Emotional Complexity and Emotional Well-being in Older Adults: Risks of High Neuroticism

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Abstract

Older and midlife adults tend to report greater emotional complexity and greater emotional wellbeing than younger adults but there is variability in these factors across the lifespan. The current study determined how the personality trait of Neuroticism at baseline predicts emotional complexity and emotional well-being 10 years later; a goal was to determine if Neuroticism is a stronger predictor of these emotion outcomes with increasing age in adulthood. Data were from two waves of the MIDUS projects ($N = 1,503$; aged 34 to 84). Greater Neuroticism predicted less emotional complexity as indicated by associations between Positive (PA) and Negative Affect (NA), particularly for older participants. Neuroticism predicted lower emotional well-being and this association was stronger for older and midlife than for younger adults. Overall, high Neuroticism may be greater liability for poor emotion outcomes for older and perhaps for midlife adults than for younger persons. Clinical and theoretical implications of this conclusion are discussed.

Keywords

Age; Positive Affect; Negative Affect; Neuroticism; Older Adults; MIDUS; Emotional complexity; Emotional well-being

Change in emotion during adult development is a topic of considerable theoretical and clinical interest. Socioemotional selectivity theory (SST) is the most influential contemporary theory of adult emotional development and suggests, in part, that older adults prioritize emotion goals to a greater extent than younger persons and that emotional well-being and emotional complexity will be greater in later than early adulthood (Carstensen, 2006). Differential Emotions Theory (DET) also suggests that emotions become more complex with age due to increasingly elaborate cognitive connections between different emotions (Magai, Consedine, Krivoshekova, Kudadjie-Gyamfi, & McPherson, 2006). Dynamic Integration Theory (DIT) is a complex and rich theory that predicts age-based differences in well-being and emotional complexity based on capacities for integration of cognitive capacities with affective experiences (Helson & Soto, 2005; Labouvie-Vief, 2003; Labouvie-Vief & Medler, 2002). The current longitudinal study investigates age group differences in emotional well-being and emotional complexity, central issues to all of these theories, and extends current theoretical focus by determining how the individual differences factor of Neuroticism can influence age-based emotion outcomes.

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Emotional Well-being and Age

There are several excellent reviews and summaries of changes in affect with age (Consedine & Magai, 2006; Kunzmann, Little, & Smith, 2000). Cross-sectional and longitudinal data are fairly consistent, indicating that Negative Affect (NA) decreases from younger to midlife to older adulthood, at least until old-old age (i.e., greater than age 80), when a slight upturn might occur. Nonetheless, levels of NA in older and midlife groups are routinely lower than for younger adults. Changes in Positive Affect (PA) are equivocal and thus overall, the balance of PA to NA is more favorable in older than younger persons. Age group differences in affect and well-being are important to identify because affect is linked with physical and mental health outcomes. For example, lesser NA is associated with adaptive coping (Billings, Folkman, Acree, & Moskowitz, 2000) and better physical (Mayne, 1999) and mental health (Cook, Orvaschel, Simco, Hersen, & Joiner, 2004).

Emotional Complexity and Age

The complexity of affect also differs with age. Emotional complexity is a rich construct that is operationalized in different ways (Ready, Carvalho, & Weinberger, 2008). From one perspective, emotional complexity is indicated by relatively greater independence in affect indicators. For example, younger persons tend to report PA and NA experiences that are correlated more strongly and negatively than for older adults; associations between PA and NA are more independent for older persons (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Ong & Bergeman, 2004; Ready et al., 2008). Greater independence among affect terms (i.e., greater emotional complexity) is found more for older than younger persons using different methodologies, including momentary sampling data (Carstensen et al., 2000), current affect ratings and narrative descriptions of emotion memories (Ready et al., 2008), and in a cognitive priming study (Ready, Robinson, & Weinberger, 2006). Few studies on emotion complexity focus on midlife adults and it is unclear if midlife persons are more similar to younger or older persons or somewhere in between with regard to emotional complexity.

Although there are not strong empirical data to indicate if greater or lesser emotional complexity is a more optimal outcome, SST and DIT suggest that complex and differentiated emotional experiences may be a sign of optimal development (Carstensen et al., 2000; Labouvie-Vief & Medler, 2002; Ong & Bergeman, 2004). Emotional complexity may signal emotional maturity, richer and more nuanced emotional experiences, and a greater ability to experience and tolerate mixed emotions.

Thus, on average, there is greater emotional well-being and greater emotional complexity in older adults but these data mask individual differences. The current study sought to better understand individual differences in emotional complexity and emotional well-being by focusing on a particularly robust predictor of affect, the personality trait of Neuroticism. We determined how baseline Neuroticism is associated with emotional complexity and emotional well-being, measured 10 years later, in adults ranging in age from 34 to 84. We ascertained if Neuroticism is a stronger predictor of emotion outcomes with greater age.

Neuroticism and Emotion in Aging

Neuroticism is of particular interest in understanding age group differences in emotion outcomes because it tends to be lower in older than younger persons (McCrae, 2002; McCrae et al., 1999; Ready & Robinson, 2008; Roberts, Walton, & Viechtbauer, 2006) and it is a strong predictor of emotional experience in adults of all ages (Charles, Reynolds, & Gatz, 2001; Gruenewald, Mroczek, Ryff, & Singer, 2008; Harris & Lucia, 2003; Isaacowitz & Smith, 2003; Ready & Robinson, 2008). Neuroticism is a personality trait that maintains a

great deal of stability over the course of adult development, and among persons who do change on this trait, the change tends to occur over long-term periods, such as years or decades (Mroczek & Spiro, 2003). In contrast, measures of affect assess emotion states that are more short-lived and occur over a circumscribed period of time, such as a moment, day, week, or month.

Persons higher in Neuroticism are less likely to show reductions in NA over time and are more likely to decrease in PA and thus, Neuroticism predicts lesser well-being over time (Charles et al., 2001). Griffin et al. (2006), in a longitudinal study of affect in men, found that Neuroticism was associated with higher NA and with less decline in NA over time. Not surprisingly, Neuroticism is strongly associated with symptoms of depression and anxiety in younger and older adults (Jylhä & Isometsä, 2006).

Neuroticism also has cross-sectional associations with emotional complexity in older adults (Ong & Bergeman, 2004) and in a daily sampling study, Neuroticism was associated with less emotional differentiation (Carstensen et al., 2000). That is, greater Neuroticism was associated with more 'simple structure' in emotion reports. Despite the wealth of data on Neuroticism, emotion, and age, there is little understanding of longitudinal associations between Neuroticism, emotional well-being, and emotional complexity and if the magnitudes of these associations vary by age.

The Current Study

The goal of the current project was to address this gap in the literature by determining longitudinal associations between age, Neuroticism, and emotional well-being and emotional complexity in a large sample of adults. The study determined how Neuroticism at baseline predicted emotional complexity and emotional well-being 10 years later, with a particular focus on differential predictive ability of Neuroticism by age. This project is exploratory because the differential impact of Neuroticism on emotion outcomes in aging is not known. Given that Neuroticism is such a strong predictor of emotion outcomes and high Neuroticism is atypical in older adults (McCrae, 2002; McCrae et al., 1999; Ready & Robinson, 2008; Roberts et al., 2006), we speculated that high Neuroticism might be associated with particularly poor emotion outcomes (i.e., less well-being and less emotional complexity) for older relative to younger and midlife adults.

Method

Procedure

MIDUS I data were collected in 1995–1996. Participants were selected from telephone banks and were recruited over the telephone via a random-digit-dialing procedure. All eligible participants were non-institutionalized, English-speaking adults. A list was generated for the individuals between the ages of 25 to 74 for each household, and one respondent from each household was selected at random. Respondents were invited to participate in a phone interview (approximately 30 minutes) and to complete two, mailed self-administered questionnaires (approximately 2 hours in length). Therefore, the overall response rate was 60.8%.

MIDUS II data were collected in 2004–2006. Participants from MIDUS I were invited to participate in the second phase of data collection. The respondents were offered monetary incentives to encourage participation. Approximately 81% of MIDUS I participants completed the phone interview and the questionnaires for MIDUS II.

Sample

Data were collected from participants (N = 2,257) in two waves of the MIDUS studies, which occurred approximately 10 years apart (Radler & Ryff, in press). Persons who reported a neurologic disorder at MIDUS I or II (n = 260) or had unknown neurologic status (n = 20) were excluded. An additional 474 persons were missing self-report affect or personality data. Usually data were missing because respondents elected not to answer a sufficient number of affect or personality items (20% or greater) to calculate a reliable score for one or more of these constructs. It is not clear why respondents skipped items; perhaps they did not understand some items, felt like a few items did not apply to them, or could not judge their standing on the items. The final sample was composed of 1,503 persons. The current study sample was not unusually healthy; there only were small different in health ratings between the full and study samples. For example, at MIDUS II, participants rated their current health on a 10-point scale (0 = worst, 10 = best). Mean scores were slightly yet significantly higher in the current sample (M = 7.42, SD = 1.53) relative to the original sample (M = 7.29, SD = 1.65; t = 2.51, df = 3291, p < .05).

Average age was 55.77 years (Table 1, range 34 to 84), education category averaged 7.1 (SD = 2.5; scale: 0 = no school to grade 6; 12 = Ph.D., M.D., or other professional degree) and average income was \$58,049 (SD = \$48,140). There was no significant correlation between age and income (r = .04 p > .15). Overall, the majority of participants were Caucasian (90.3%) and female (55%). Education was negatively and significantly correlated with Age but the effect size was small (r = −.13, p < .01). Most participants (n = 931; 68.7%) were married at baseline and the remainder were never married (n = 143; 10.6%) or were divorced, separated, or widowed (n = 281; 20.7%). We coded marital status as *married* (n = 931) and *not married* (n = 424) for analyses.

Measures—The trait of Neuroticism was assessed with a 4-item scale at MIDUS I. Items were selected from existing inventories (Bem, 1981; Goldberg, 1992; John, 1990; Trapnell & Wiggins, 1990) by MIDUS investigators: moody, worrying, nervous, calm [reverse scored]) (Prenda & Lachman, 2001). Participants were asked how well each item described him/her in general on a 4-point scale (1 = not at all; 4 = a lot). Internal consistency reliability for the current sample was .76.

Affect items were selected by MIDUS investigators after a comprehensive review of the literature and relevant scales to provide comprehensive yet brief assessments of NA and PA. Eleven items measured NA at MIDUS II. Item responses were made on a 5-point scale (i.e., "During the past 30 days, how much of the time did you feel …;" 1 = none of the time, 5 = all of the time). Items were: sad, nervous, restless/fidgety, hopeless, everything was an effort, worthless, afraid, jittery, irritable, ashamed, and upset. One of these items was redundant with an item in the Neuroticism scale (i.e., nervous) and this item was not used to calculate NA. Thus, the NA scale consisted of 10 items with internal consistency reliability of alpha = 0.86. The length of the ten-item scale is an asset in the current study because more items serve to increase the variability in NA scores. In past work on age and affect, floor effects on NA scores were a limitation (Charles, Reynolds, & Gatz, 2001) and at MIDUS I, PA and NA scales were limited to five items each.

Ten items assessed PA at MIDUS II: cheerful, in good spirits, extremely happy, calm, satisfied, full of life, enthusiastic, attentive, proud, and active. One of these items was redundant with an item in the Neuroticism scale (i.e., calm) and this item was not used to calculate PA. Internal consistency reliability for the 9-item PA scale was strong (alpha = 0.91).

Analyses

Our exploratory hypothesis was that Neuroticism would be negatively associated with Emotional Complexity and Emotional Well-being, particularly for older adults. First, we determined if Neuroticism was associated with lesser Emotional Well-being 10 years later. Emotional Well-being was operationalized as the ratio between PA and NA, with greater scores indicating greater PA relative to NA; there is precedence for such conceptualizations of emotional well-being in previous studies (Bradburn, 1969; Frederickson & Losada, 2005; Schwartz, Reynolds, Thase, Frank, & Fasiczka, 2002) although we recognize that there are other ways to conceptualize emotional well-being. We determined if Neuroticism at baseline was associated with future Emotional Well-being and if this association was moderated by age.

Second, we determined if Neuroticism at baseline predicted Emotional Complexity 10 years later. The degree of bipolarity between PA and NA, or the strength of the correlation between PA and NA, was our indicator of Emotional Complexity; greater bipolarity (i.e., greater negative correlation) indicated less complexity and a correlation closer to zero indicated greater complexity (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Ong & Bergeman, 2004). We determined if Age moderated associations between Emotional Complexity and Neuroticism.

In both analyses, individual differences in health, education, gender, and marital status were controlled. Health is linked to age differences in emotion (Kunzmann et al., 2000). Education showed a small but significant association between age and education. Gender and marital status have been linked to emotion outcomes in the MIDUS data (Mroczek & Kolarz, 1998). All predictors in all regressions were mean-centered prior to analyses.

Results

Preliminary Analyses

Descriptive statistics for and correlations between age, affect, and personality are in Table 1. PA and NA were correlated more highly than expected ($r = -0.55$). Two confirmatory factor analyses (CFA) were run to determine if a one- or two-factor solution was more optimal to characterize the PA and NA affect items. The one-factor model ($\chi^2 = 234.14$, $df = 152$, $p = 0.00002$, RMSEA = 0.020, NNFI = 0.95, SRMR = 0.026, CFI = 0.96) was a poorer fit than the two-factor model ($\chi^2 = 207.78$, $df = 151$, $p = 0.00150$, RMSEA = 0.017, NNFI = 0.97, SRMR = 0.025, CFI = 0.98) because the chi-square change between these nested model was significant ($\Delta \chi^2 = 26.36$, T $df = 1$, $p < .001$). Thus, despite their significant correlation, NA and PA are better treated as distinct constructs than a singular affect scale.

Regressions in the current study treat age as a continuous variable but to understand age group differences in affect and personality, participants were divided into three groups: Younger (aged 34–44), Midlife (aged 45–64), and Older (aged 65 and greater). An ANOVA revealed significant age group differences in Emotional Well-being and Neuroticism (Table 2). Tukey post hoc comparisons indicated that older adults had significantly ($p < .05$) greater well-being than younger persons. Younger persons had significantly ($p < .05$) greater Neuroticism than midlife and older adults. Age group analyses also were run to illustrate findings pertaining to age in regression analyses (below).

Neuroticism and Emotional Well-being

The longitudinal association between Neuroticism and future Emotional Well-being was investigated. A moderated multiple regression determined how Age, Neuroticism, and the interaction between Age and Neuroticism predicted the Emotional Well-being; these factors

were entered in a blocked manner, one after the other, after all control variables were entered in the model. Neuroticism was significantly and negatively associated with Emotional Well-being (Table 3). Age was significantly and positively associated with Emotional Well-being. The interaction between Age and Neuroticism in predicting Emotional Well-being was of primary interest and this factor was significant. To illustrate this interaction, baseline Neuroticism scores were correlated with emotional well-being, reported 10 years later, separately for older ($r = -0.38$), midlife ($r = -0.45$), and younger adults ($r = -0.21$). Baseline Neuroticism was more strongly predictive of future emotional well-being for older and midlife participants than for younger adults.

Neuroticism and Emotional Complexity

The longitudinal association between baseline Neuroticism, Age, and future Emotional Complexity was determined. A multiple regression was run with NA as the dependent variable and PA as an independent variable because emotional complexity, as operationalized in this study, is captured by the association between these two variables. To determine the moderating effects of age on the associations between NA and PA, Age and the interaction between PA and Age (i.e., PA * Age) were entered into the regression in a forward blocked manner; if the interaction term was significant ($p < .05$) then the associations between PA and NA (i.e., emotional complexity) differed by age. Next, baseline Neuroticism and associated interaction terms were entered into the model to determine the moderating effects of Neuroticism on the association between NA and PA. The final moderated multiple regression equations were:

$NA = \alpha + \beta_1 *$ Education $+ \beta_2 *$ Health $+ \beta_3 *$ Gender $+ \beta_4 *$ Marital Status $+ \beta_5 *$ PA $+ \beta_6 *$ Age $+ \beta_7 * (PA * Age) + \beta_8 *$ Neuroticism $+ \beta_9 * ($Neuroticism $*$ Age$) + \beta_{10} *$ (PA * MII Neuroticism) $+ \beta_{11} * (PA *$ Neuroticism $*$ Age$) + \mu$

In most steps, greater PA and lower physical health ratings were significantly associated with lower NA (Table 4). In step 3, the interaction between Age and PA was not significant, indicating that associations between PA and NA were not moderated by age. In steps 4, 5, and 6, Neuroticism at baseline was a significant predictor of greater NA. In steps 5 and 6, the interaction between PA and Neuroticism was a significant predictor of NA. To illustrate the effect of this interaction, the sample was split into thirds (high, medium, low) based on Neuroticism scores. Persons higher in Neuroticism had a slightly lower association between PA and NA ($r = -0.55$; i.e., greater emotional complexity) than persons in lower Neuroticism ($r = -0.58$) but the size of this difference was negligible.

In steps 6 and 7, the interaction between Age and Neuroticism was associated with NA, indicating that the correlation between NA and Neuroticism was greater for older adults ($r = 0.59$) than for midlife ($r = 0.42$) and younger adults ($r = 0.39$). In step 7, the three-way interaction between PA, Age, and Neuroticism was significant. The association between PA and NA differed more based on Neuroticism scores, rated 10 years earlier, for older than younger persons. In other words, the association between PA and NA was more strongly negative, indicating less emotional complexity, for older adults higher in baseline Neuroticism ($r = -0.55$; $n = 21$) than for older adults lower in baseline Neuroticism ($r = -0.25$; $n = 57$). For younger persons, the effect of Neuroticism was less strong and was in the opposite direction; for younger persons lower in Neuroticism the association between PA and NA was stronger ($r = -0.64$; $n = 25$) than for younger persons with higher baseline Neuroticism $r = -0.45$; $n = 87$). Midlife persons were intermediate between older and younger adults for the effect of baseline Neuroticism on future Emotional Complexity; the correlation between PA and NA was nearly identical for persons low ($r = -0.60$; $n = 78$) versus high Neuroticism ($r = -0.56$; $n = 185$).

Discussion

Overall, young-old and midlife adults report a more favorable profile of NA to PA than younger persons, suggesting greater emotional well-being (Carstensen et al., 2000; Charles et al., 2001; Kunzmann et al., 2000; Lawton, Kleban, & Dean, 1993; Mroczek & Kolarz, 1998). Older adults also appear to experience greater emotional complexity than younger persons (Carstensen et al., 2000; Ready, Carvalho, & Weinberger, 2008; Ready, Robinson, & Weinberger, 2006).

Aging-related changes in the personality trait of Neuroticism may be one reason that some older adults report different emotion experiences than younger persons. Mean levels of Neuroticism tend to decrease, on average, during adult development, although they do not decrease at the same rate for everyone (McCrae, 2002; McCrae et al., 1999; Mroczek & Spiro, 2003; Ready & Robinson, 2008; Roberts, Walton, & Viechtbauer, 2006). Such decreases may result in better, broader, and richer emotional experiences in later life. This hypothesis is supported by results of the current study. A major finding was that Neuroticism is more strongly linked to emotion outcomes for older than younger persons.

An implication of these findings is that relatively high Neuroticism may be a liability for older adults. Older adults higher in Neuroticism at baseline had less emotional complexity than older adults lower in Neuroticism and Neuroticism was a strong predictor of emotional wellbeing for older persons. In contrast, emotional complexity and emotional well-being were not as strongly dependent on earlier Neuroticism scores for younger persons. Midlife adults were similar to older adults for emotional well-being; Neuroticism was a strong predictor of future well-being for midlife participants. For emotional complexity, Neuroticism did not appear to have strong effects on emotional complexity for midlife adults.

Other investigators also found significant associations between Neuroticism and emotional complexity in older adults. Ong and Bergeman (2003), in a daily diary study of adults aged 60–85 years, found that within person associations between PA and NA were better explained by individual differences in Neuroticism than by age. Carstensen et al. (2000) found that within-person PA-NA correlations were significantly associated with age and Neuroticism in a sample of younger, midlife, and older adults.

High Neuroticism is a risk for poorer emotional outcomes in persons of all ages but particularly for older adults because Neuroticism had stronger associations with emotion outcomes for older than younger persons. These findings have clinical implications. Older adults reporting high Neuroticism might be targeted for interventions to improve emotional well-being. The same applies to midlife adults. We did not assess risk for future depressive disorders but it is reasonable to speculate that older and midlife adults high in Neuroticism are at greater risk for depressive symptoms in the future than are persons lower in Neuroticism. Emotions appear to have a more simplified structure in older and midlife adults who are higher in Neuroticism at baseline. The simplified structure means that high NA is linked more strongly to low PA and stronger links between NA and PA may be a risk for depressive symptoms because depression is characterized *jointly* by greater NA and less PA (Mineka, Watson, & Clark, 1998). Further, the uncoupling of PA and NA can be a source of resilience and a buffer against depressive symptoms (Showers, 1992a).

Our findings call for some expansion of dominant theories about emotion change with age. Whereas influential psychological theories, such as SST (Carstensen, 2006), DIT (Labouvie-Vief, Diehl, Jain, & Zhang, 2007), and DET (Magai et al., 2006) identify and explain normative changes in emotion with age, they could be modified to incorporate more focus on personality and other relevant individual-differences factors.

For example, according to SST, older persons (and others who have a limited time perspective; e.g., terminally-ill patients) have different goals and priorities than younger persons (Carstensen, 2006). Older adults focus more on emotion-relevant goals, which may result in better emotional well-being due to increased focus on positive information and emotional complexity may be fostered by poignant moments in later life. It is not clear, however, what is happening differently in older persons who are high in Neuroticism and why, as our results suggest, they do not experience as great a benefit in terms of emotional well-being and emotional complexity. Neuroticism has been linked with emotion regulation and reactivity in young adults (Robinson, Moeller, & Fetterman, 2010; Wang, Shi, & Li, 2009). Perhaps older adults who are relatively high in Neuroticism still prioritize emotion goals but they may have less effective means to regulate and control emotions and emotion reactions than persons who are lower in Neuroticism.[1] Thus, they may experience less well-being and may have less tolerance for complex emotions. Alternately, perhaps older adults who are relatively high in Neuroticism do not prioritize emotion goals to the same extent as other older persons. These are important questions for future research. Exploring how and why some older adults do not conform to normative developmental trajectories is needed for a fuller understanding of emotion development and how best to help persons achieve optimal outcomes as they mature.

DIT also is useful to understand age group differences in emotion (Labouvie-Vief et al., 2007). This theory is focused more on individual difference factors than SST but mostly as they pertain to cognition. That is, DIT predicts differences in well-being and emotional complexity based on capacities for integration of cognitive and affective factors (Helson & Soto, 2005; Labouvie-Vief, 2003; Labouvie-Vief & Medler, 2002) and often these capacities vary by age. Incorporating personality traits such as Neuroticism into this richly complex model of development would serve to increase its utility to understand adult development and emotion and why, as our data suggest, some older adults do not fare as well with regard to emotion outcomes than others.

Limitations

There were no age group differences in PA and NA, which might suggest our sample was atypical. However, there was a slight increase in PA and a slight decrease in NA with age and thus, the balance of PA to NA was significantly greater with age., which is consistent with data suggesting greater emotional well-being in older than younger persons (Consedine & Magai, 2006; Kunzmann et al., 2000).

The sample was not representative of the entire MIDUS study because a substantial subset of respondents did not answer sufficient affect or personality items to be included in analyses; further, data were not missing at random. Loss of representativeness is a limitation.

The measure of Neuroticism was brief and there was limited diversity in the sample; both factors are a liability for this study. Further, there were only two assessment occasions which allowed only for testing of linear models between Neuroticism and emotion outcomes. It might have been better to explore curvilinear associations between Neuroticism and emotion outcomes and also to have more assessments, allowing for multilevel modeling. However, there are few large data sets with longitudinal data on personality and affect and thus these data are an excellent beginning to explore associations between Neuroticism and emotion outcomes in adults spanning a large age-range.

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Conclusions and Future Research

Individual differences in Neuroticism are associated with future emotional well-being and emotional complexity. Neuroticism was a stronger predictor of emotion outcomes for older than for younger persons, indicating it is an important construct to understand in emotion development. Intriguing questions follow from this research. What lies at the root of age-based changes in Neuroticism and lack thereof? Given that Neuroticism has strong and robust effects on age-related differences in emotion, identification of the mechanism underlying change or lack thereof in Neuroticism over time holds promise illuminate critical aspects of successful aging. Further, for persons who are high in Neuroticism, change in affect over time does not appear to be favorable and a better understanding of how to intervene in this process might provide tools to guard against late-life depressive symptoms.

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Table 1

Descriptive Statistics for and Correlations between Age, Affect, and Personality

Variable	M	SD	2	3	4	5
1. Age	55.77	12.13	−0.10	0.08	0.13	−0.14
2. NA	1.47	0.45		−0.55	−0.83	0.37
3. PA	3.51	0.63			0.84	−0.28
4. Ratio of PA to NA	2.62	0.93				−0.39
5. Neuroticism	2.23	0.65				

Note. NA = negative affect; PA = positive affect; Neuroticism was measured 10 years prior to NA andPA. All correlations are significant ($p < .01$).

Table 2

Descriptive Statistics for Affect and Neuroticism: Younger, Midlife, and Older Adults

Variable	Younger		Midlife		Older		F(df)
	M	SD	M	SD	M	SD	
Age	39.41	3.14	54.62	5.54	72.13	5.06	3287.24 (2,1352) **
NA	1.49	0.37	1.49	0.49	1.43	0.39	1.70 (2,1300)
PA	3.47	0.59	3.51	0.66	3.56	0.60	1.46 (2,1313)
Emotional Well-being	2.50	0.83	2.63	0.97	2.70	0.88	3.16 (2,1273) *
Neuroticism	2.34	0.68	2.22	0.66	2.16	0.59	6.38 (2,1352) **

Note. NA = negative affect; PA = positive affect. Younger adults aged 34–44 (*n* = 281); Midlife aged 45–64 (*n* = 741); Older aged 65 and greater (*n* = 333).

*
p < .05;

**
p < .01

Table 3

Emotional Well-Being Moderated Regression: Predicting Well-being from Age and Neuroticism

Dependent Variable	Independent Variables	B	SE	Beta	t
Block 1	Physical Health Rating	−0.24	0.02	−0.25	−9.79 **
	Education	−0.02	0.01	−0.06	−2.31 **
	Gender	0.01	0.05	0.01	0.21
	Marital Status	0.04	0.05	0.02	0.72
	Neuroticism	−0.52	0.04	−0.36	−14.25 **
	$R^2 = 0.21$, $F(5,1268) = 67.94$ **				
Block 2	Physical Health Rating	−0.26	0.02	−0.27	−10.51 **
	Education	−0.02	0.01	−0.05	−1.92
	Gender	0.01	0.05	0.00	0.11
	Marital Status	0.05	0.05	0.02	0.93
	Neuroticism	−0.49	0.04	−0.34	−13.44 **
	Age	0.01	0.00	0.12	4.83 **
	$\Delta R^2 = 0.01$, $\Delta F(1,1267) = 23.33$ **				
Block 3	Physical Health Rating	−0.26	0.02	−0.27	−10.54 **
	Education	−0.02	0.01	−0.05	−1.96
	Gender	0.01	0.05	0.00	0.10
	Marital Status	0.05	0.05	0.02	0.93
	Neuroticism	−0.51	0.04	−0.36	−13.86 **
	Age	0.01	0.00	0.12	4.71 **
	Neuroticism * Age	−0.01	0.00	−0.82	−3.25 **
	$\Delta R^2 = 0.006$, $\Delta F(1,1266) = 10.57$ **				

Note. NA = Negative Affect; PA = Positive Affect. All variables were centered prior to analyses.

*
$p < .05$,

**
$p < .01$

Table 4

Emotional Complexity Moderated Multiple Regression: Predicting NA from PA, Age, and Neuroticism

Dependent Variable	Independent Variables	B	SE	Beta	t
Block 1	Physical Health Rating	0.05	0.01	0.12	4.27[**]
	Education	0.00	0.00	−0.00	−0.09
	Gender	0.05	0.02	0.06	2.34[*]
	Marital Status	0.02	0.02	0.02	0.68
	PA	−0.23	0.01	−0.51	−21.29
	$R^2 = 0.46$, $F(5,1268) = 115.42$[**]				
Black 2	Physical Health Rating	0.06	0.01	0.13	5.21[**]
	Education	−0.00	0.00	−0.01	−0.32
	Gender	0.05	0.02	0.06	2.36[*]
	Marital Status	0.01	0.02	0.01	0.54
	PA	−0.22	0.01	−0.50	−20.73[**]
	Age	0.00	0.00	−0.08	−3.17[**]
	$\Delta R^2 = 0.01$, $\Delta F(1,1267) = 10.04$[**]				
Block 3	Physical Health Rating	0.06	0.01	0.13	5.22[**]
	Education	0.00	0.00	−0.01	−0.32
	Gender	0.05	0.02	0.06	2.36[*]
	Marital Status	0.01	0.02	0.01	0.54
	PA	−0.24	0.05	−0.53	−4.61[**]
	Age	0.00	0.01	−0.11	−0.77
	PA [*] Age	0.02	0.08	0.04	0.22
	$\Delta R^2 = 0.01$, $\Delta F(1,1266) = 0.05$				
Block 4	Physical Health Rating	0.05	0.01	0.12	4.75[**]
	Education	0.00	0.00	0.00	0.05
	Gender	0.03	0.02	0.03	1.20
	Marital Status	0.01	0.02	0.01	0.57

Dependent Variable	Independent Variables	B	SE	Beta	t
	PA	−0.23	0.05	−0.51	−4.57**
	Age	−0.01	0.01	−0.12	−0.92
	PA * Age	0.04	0.08	0.10	0.56
	Neuroticism	0.15	0.02	0.22	9.25**
	$\Delta R^2 = 0.04$, $\Delta F(1,1265) = 85.53$**				
Block 5	Physical Health Rating	0.05	0.01	0.12	4.95**
	Education	0.00	0.00	0.00	−0.06
	Gender	0.02	0.02	0.02	1.00
	Marital Status	0.01	0.02	0.01	0.31
	PA	−0.04	0.06	−0.08	−0.59
	Age	0.00	0.01	0.05	−0.40
	PA * Age	0.00	0.08	0.00	−0.01
	Neuroticism	0.54	0.08	0.79	6.62**
	PA * Neuroticism	−0.26	0.05	−0.59	−4.86**
	$\Delta R^2 = 0.01$, $\Delta F(1,1264) = 23.60$**				
Block 6	Physical Health Rating	0.06	0.01	0.12	5.03**
	Education	0.00	0.00	0.00	−0.03
	Gender	0.02	0.02	0.02	0.99
	Marital Status	0.01	0.02	0.01	0.30
	PA	−0.06	0.06	−0.14	−1.00
	Age	0.01	0.01	−0.36	−2.11*
	PA * Age	0.05	0.08	0.12	0.63
	Neuroticism	0.34	0.11	0.50	3.14**
	PA * Neuroticism	−0.27	0.05	−0.60	−4.96**
	Age * Neuroticism	0.16	0.06	0.36	2.77**
	$\Delta R^2 = 0.004$, $\Delta F(1,1263) = 7.67$**				
Block 7	Physical Health Rating	0.06	0.01	0.12	4.99**

Dependent Variable	Independent Variables	B	SE	Beta	t
	Education	0.00	0.00	0.00	-0.08
	Gender	0.02	0.02	0.02	0.89
	Marital Status	0.01	0.02	0.01	0.41
	PA	-0.45	0.17	-1.08	-2.60 **
	Age	-0.05	0.02	-1.42	-3.01 **
	PA * Age	0.70	0.28	1.56	2.48 *
	Neuroticism	-0.60	0.41	-0.88	-1.48
	PA * Neuroticism	0.37	0.27	0.83	1.37
	Age * Neuroticism	0.90	0.31	1.98	2.88 **
	PA * Age * Neuroticism	-0.76	0.32	-1.71	-2.40 *
	$\Delta R^2 = 0.003$, $\Delta F(1,1262) = 5.76$ *				

Note. NA = Negative Affect; PA = Positive Affect; MI = MIDUS I; M2 = MIDUS II. All variables were grand-mean centered prior to analyses.

*
$p < .05$,

**
$p < .01$