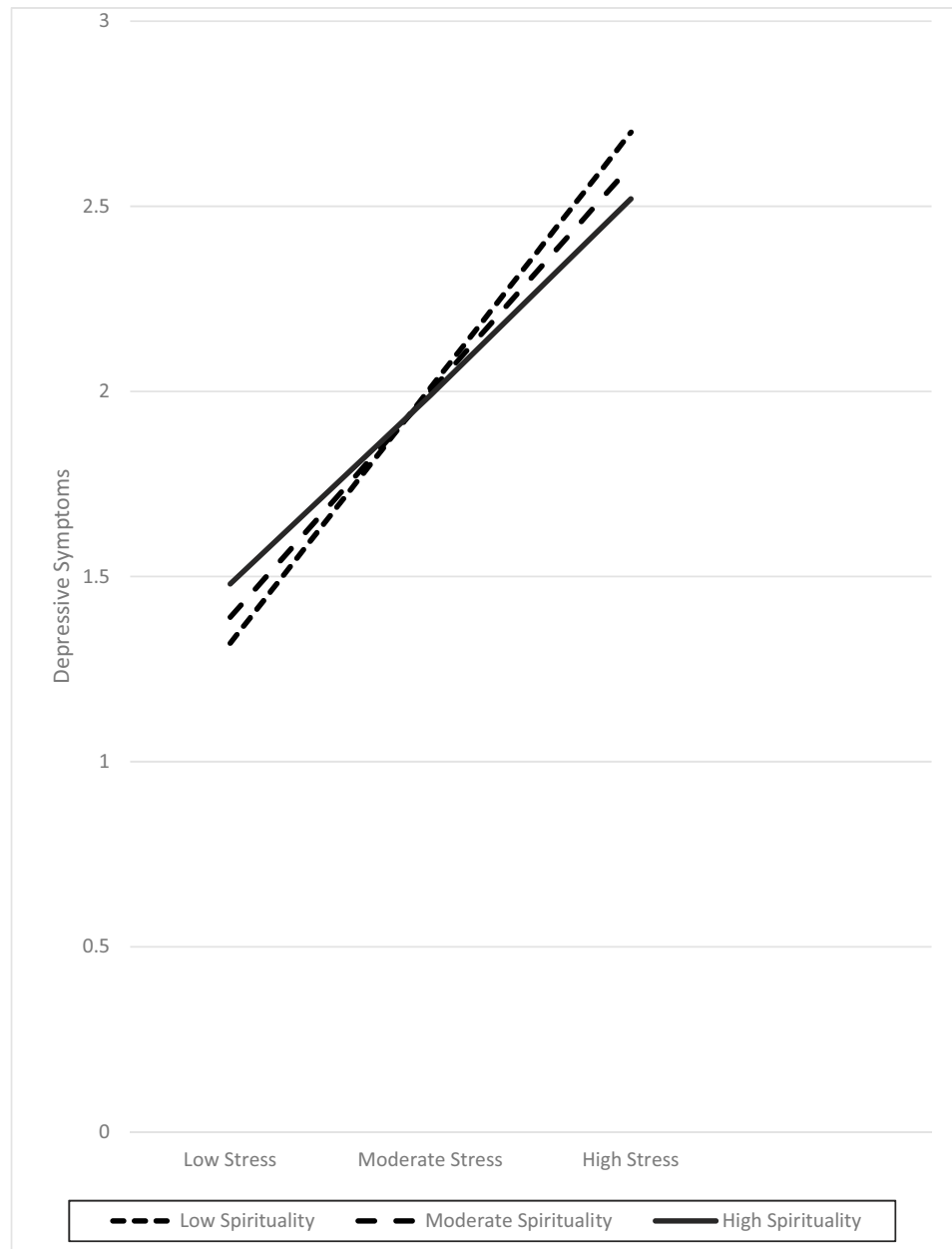
below and above the mean is significant at the $p < 0.10$ but not the $p < 0.05$ level, $t(321) = 1.62$, $p = 0.053$.

Discussion

The present study examined the stress and coping process among emerging adults who were U.S. residents and were either attending, or had attended, college. The study focused on four coping resource variables that have been of interest in positive psychology research over the past 20 years, namely resilience, mindfulness, self-compassion, and spirituality but, to date, not examined together in a study. These were included in the present study to examine the zero-order and partial relation of each of these to criterion variables of overall satisfaction with life (SWL) and depressive symptoms. Hierarchical multiple regression analyses were used to test each of the coping resources as predictors, controlling for the influence of personality traits and stressors. In addition, the moderating effect of spirituality was examined. Collinearity analyses showed the four resource variables to be sufficiently independent predictors.

To examine these influences, the authors included relevant demographic variables (gender, age, race/ethnicity, college attendance) and the five personality factors as covariates. However, because none of the demographic variables were significantly related to either outcome variable, they were not included in the multiple regression analyses. Consistent with some previous studies (e.g., Smith et al., 2017; Wilkins et al., 2012), the authors included personality traits as covariates to eliminate them as potential confounds. Hierarchical multiple regression analyses showed a somewhat different pattern of influences of personal coping resources on the two outcome variables.

Fig. 2 Interaction effect of stressors and spirituality on depressive symptoms



Resilience

Resilience, along with the other three coping resource variables, was significantly related to both life satisfaction and symptoms of depression in zero-order correlation analyses. In addition, after controlling for the variance accounted for by personality traits and sources of stress, resilience, one's perceived ability to contend with life's changes, pressures, and failures, emerged as a strong predictor of one's general satisfaction with life. Additional significant predictors of SWL included self-compassion and spirituality.

This finding regarding resilience underscores the importance of learning to overcome adversity through flexibility,

determination, and learning from life's failures and setbacks. Some research (Crane et al., 2019) has proposed that reflecting on experiences that have made life stressful has the potential to strengthen one's ability to cope effectively with subsequent stress, thereby increasing one's resilience. Building resilience takes place in a context of social environmental influences that may include exposure to models of effective coping and significant others who support one's development of determination to succeed. Consistent with the previous research (e.g., Lai & Mak, 2009), resilience in the present study showed a stronger relation to positive well-being than to negative well-being and did not factor in the prediction of depressive symptoms in partial analyses

wherein other personal resource variables showed a stronger influence. In addition, with personality traits and stressors accounting for more than 55% of the variance in depressive symptoms, the failure of resilience to account for additional significant variance could suggest that higher levels of personality traits, such as neuroticism, and stressors may limit the ability of resilient individuals to employ effective flexible and proactive coping strategies to protect against negative affect.

Mindfulness

In the regression analysis predicting symptoms of depression, mindfulness emerged as the strongest of the four positive coping resources after accounting for the impact of personality and stressors. Self-compassion also contributed to the prediction of depressive symptoms; in both cases, higher levels of the positive coping resource predicted lower levels of depressive symptoms. Possessing higher levels of mindfulness indicates an ability to attend without judgment to negative emotional states without being overwhelmed by them. Being mindfully aware of symptoms of depression due to life's stressors can enable individuals to engage in behaviors that minimize the potentially negative effects of stressors (Neff & Germer, 2017; Zubair et al., 2018). Having been employed in numerous intervention studies (e.g., Goldberg et al., 2018; Jagielski et al., 2020; Kabat-Zinn, 2003) designed to reduce distress levels of medical patients suffering from cancer and other illnesses, mindfulness-based stress reduction (MBSR) and similar interventions have as their central focus the development of the skill of attending to negative emotions with acceptance and withholding negative self-appraisals. No conclusion can be reached about how the variation in mindfulness scores came about for participants; however, findings of the present study suggest that undertaking some kind of mindfulness-based practice has the potential for reducing distress, regardless of personality, in the presence of life stressors.

Although mindfulness had an equally strong zero-order correlation with life satisfaction as it did with symptoms, it did not contribute to the prediction of SWL in hierarchical multiple regression analyses. Since emerging adulthood is a time of making strides toward creating a stable and satisfying life (Arnett, 2000, 2016; Levinson, 1986), being mindfully aware that one has not yet achieved one's desired goals would not necessarily contribute to greater life satisfaction at this stage of development, especially in the presence of considerable stress.

Self-compassion

In zero-order correlation analyses, self-compassion demonstrated a strong positive relation to life satisfaction and a

strong negative relation to depressive symptoms, in addition to accounting for additional significant variance in both criterion variables in multiple regression analyses. Different from both resilience and mindfulness, as well as from self-esteem, self-compassion describes a quality of responding to suffering or stress that avoids dysfunctional self-perceptions but rather reframes stress or failure in a way that recognizes one's commonality with others who suffer similarly and employs the capacity of mindfulness to accept difficult feelings with an attitude of self-kindness (Neff & Germer, 2017; Neff & McGehee, 2010). In this way, the quality of self-compassion enables one to put problems into perspective and learn from mistakes and adds to one's resilience, as well as one's quality of mindful awareness. The Mindful Self-Compassion (MSC) training program developed by Neff and Germer (2013, 2017) has been effective in helping participants grow in self-compassion and subsequently demonstrate improvement in such qualities as life satisfaction and declines in depressive and anxiety symptoms. Self-compassion is a quality that can be developed through practices such as loving-kindness meditation (Lv, 2020), a central component of MSC training.

Spirituality

Results of the present study suggested a unique role for personal spirituality, operationalized as a perception that life is sacred, that one experiences a connection to "all of life," and that one's spirituality brings strength and comfort, whether or not one holds a belief in a deity. In the present study, spirituality was found to be significantly related to both depressive symptoms and life satisfaction in zero-order analyses and accounted for additional variance in multiple regression analyses either as an additional predictor (as in the case of SWL) or as a moderator, as was the case with both criterion variables. It is important to note that the relation of personal spirituality to symptoms of depression was low in zero-order correlation analyses (accounting for 3% of the variance) and non-significant in the prediction of symptoms in multiple regression analyses. This finding was similar to that of Fabricatore et al. (2000), who suggested that the failure to show a strong relation of spirituality to symptoms is consistent with contemporary spiritual and religious thought in which people are often encouraged to find comfort and hope in the midst of difficult times (see also Kornfield, 2009; Rohr, 2019).

The moderator effect identifies spirituality as a buffer of the stress process in that at higher levels of spirituality experiencing higher levels of stressors does not diminish one's life satisfaction quite as much as it does for emerging adults who possess lower levels of spirituality. A similar buffering effect was found with respect to depressive symptoms, such that the relation of stressors to symptoms was less strong,

although still existent, for emerging adults possessing higher levels of spirituality compared to those lower in spirituality. These types of effects are consistent with those reported in the previous research (Fabricatore et al., 2000; Hettler & Cohen, 1998). The findings take on added importance in that these relations were still evidenced after variance was removed from the effects of the large number of variables included in the regression analyses.

In addition, the present study adds to this research by identifying spirituality as a transcendent quality that provides meaning, comfort, and direction, but does not reference a belief in a Higher Power. As a stress buffer, emerging adults who possess this type of spiritual orientation seem to possess a quality that enables them to find satisfaction in life and minimize symptoms of depression even in the face of higher levels of life stressors, compared to those individuals who lack such a spiritual orientation. Also noteworthy is that the participant sample in the present study, unlike those from the Fabricatore et al. (2000) and Hettler and Cohen (1998) studies, which were selected from Christian contexts, more closely resembles the diversity of religious affiliations and spiritual identifications of U.S. emerging adults identified in the most recent Pew Research Study (2020).

Additional Considerations

The different constellations of coping resource relations in the hierarchical multiple regression analyses beg further consideration, given that resilience was a relatively strong predictor of satisfaction with life but did not account for additional variance in the prediction of depressive symptoms and that mindfulness showed the opposite pattern. The difference may lie in the nature of resilience that is developed as one learns from mistakes and develops flexibility and a positive outlook that brings about success with an attitude of “Look at what I can accomplish.” Mindfulness, on the other hand, is not concerned so much with accomplishing but rather with developing and maintaining more of a peace of mind that comes with an acceptance of one’s present situation. Because mindfulness involves withholding judgment about oneself, even when one fails, it is likely to lessen symptoms of depression that come about from negative self-judgments (Brown & Ryan, 2003; Kabat-Zinn, 1990/2005; Neff & Germer, 2017).

Limitations and Future Directions

A number of limitations of the present study include the cross-sectional nature of the research design. In addition, although it is difficult to generalize the findings to other groups of emerging adults, the findings from the present study should encourage researchers to examine the effects

of the positive coping resources examined here among other samples. Also, although there were some potential threats to construct validity involved in removing some items from published surveys, the resulting forms of these surveys did not seem to compromise this validity, possibly reduced the amount of overlap with other coping variables examined, and increased the probability that respondents would complete the entire set of items. Using TurkPrime ensured a sample of individuals that met specified conditions, thus increasing the quality of the sample pool, but this approach also may have limited the sample to individuals experienced in taking online surveys. At the same time, the sample showed itself to be relatively diverse and representative of this age group with respect to religious affiliation and race/ethnicity, although it had a larger percentage of women participants.

The inclusion of personality traits as a covariate provides a higher level of internal validity to the study but this may also contribute to Type II error by making it more difficult to uncover significant sources of variance in the variables provided by the personal coping resources that were the primary focus of the study. The inclusion of personality attributes in similar research studies should continue to be considered among researchers examining the kinds of coping variables included here. However, given the low alpha reliabilities of some of the brief personality scales used in this study, alternative personality assessments might be considered.

The present study might also serve as a foundation for continued work on the different roles played by resilience, mindfulness, and self-compassion, all of which can be developed through formal and informal programs and processes. Intervention and prevention programs designed to develop mindfulness and self-compassion, in particular, have been shown to improve the lives of numerous individuals suffering from difficult life stressors (Neff & Germer, 2017; Treleaven, 2018). Such programs could also be considered for adolescents at risk for poor developmental outcomes as emerging adults. Mindfulness and self-compassion activities have also been employed in successful psychotherapies (Polak, 2016), as is the case for authors of this study. Finally, the field would benefit from continued examination of different ways to conceptualize and operationalize personal spirituality, especially among emerging adults, who are less likely than older adults to identify as religious or claim affiliation with a particular religious group or denomination (Pew Research Center, 2020).

Conclusion

The present study provides a unique perspective on the stress and coping process among emerging adults that makes a substantial contribution to the understanding of effective coping resources that contribute to higher life satisfaction

and lower levels of depressive symptoms during a challenging transitional developmental period. Particularly noteworthy are the findings related to the different contributions that spirituality, mindfulness, resilience, and self-compassion make in enhancing life satisfaction and minimizing depressive symptoms in the face of life's stressors, regardless of personality. Such a multilayered study as this is rare and these findings may help mentors, counselors, advisors, and the like in their work with college students and other adolescents and emerging adults. Still, there are more depths to plumb to develop further an understanding of how to optimize human functioning and flourishing for emerging adults as they navigate the challenges of this developmental period.

Data Availability The raw data, analysis code, and materials used in this study are not openly available but are available upon request to the corresponding author. The data collection and analysis were approved by and pre-registered with the institutional review board at the authors' host institution.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Research Involving Human Rights The authors have complied with APA ethical standards in this research with human participants.

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