**Adolescent Personality Development as a Longitudinal Marker for
Burnout and Happiness in Emerging Adulthood**

İldeniz B. Arslan^{*1}, Nicole Lucassen¹, Amaranta D. de Haan¹, Joran Jongerling¹, Arnold B. Bakker¹ and Peter Prinzie¹

Draft version 1, 1/6/21.

This paper has not been peer reviewed.

Please do not copy or cite without author's permission.

¹ Department of Psychology, Education & Child Studies, Erasmus University Rotterdam,
Burgemeester Oudlaan 50, 3000 DR Rotterdam, the Netherlands.

^{*}Corresponding author information: İldeniz B. Arslan, Burgemeester Oudlaan 50, 3000 DR
Rotterdam, the Netherlands, (e-mail: arslan@essb.eur.nl), ORCID: [0000-0002-0967-578X](https://orcid.org/0000-0002-0967-578X).

Abstract

Emerging adulthood can be experienced as a stressful period because of instability and unsettlement. Some emerging adults may experience burnout symptoms if the stressors accumulate or become chronic over time, others may thrive and develop into more happy individuals. Personality might be an important factor explaining this heterogeneity in functioning. Although personality is relatively stable over time, there are important individual differences in personality development. Given the importance of personality for (mal)adaptive functioning, an important question is whether individual differences in personality development from adolescence to emerging adulthood are associated with burnout and happiness in emerging adulthood. At Time 1 (2009; M age = 15.7 years), Time 2 (2012), and Time 3 (2015), participants ($N = 329$; 43.1% boys) reported on their Big Five personality dimensions: extraversion, agreeableness/benevolence, conscientiousness, emotional stability, and openness/imagination. Burnout symptoms (exhaustion, disengagement) and happiness (life satisfaction, overall affect) were measured through self-reports at Time 4 (2018). Initial levels of all personality dimensions (except benevolence) were negatively related to fewer burnout symptoms. Initial levels of all personality dimensions were related to more happiness. Stronger increases in extraversion, emotional stability, and imagination, were related to fewer burnout symptoms and more happiness in emerging adulthood. Results indicate the importance of studying personality *development* as determinants of later functioning, above and beyond effects of initial levels of personality. Findings offer new insights in the field of personality, occupational, and positive psychology for the longitudinal study of personality as antecedent of (mal)adaptive functioning, and provide important clues for future research.

Keywords: Longitudinal; Big Five Personality Development; Individual Differences; Burnout Symptoms; Happiness

Introduction

There is a growing scientific and societal interest in how individuals function in emerging adulthood as they develop in a transition period (age 18 to 25 years) characterized by opportunities, identity exploration, feeling in-between, and instability in all life domains (Arnett et al., 2014). Accordingly, emerging adulthood may be experienced as a stressful developmental period in life (Arnett, 2000; Arnett et al., 2014; Foster et al., 2008). These experiences may develop into burnout symptoms if the stressors emerging adults are confronted with accumulate over time and become chronic. However, emerging adulthood may also be experienced as a period of challenges during which individuals may thrive and develop into happy individuals showing adaptive behavior (Switek & Easterlin, 2018). Indeed, emerging adults show considerable heterogeneity in their levels of functioning (Arnett, 2000; 2007; Scales et al., 2016). Personality is suggested to be an important factor explaining this heterogeneity in functioning, as certain personality traits may predispose individuals to interpret situations as more negative, resulting in maladaptive functioning (Bakker & De Vries, 2021; Swider & Zimmerman, 2010, Van Eldik et al. 2020), or more positive, resulting in adaptive functioning (Garcia, 2011; Ozer & Benet-Martinez, 2006). Most studies on the long-term relation between personality and functioning assessed personality at only one time point in life (e.g., Shiner & Masten, 2012), thereby implicitly assuming that personality is static. Studies on personality change have indeed shown that personality traits are relatively stable over time, but there are important individual differences in personality change during adulthood (Anusic & Schimmack, 2016; Caspi et al., 2005; McCrae & Costa, 1999; Roberts et al., 2006) and even more so during childhood and adolescence (De Haan et al., 2017; Van den Akker et al., 2014). As theory and empirical literature suggest that personality changes (from adolescence on) and personality (development) are significantly linked to (mal)adaptive functioning, we examined how

individual differences in personality development from adolescence to emerging adulthood are related to burnout and happiness in emerging adulthood.

The current study addresses several knowledge gaps. Firstly, this study provides unique knowledge on how individual differences in initial levels and *development* of personality relate to burnout symptoms and happiness in emerging adulthood. Second, our study focuses on the understudied role of individual characteristics, and more specifically personality, as predictor of burnout symptoms. Third, our focus on happiness, next to burnout, in emerging adults rests on the positive psychological perspective that absence of problems does not indicate healthy functioning (Westerhof & Keyes, 2010; World Health Organization, 2006). Thus, adding an adaptive measure as a counterweight to a maladaptive view is needed to add valuable knowledge to our understanding of an individual's wellbeing (Arslan et al., 2021).

Individual Differences in Personality Development and (Mal)Adaptive Functioning

The *Big Five* approach of personality constitutes one of the best established and most often used model applicable to humans of all ages (Caspi & Shiner, 2006; Costa & McCrae, 1992). Five distinct personality domains are identified: Extraversion (being sociable, talkative), Agreeableness (Benevolence with regard to child personality; Mervielde & De Fruyt, 1999) (being cooperative, good-natured, helpful), Conscientiousness (responsible, orderly, organized), Emotional Stability (versus Neuroticism; level of emotional adjustment and stability), and Openness (Imagination with regard to child personality; Mervielde & De Fruyt, 1999) (being imaginative, creative, having unconventional values).

Over the years, a solid empirical ground has been established supporting the notion that personality characteristics are an important predictor of functioning (Costa et al., 2019; McCrae & Costa, 1999). Longitudinal studies show that child and adolescent personality has far-reaching influences. For example, Shiner and Masten (2012) found that emotional

stability in children (8-12 years of age) was positively related to academic achievement 10 years later and work competence 20 years later. It is notable, however, that most studies on the association between personality and functioning approach personality characteristics as stable features of individuals by measuring personality at one specific point in life in relation to later outcomes (e.g., Hampson et al., 2007; Shiner & Masten, 2012). However, personality is in fact not static but changes from childhood on (McCrae & Costa, 1999; Roberts & DelVecchio, 2000; Roberts, Walton & Viechtbauer, 2006). These changes often happen in relation to certain life experiences or transitions (Lodi-Smith & Roberts, 2007; Lüdtke et al., 2011; Wrzus & Roberts, 2017), for example, because of physical and hormonal changes related to puberty (Paikoff & Brooks-Gunn, 1991), increases in identity formation (Meeus et al., 1999), or increasing autonomy (Galambos & Costigan, 2003).

Results from several studies indicate that mean-level personality changes from mid-adolescence into emerging adulthood are directed towards greater maturity (i.e., the five personality dimensions increase), also referred to as the *maturity principle* (Caspi et al., 2005; Klimstra et al., 2009). Increases in personality traits can help individuals to perform better on age-graded tasks, meaning that changes in personality may relate to the new social roles that are taken (*Social Investment Theory*; Roberts et al., 2005). Entering college, starting a paid job, or becoming involved in romantic relations can require individuals to become more structured, more organized, and less egocentric (Roberts et al., 2008). In this light, one can expect that personality changes towards maturity (indicated by increased levels of extraversion, benevolence, conscientiousness, emotional stability, and imagination) are related to higher levels of adaptive behavior and lower levels of maladaptive behavior. In sum, the changing nature of personality implies that it is important to study initial levels (intercepts) and changes (slopes) in Big Five personality dimensions as determinants of later functioning.

Besides mean-level changes, studies on changes in personality from adolescence on show that there are individual differences present in personality change over time (e.g., Branje et al., 2006; Klimstra et al., 2009; Van den Akker et al., 2010), which may explain why some individuals show more maladaptive behaviors, whereas others show more adaptive behaviors later in life. To our knowledge, few studies focused on individual differences in Big Five personality development in relation to later (maladaptive) functioning, such as the study by Van den Akker and colleagues (2010). This study was based on the same study sample as the current study but conducted in the earlier developmental period of ages 8 to 14 years. Van den Akker and colleagues (2010) reported that decreases in benevolence, conscientiousness, and emotional stability were related to higher levels of externalizing problems and decreases in extraversion and emotional stability were associated with more internalizing problems in adolescents. Our research extends these important initial findings on personality development in relation to functioning later in life by focusing on the developmental phase of mid-adolescence into emerging adulthood (ages 14 to 23), functioning outcomes at a later age (age 25; emerging adulthood), a different measure of maladaptive functioning (burnout symptoms), and by adding an outcome of adaptive functioning (happiness).

Personality and Burnout Symptoms

Burnout is most often defined as a chronic stress response, characterized by feelings of exhaustion and disengagement from one's job or education (Demerouti et al., 2010; Maslach et al., 2001). Exhaustion refers to the long-term consequence of intensive affective, cognitive, or physical stressors. Disengagement comprises distancing from and having negative attitudes toward the job or education in general or the object and content (Demerouti et al., 2003). Burnout may have a substantial impact on personal functioning, including educational or occupational performance, absenteeism, or physical health (Bakker,

Demerouti & Sanz-Vergel, 2014; Maslach et al., 2001; Salmela-Aro & Read, 2017). In addition, burnout may spill over to other psychological problems or physical problems (Kim et al., 2011; Salmela-Aro & Read, 2017). According to *Job Demands-Resources* (JD-R) theory (Bakker & Demerouti, 2017; Demerouti et al., 2001), burnout results from a complex interplay between demands and resources. Demands and (lack of) resources as antecedents of burnout are most often grouped into organizational, occupational, and individual factors (Maslach et al., 2001; Swider & Zimmerman, 2010). Within JD-R theory, organizational and occupational factors, such as time pressure, job control, opportunities for development, performance feedback, and social support have been studied most often as resources (Aronsson et al., 2017). Individual factors in relation to burnout, such as personality, have been suggested to play a major role as well (Bakker & Demerouti, 2017; Bianchi, 2018; Schaufeli & Taris, 2013; Swider & Zimmerman, 2010). Yet, personality is often overlooked as, or considered a more distant, predictor of burnout compared to job-related factors (Swider & Zimmerman, 2010).

Personality traits may predispose individuals to interpret situations as more negatively and react more negatively in stressful situations, which can result in increased burnout symptoms (see for a meta-analysis, Swider & Zimmerman, 2010). Individuals low in emotional stability (i.e. high levels of neuroticism) are generally more anxious, fearful, and nervous (Costa & McCrae, 1985). This heightened vulnerability to negative stimuli makes individuals low in emotional stability more prone to interpreting their (work) environment as more stressful, and therefore more prone to developing burnout symptoms (Bakker et al., 2006; Swider & Zimmerman, 2010). Further, individuals high in extraversion are more likely to experience positive emotions, such as optimism and cheerfulness, resulting in more positive evaluations of their work or education and in turn less burnout symptoms (Mustafa et al., 2014). Of all five personality traits, emotional stability and extraversion received most

attention within the burnout research (e.g., Bianchi, 2018; Fornés-Vives et al., 2019), which underscores the need to examine the other personality dimensions in relation to burnout as well.

Implementing a Salutogenic View on Functioning: Personality and Happiness

Knowledge on the link between personality and burnout entails information about *maladaptive* functioning only, or in other words, the presence of problems in emerging adulthood. This negativity bias of functioning (i.e., the *pathogenic* view) characterizes most of the child, adolescent, and adult developmental and occupational psychology research (Bakker & Derks, 2010; Marques et al., 2011; Mittelmark et al., 2017). However, the pathogenic view does not entail the full continuum of functioning, because an individual may not experience problems and not experience wellbeing at the same time (Westerhof & Keyes, 2010; World Health Organization, 2006). Complementing the pathogenic view by the *salutogenic* perspective (i.e., promoting adaptive functioning) yields a more complete picture of functioning (i.e. the two-continua model of Keyes; Keyes, 2002, 2005, 2014). The application of a salutogenic view in psychological research is scarce; according to Schaufeli and Salanova (2007) publications on maladaptation, such as depression, appear to exceed those on adaptation, such as happiness, by a ratio of 16:1. Since the publication of their study, the number of studies implementing the salutogenic view increased, but still is limited (Mittelmark et al., 2017). The salutogenic view is actually reflected when the JD-R model is explained by two distinct processes that can take place (Bakker & Demerouti, 2007; Jenny et al., 2016): the *positive motivational process* and the *negative health-impairment process*. Brauchli and colleagues (2015) referred to this salutogenic implementation of the JD-R model as the *JD-R Health Model* in which the negative health-impairment process is labeled as a direct pathogenic path to maladaptive outcomes, such as anxiety or depression (Jenny et

al., 2016). The positive motivational process is referred to as a direct salutogenic paths to adaptive outcomes.

Happiness, or subjective wellbeing, is a strong indicator of adaptive functioning in positive psychology (Ackerman et al., 2018). Happiness consists of a cognitive component (i.e. life satisfaction) and an affective component (i.e. presence of positive emotions and absence of negative emotions; Diener, 1984; Diener et al., 1999). A large number of studies showed that more happiness was related to better functioning across many life domains, such as friendships, romantic relations, work performance, and educational success (Lyubomirsky et al., 2005; Oswald et al., 2015). In fact, Lyubomirsky et al. (2005) showed that personality accounted for as much as 50% of the variance in happiness. A meta-analysis by Steel and colleagues (2008) on the Big Five personality dimensions found highest correlations for emotional stability with life satisfaction and negative affect, and for extraversion with positive affect. Individuals high in extraversion and emotional stability tend to interpret situations and their environment more positively, resulting in more adaptive functioning, such as experiencing more happiness (Garcia, 2011; Ozer & Benet-Martinez, 2006). More recent meta-analytical evidence also revealed that effect sizes were largest specifically for extraversion and emotional stability, followed by conscientiousness (Anglim et al., 2020). The two dimensions of benevolence and imagination were less consistently and less strongly correlated with happiness.

The Current Study

In this study, the link between individual differences in initial levels and in the development of Big Five personality from adolescence into emerging adulthood (14-23 years) and burnout symptoms and happiness in emerging adulthood (mean age 25 years) is examined in a community-based sample (see Figure 1 for the conceptual model). Firstly, we expect initial levels of extraversion and emotional stability to be negatively related to burnout

symptoms – in the current study represented by disengagement and exhaustion. Second, we hypothesize that initial levels of extraversion and emotional stability are positively related to happiness, in the current study represented by life satisfaction and overall affect. Because benevolence, conscientiousness and imagination are relatively understudied personality dimensions in relation to burnout symptoms and inconsistently related to the happiness, no a priori hypotheses are made with regard to their initial levels in relation to both burnout symptoms and happiness in emerging adulthood. Finally, based on the theoretical implications of the personality maturity principle, earlier findings on initial levels of personality in relation to burnout and happiness, and the single study by Van den Akker and colleagues (2010) examining individual differences in personality development in relation to maladaptive functioning, we expect stronger increases in all five personality dimensions over time to be related to less burnout symptoms and more happiness in emerging adults.

Figure 1. Conceptual model with personality from adolescence into emerging adulthood, and burnout symptoms and happiness in emerging adulthood. T = time; $I_{\text{personality}}$ = intercept personality; $S_{\text{personality}}$ = slope personality.

Method

Participants and Procedure

The current study is part of the ongoing longitudinal <name study> consisting of nine waves (1999 – 2018). The study procedures were approved by the <name board>. The original study sample was randomly selected from 167 schools in <country>. A detailed description of the study design and recruitment of participants is presented previously (see e.g., Prinzie et al., 2003). Data from the sixth (2009; Time 1 [T1], $N = 449$), seventh (2012; Time 2 [T2], $N = 438$), eighth (2015; Time 3 [T3], $N = 387$) and ninth (2018; Time 4 [T4], $N = 367$) waves were used as these waves contained the measures of interest. The final sample ($N = 329$) consisted of participants from whom information with regard to personality was available on T1, and T2 *or* T3 *and* who participated at T4 (T1 $N = 307$; T2 $N = 313$; T3 $N = 307$; T4 $N = 329$). Attrition analyses with participants who participated at T1, T2, T3 and T4 ($n = 284$) compared with participants with missings on either T2 or T3 but *not* on T1 and T4 ($N = 45$) showed no significant differences with regard to personality on T1 and sex of the child. The final sample included 142 boys and 187 girls (mean age T1 = 15.82 years, range age T1 = 12.92 to 18.25 years, mean age T2 = 18.82, T3 = 21.82, T4 = 24.82).

Measures

Adolescent Big Five personality dimensions. At T1, T2, and T3, adolescents completed the 144-item Hierarchical Personality Inventory for Children (HiPIC; Mervielde & De Fruyt, 1999), hierarchically structured under five domains: (1) Extraversion (32 items; e.g., “Talks to people easily”), (2) Benevolence (40 items; e.g., “Defends the weak”), (3) Conscientiousness (32 items, e.g., “Carries out work to the last detail”), (4) Emotional Stability (16 items; e.g., “Has confidence in own abilities”), and (5) Imagination (24 items; e.g., “Derives pleasure from creating things”). Items were rated on a five-point scale ranging from 1 (*barely characteristic*) to 5 (*highly characteristic*). Mean scores of the items for each

Big Five personality dimension were used. Cronbach's alphas ranged from .84 to .92. The factor structure of the HiPIC has been established and internal consistencies of the domains are high (Rossier et al., 2007).

Burnout symptoms in emerging adulthood. At T4, participants rated their feelings of exhaustion and disengagement towards their work/education using the Oldenburg Burnout Inventory (OLBI; Demerouti et al., 2010; Reis et al., 2015). The OLBI consists of two subscales: Exhaustion (8 items; "After work/class, I tend to need more time than in the past in order to relax and feel better") and Disengagement (8 items; "It happens more and more often that I talk about my work/study in a negative way"). Items were rated on a four-point scale ranging from 1 (*strongly agree*) to 4 (*strongly disagree*). For both scales, mean scores of the items were used. Two versions of the OLBI were used for participants who were working or studying: a version that taps into burnout symptoms related to work and a version measuring academic burnout. For participants who work and study at the same time, the statements were modified such that they referred to both work and studies. The total number of participants from whom information on burnout symptoms was used, was based on the sum of 232 participants that were working (Cronbach's alpha Exhaustion scale = .79, Disengagement scale = .82), 51 participants that were studying (Cronbach's alpha Exhaustion scale = .83, Disengagement scale = .78), and 46 participants combining work and study (Cronbach's alpha Exhaustion scale = .81, Disengagement scale = .77). Reliability and validity, and factorial invariance of the work and academic versions of the OLBI have been established before (Demerouti & Bakker, 2008; Reis et al., 2015).

Happiness in emerging adulthood. At T4, participants rated their feelings of happiness by filling out the Satisfaction with Life Scale (SWLS; Arrindell, 1991; Diener et al., 1985) and the Positive and Negative Affect Scale (PANAS; Peeters et al., 1996; Watson et al., 1998). The SWLS taps into the cognitive component of participants and consists of five

items (e.g. “In most ways my life is close to my ideal”) that were rated on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Sum scores of the items were used (Pavot & Diener, 2013). Cronbach’s alpha of Life Satisfaction in this sample was .84.

Through the PANAS the affective component of happiness was measured. Positive (10 items; Cronbach’s alpha = .87; e.g. “inspired”) and negative states (10 items; Cronbach’s alpha = .89; e.g. “upset”) were assessed on a five-point scale ranging from 1 (*very slightly*) to 5 (*extremely*). Similar to the method that was applied before (i.e., Mukolo & Wallston, 2011) Overall Affect was computed by subtracting the sum score of the negative state items from the positive state items. This method yielded negative values, therefore we added the lowest score in the sample to all scores of Overall Affect. Adequate validity has been established for both the SWLS (Arrindell, 1991) as well as the PANAS (Peeters et al., 1996).

Statistical Analyses

First, to determine personality change, univariate latent growth models were assessed through Latent Growth Curve (LGM) analyses for each personality dimension separately in Mplus 8.5 (Muthén & Muthén, 2017). We applied the full information maximum likelihood (FIML) approach (Schafer, 1997) to deal with missing values. For each personality dimension, in the first step intercept-only models were fitted in which only the intercept is specified. These (reference) models were compared with univariate linear growth models that were fitted for each personality dimension, including an intercept, a linear slope factor, and a covariance between these factors. The fit indices Bayesian Information Criterion (BIC) and the Akaike Information Criterion (AIC) were used to assess the adequacy of fit for the growth models (Bollen & Long, 1993). Fit of the models were compared based on the (Satorra-Bentler) Chi-Square Difference Test. Mean values and variances of the intercept and slope factors and intercept-slope covariances were reported for the most parsimonious model. Estimate significances were reported based on a p value of $< .05$.

Second, through Structural Equation Modeling (SEM), it was determined whether changes in personality dimensions were related to burnout symptoms and happiness in emerging adulthood. Sex of the participant was added as a covariate. Intercept and slope factors were included as predictors in the multivariate models if their variances were significantly different from zero. Outcome variables were standardized before performing the main analyses. For each personality dimension, intercept and/or slope factors were related to the burnout and happiness outcomes. Reported estimates are regression coefficients (β), standard errors, and significance for each outcome based on a p value of $< .05$.

Results

Means and standard deviations of the measures and intercorrelations between the measures of interest are depicted in Table 1.

Univariate Development of the Five Personality Dimensions

For each personality dimension, intercept-only and univariate linear growth models were fitted (see Table 2). Models indicating linear change are preferred for all five dimensions (Extraversion, Benevolence, Conscientiousness, Emotional Stability, and Imagination). Table 3 shows the means and variances of the intercept and slope factors for the personality dimensions. The mean slopes of Extraversion and Emotional Stability were significant and negative, indicating that, on average, adolescents became less extraverted and less emotionally stable from mid-adolescence to emerging adulthood. The significant mean slopes of Benevolence, Conscientiousness and Imagination were positive and indicated that, on average, adolescents became more benevolent, conscientious, and imaginative over time. The intercept variances for all personality dimensions were significantly different from zero, as confirmed by the Chi-Square Difference Test (Extraversion $\Delta\chi^2(1) = 134.57, p < .001$; Benevolence $\Delta\chi^2(1) = 88.82, p < .001$; Conscientiousness $\Delta\chi^2(1) = 12.56, p < .001$; Emotional Stability $\Delta\chi^2(1) = 99.54, p < .001$; Imagination $\Delta\chi^2(1) = 99.30, p < .001$).

Moreover, the slope variances for Extraversion, Emotional Stability, and Imagination were significantly different from zero, as confirmed by the Chi-Square Difference Test (Extraversion $\Delta\chi^2(1) = 463.65, p < .001$; Emotional Stability $\Delta\chi^2(1) = 387.62, p < .001$; Imagination $\Delta\chi^2(1) = 312.40, p < .001$), indicating variability in change over time (Duncan et al., 2006). The significant slope variances indicate that the slopes of Extraversion, Emotional Stability, and Imagination can be included as predictor in the multivariate models (Duncan et al., 2006).

Associations between Personality (Development) and Burnout Symptoms and Happiness

In order to examine relations between the five personality factors and burnout symptoms and happiness in emerging adulthood, five models were fitted for each intercept of the personality dimensions separately. For Extraversion, Emotional Stability, and Imagination the slope factor was also included as predictor (see Table 4). Higher initial levels of Extraversion and Emotional Stability were negatively associated with Exhaustion and higher initial levels of all personality dimensions (except Benevolence) were significantly related to lower scores on Disengagement. The regression paths between the slopes of personality and the burnout outcomes showed that stronger increases in Extraversion and Emotional Stability were associated with lower scores on Exhaustion. In addition, stronger increases in Extraversion, Emotional Stability, and Imagination were related to lower scores on Disengagement in emerging adulthood.

Higher initial levels of all five personality domains were related to higher scores on Life Satisfaction and to higher scores on Overall Affect in emerging adulthood. The regression paths between the slopes of personality and the happiness outcomes showed that stronger increases in Extraversion, Emotional Stability, and Imagination were related to higher scores on both Life Satisfaction and Overall Affect.

Table 1*Descriptives for the Measures of Interest*

	<i>M(SD)</i>	Time 1					Time 2					Time 3					Time 4			
Time 1		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
1. Extraversion	3.51(0.40)	-																		
2. Benevolence	3.46(0.51)	.05	-																	
3. Conscientiousness	3.28(0.53)	.15	.38	-																
4. Emotional Stability	3.39(0.67)	.31	.20	.06	-															
5. Imagination	3.49(0.46)	.37	.23	.43	.29	-														
Time 2																				
6. Extraversion	3.63(0.39)	.72	.01	.07	.22	.26	-													
7. Benevolence	3.40(0.53)	.07	.06	.24	.04	.10	.01	-												
8. Conscientiousness	3.46(0.54)	.12	.24	.62	-.02	.29	.13	.35	-											
9. Emotional Stability	3.24(0.73)	.21	.06	-.04	.69	.13	.35	.11	.01	-										
10. Imagination	3.61(0.48)	.25	.03	.17	.22	.62	.43	.07	.33	.23	-									
Time 3																				
11. Extraversion	3.67(0.40)	.62	.05	.11	.15	.17	.75	.02	.08	.28	.20	-								
12. Benevolence	3.39(0.53)	.01	.53	.16	.04	.05	.04	.67	.20	-.01	-.06	.03	-							
13. Conscientiousness	3.56(0.53)	.18	.22	.57	.001	.26	.16	.27	.75	-.01	.25	.25	.26	-						
14. Emotional Stability	3.22(0.74)	.22	.05	-.01	.56	.12	.26	.09	-.05	.73	.16	.41	.10	.06	-					
15. Imagination	3.68(0.45)	.23	.10	.19	.23	.55	.31	.07	.26	.21	.68	.40	.05	.39	.28	-				
Time 4																				
16. Burnout Exhaustion	2.22(0.43)	.22	-.11	-.10	-.08	.10	.16	-.04	-.20	-.10	-.08	-.26	-.16	-.31	-.20	-.16	-			
17. Burnout Disengagement	2.12(0.48)	.10	-.04	-.02	.17	.01	.06	.002	.02	-.23	.04	-.16	-.13	-.12	-.33	-.10	.55	-		
18. Life Satisfaction	40.60(11.14)	.26	.14	.13	.26	.12	.28	.16	.09	.32	.10	.40	.20	.18	.48	.24	-.38	-.49	-	
19. Overall Affect	25.77(5.51)	.33	.16	.14	.20	.14	.36	.11	.14	.24	.13	.44	.13	.28	.40	.25	-.41	-.32	.55	-

Table 2*Model Fit Indices of the Intercept-Only Models and Linear Growth Models*

	<u>Intercept-only model (I.)</u>			<u>Linear growth model (L.)</u>			<u>I. vs. L.</u>
	Log likelihood	AIC	BIC	Log likelihood	AIC	BIC	$\Delta\chi^2$ (df)
Extraversion	-482.067	974.14	993.12	-471.402	958.80	989.17	21.35(3)***
Benevolence	-322.775	655.55	674.53	-292.899	601.80	632.17	59.75(3)***
Conscientiousness	-591.931	1193.86	1212.84	-544.444	1104.88	1135.26	94.97(3)***
Emotional Stability	-826.235	1662.47	1681.45	-800.875	1617.75	1648.12	50.72(3)***
Imagination	-460.815	931.63	950.61	-435.404	886.81	917.18	50.82(3)***

Note. Chi-Square Difference Test: *** $p < .001$.**Table 3.***Parameter Estimates of the Univariate Latent Growth Models*

<i>Model</i>	<u>Intercept</u>		<u>Slope</u>		<u>Intercept-slope covariance</u>
	<i>M</i>	σ^2	<i>M</i>	σ^2	<i>r</i>
Extraversion	3.51***	.25***	-.02***	.003*	-.02
Benevolence	3.43***	.14**	.03***	.002	-.01
Conscientiousness	3.15***	.17**	.05***	.002	-.003
Emotional Stability	3.50***	.46***	-.04***	.01**	-.03*
Imagination	3.41***	.20***	.03***	.002*	-.01

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4.

Parameter Estimates of the Regression Paths From Adolescent Personality to Burnout Symptoms and Happiness in Emerging Adulthood.

	<u>Extraversion</u>	<u>Benevolence</u>	<u>Conscientiousness</u>	<u>Emotional Stability</u>	<u>Imagination</u>
Parameters	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
I _{personality} → Burnout exhaustion	-.35(1.15)*	-.09(0.21)	-.98(0.13)	-.41(0.11)***	-.09(0.15)
S _{personality} → Burnout exhaustion	-.40(1.45)*	-	-	-.10(1.05)***	-.27(2.03)
I _{personality} → Burnout disengagement	-.06(1.14)***	-.29(0.20)	-.58(0.14)***	-.33(1.05)**	-.39(0.16)*
S _{personality} → Burnout disengagement	-.44(1.38)**	-	-	-.08(0.96)***	-.44(2.11)*
I _{personality} → Life satisfaction	.95(0.13)***	.57(.20)**	.51(.15)***	.62(.10)***	.53(0.15)***
S _{personality} → Life satisfaction	.04(1.85)***	-	-	.01(.98)***	.03(2.82)*
I _{personality} → Overall affect	.82(0.14)***	.58(0.24)*	.39(.14)**	.72(.10)***	.49(1.16)**
S _{personality} → Overall affect	.08(1.83)***	-	-	.01(.99)***	.05(2.79)*

Note. I_{personality} = intercept personality; S_{personality} = slope personality. * $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

The current study investigated whether individual differences in initial levels and development of the Big Five personality dimensions throughout adolescence into emerging adulthood were related to burnout symptoms and happiness in emerging adulthood. Findings revealed that increases of extraversion, emotional stability, and imagination throughout adolescence were related later functioning, above and beyond effects of initial levels of personality. These findings support our expectation that changes towards maturity in personality from mid-adolescence are related to more adaptive functioning and less maladaptive functioning in emerging adulthood. Moreover, we extended the findings of the study of Van den Akker and colleagues (2010) by showing that development of personality dimensions were related to maladaptive functioning *as well as* adaptive functioning and in a later developmental period (from 14 years onwards). This study broadens our knowledge of personality (development) as longitudinal antecedent of burnout symptoms and happiness, and provides novel insights for the fields of personality psychology, occupational psychology, and positive psychology.

Personality and Burnout Symptoms

We found that initial levels of extraversion, conscientiousness, emotional stability, and imagination were related to disengagement. In addition, extraversion and emotional stability were related to exhaustion. Thus, initial levels of conscientiousness and imagination were negatively related to the disengagement dimension of burnout, but unrelated to exhaustion from work and/or education. These asynchronous findings might be driven by the explanation that exhausted individuals are less *able* to invest effort in their work or education, whereas disengaged individuals are less *willing* to invest effort (Bakker & De Vries, 2021). Imaginative individuals are curious, open to new experiences and desire uniqueness, change, and variety (Costa & McCrae, 1992). At work, such skills yield more proactive work

behavior, such as more anticipation on and positively adjusting of future goals (Parker et al., 2006). Such skills promote positive experiences with regard to work or education and therefore may decrease feelings of disengagement. Since individuals high in conscientiousness are characterized by a strong self-discipline, effective organization, and excellent time-management skills (Costa & McCrae, 1992; Kim et al., 2009), they have a strong work ethic and achievement motivation. These characteristics help highly conscientious individuals to be fully invested in their work roles. Indeed, previous research on the link between personality and work engagement (the opposite of burnout) has shown that conscientiousness is positively related to engagement (Mäkikangas et al., 2013). Regarding the link between conscientiousness and exhaustion, it should be noted that conscientiousness helps employees to deal with their work tasks and reach their goals (Bakker et al., 2006), but will simultaneously cost effort. Those who persist in the face of difficulties do not stop when feeling tired. Instead, they overrule their fatigue to reach their work-related goals, and will achieve their goals with fatigue as a side effect (see, Hockey, 1993). In short, conscientiousness will help individuals to reach their goals which is energizing, but this will also come at the cost of substantial effort, which depletes resources. The net result is that conscientiousness and exhaustion are not related.

With regard to personality development, adolescents who became more extraverted, emotionally stable, and imaginative over time, showed less disengagement towards their work or education in emerging adulthood. Also, stronger increases in adolescents' emotional stability and extraversion (but not imagination) were also related to less feelings of exhaustion later in life. Hence, in addition to initial levels (stability) of personality, which has received most attention within research, the current study found that *changes* in extraversion, emotional stability, and imagination were related to burnout symptoms. These findings replicate and extend knowledge from earlier studies on initial levels of personality and

burnout (Bakker et al., 2006; Bianchi, 2018; Swider & Zimmerman, 2010), because the findings on personality development yield additional and innovative information on the longitudinal role of personality on burnout symptoms. Our findings confirm the idea that personality as an individual characteristic is related to burnout symptoms (Bianchi, 2018) and suggest to consider the role of personality within future studies of the *Job Demands-Resources* (JD-R) model (Bakker & Demerouti, 2017; Demerouti et al., 2001). The role of individual characteristics such as personality, next to job-related factors, may be particularly important for future research on interventions, as to date, the predominant focus on job related factors in the JD-R model has provided ample knowledge for practical implications to tailor interventions on the workplace and organizational level.

Personality and Happiness

Our findings showed that adolescents with higher initial levels on all personality dimensions were more satisfied regarding their lives and showed more positive affect in emerging adulthood. Moreover, adolescents who became more extraverted, emotionally stable, and imaginative over time, were more happy emerging adults compared to their peers. These findings support the meta-analytical findings of Anglim and colleagues (2020) that personality dimensions are substantially correlated with happiness and extend this knowledge by providing evidence for relations *changes* in personality and happiness, and also on the long-term. Furthermore, our findings indicate that personality is not only important for functioning on the work or educational level, but entails a longitudinal indicator for general adaptive functioning in emerging adulthood as well, supporting implementation of a salutogenic view within the JD-R model. Specifically, this salutogenic approach allowed us to build further on the JD-R model towards a JD-R Health model (Jenny et al., 2016). Also, our findings on personality (development) and burnout symptoms and happiness suggest that personality seems to play a role in both of the otherwise distinct pathogenic and salutogenic

processes. As our findings support the JD-R Health Model, we emphasize the value of adding a salutogenic view on functioning, in addition to the well-studied subject of maladaptive functioning (Jenny et al., 2016).

In sum, our results highlight the importance to consider the role of maladaptive *and* adaptive outcomes in future research and interventions in order to understand why certain emerging adults thrive, whereas others experience more difficulties. The study of adaptive outcomes within research, policy, and practice can promote our knowledge on individual functioning (Seligman, 2002), which may provide insights for (re)development of prevention and intervention programs.

Personality Development as a Longitudinal Predictor of (Mal)Adaptive Functioning

Our findings showed that conclusions based on initial levels of personality do not convey the complete picture of the longitudinal role of personality. Based on initial levels of personality we might expect that an individual might show more, for example, burnout symptoms in emerging adulthood. However, if certain personality traits increase, this individual might experience less burnout symptoms on the long term. In this way, expectations based on initial levels of personality can change because personality develops over time. Knowledge on personality development in relation to later functioning is important in theoretical and practical terms. Hill and colleagues (2019) and Roberts and colleagues (2017) urged to consider the effects of personality development on later functioning, in order to understand the individual throughout life. In their meta-analysis on personality change through interventions Roberts and colleagues (2017) provided clinical evidence for the benefits of psychotherapy for personality change, particularly for emotional stability and extraversion. Our findings extend this knowledge and show that (individual differences) in these changes in personality are beneficial on the longer-term, as they are related to more or less maladaptive and adaptive functioning later in life. By building forth on the

recommendations of Hill and colleagues (2019) and Roberts and colleagues (2017), our study provides theoretical insights into certain longitudinal trajectories that put individuals in more vulnerable positions for future problematic functioning or, on the other hand, that promote successful functioning. Additionally, despite the small effect sizes, these findings on personality development may still play an important role in intervention programs on employee/student wellbeing as small effect sizes can still indicate substantial benefits within interventions (Lucassen et al., 2011; Rose, 1981). Also, burnout has a spillover effect on various domains of functioning (Kim et al., 2011; Salmela-Aro & Read, 2017). Earlier studies showed that even mild burnout symptoms were related to depression, long-term employee absenteeism, sleep problems, and an increased risk of cardiovascular diseases and even all-cause mortality (Ahola, 2007; Ahola et al., 2010; Kim et al., 2011). Hence, for public health, moderate changes of moderate risk factors are beneficial, which is especially important to take into account, as burnout is considered to be a large societal problem on the general population level (Bakker & De Vries, 2021).

Strengths and Limitations

Most studies on the long-term relation between personality and functioning assessed personality at one time point in life (initial levels), thereby implicitly assuming that personality is static. However, the changing nature of personality implies that it is important to also study personality development as determinant of later functioning. This study is one of the first studies that examined individual differences in initial levels and *development* of personality in relation to burnout symptoms and happiness in emerging adulthood. A second strength of the study relates to our longitudinal design which allowed us to study personality development across a considerable age range from 14 to 23 years of age. Thirdly, besides our focus on personality development, we addressed the understudied topic of happiness as a measure of adaptive functioning in order to implement a positive psychological perspective

on functioning. A next step for future research may be to extend the current study design and examine what factors explain the heterogeneity in personality development from midadolescence onwards in relation to burnout symptoms and happiness. The moderating role of environmental (e.g. parenting or job pressure) and biological factors (heritability) might be interesting to explore. Earlier studies suggested that personality changes are driven by parenting (Shiner & Caspi, 2003), for example, increases in benevolence and conscientiousness have been found to be related to increases in positive parenting and decreases in negative parenting (Van den Akker et al., 2014). In addition, the meta-analysis by Vukasović and Bratko (2015) showed that almost 40% of individual differences in personality are affected by genetics, compared to 60% by environmental influences.

Besides the strengths, some limitations of the current study need to be considered. Firstly, this study was based on self-report data, which runs the risk of single-reporter bias. Second, the dataset used in the current study only provided information on burnout and happiness at one timepoint: in emerging adulthood. A more precise estimation of the effects would have been retrieved by controlling for baseline measures of the outcome variables, as individuals may have differed in their initial levels and, consequently, in their rate of change of burnout symptoms and happiness.

Conclusion

The current study provides important knowledge on adolescent personality as an early determinant of (mal)adaptive functioning in emerging adulthood, by showing that initial levels and development of personality from age 14 to 23 were related to burnout symptoms and happiness in emerging adulthood. The findings were in line with earlier empirical support for the *Job Demands-Resources* (JD-R) theory (Bakker & Demerouti, 2017; Demerouti et al., 2001). Also, the results provide evidence for the JD-R health model (Jenny et al., 2016), thereby emphasizing the value of adding a positive psychological view on functioning. Our

findings that development of extraversion, emotional stability, and imagination were related to less burnout symptoms and more happiness in emerging adulthood, provide building blocks for early detection and intervention purposes. In sum, our findings indicate the importance of studying personality *development* as determinants of later functioning, above and beyond effects of initial levels of personality.

References

- Ackerman, C. E., Warren, M. A., & Donaldson, S. I. (2018). Scaling the heights of positive psychology: A systematic review of measurement scales. *International Journal of Wellbeing*, 8, 1-21. <http://dx.doi.org/10.5502/ijw.v8i2.734>
- Ahola, K. (2007). *Occupational burnout and health*. Finnish Institute Occupational Health. <https://helda.helsinki.fi/handle/10138/19788>
- Ahola, K., Väänänen, A., Koskinen, A., Kouvonen, A., & Shirom, A. (2010). Burnout as a predictor of all-cause mortality among industrial employees: A 10-year prospective register-linkage study. *Journal of Psychosomatic Research*, 69, 51–57. <http://dx.doi.org/10.1016/j.jpsychores.2010.01.002>
- Anglim, J., Horwood, S., Smillie, L. D., Marrero, R. J., & Wood, J. K. (2020). Predicting psychological and subjective well-being from personality: A meta-analysis. *Psychological Bulletin*, 146, 279–323. <http://dx.doi.org/10.1037/bul0000226>
- Anusic, I., & Schimmack, U. (2016). Stability and change of personality traits, self-esteem, and well-being: Introducing the meta-analytic stability and change model of retest correlations. *Journal of Personality and Social Psychology*, 110, 766–781. <http://dx.doi.org/10.1037/pspp0000066>
- Argyle, M. (2001). *The psychology of happiness*. London: Routledge.
- Armon, G., Shirom, A., & Melamed, S. (2012). The Big Five personality factors as predictors of changes across time in burnout and its facets. *Journal of Personality*, 80,

- 403–427. <http://dx.doi.org/10.1111/j.1467-6494.2011.00731.x>
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55, 469-480. <http://dx.doi.org/10.1037/0003-066X.55.5.469>
- Arnett, J. J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties*. Oxford University Press.
- Arnett, J. J. (2007). Emerging adulthood: What is it, and what is it good for? *Child Development Perspectives*, 1, 68–73. <http://dx.doi.org/10.1111/j.1750-8606.2007.00016.x>
- Arnett, J. J., Žukauskiene, R., & Sugimura, K. (2014). The new life stage of emerging adulthood at ages 18-29 years: Implications for mental health. *Lancet Psychiatry*, 1, 569–576. [http://dx.doi.org/10.1016/S2215-0366\(14\)00080-7](http://dx.doi.org/10.1016/S2215-0366(14)00080-7)
- Aronsson, G., Theorell, T., Grape, T., Hammarström, A., Hogstedt, C., Marteinsdottir, I., ... Hall, C. (2017). A systematic review including meta-analysis of work environment and burnout symptoms. *BMC Public Health*, 17, 1–13. <http://dx.doi.org/10.1186/s12889-017-4153-7>
- Arrindell, W. (1991). The satisfaction with life scale (SWLS): Psychometric properties in a non-psychiatric medical outpatients sample. *Personality and Individual Differences*, 12, 117–123. [http://dx.doi.org/10.1016/0191-8869\(91\)90094-R](http://dx.doi.org/10.1016/0191-8869(91)90094-R)
- Arslan, İ. B., Lucassen, N., Van Lier, P. A. C., De Haan, A. D., & Prinzie, P. (2021). Early childhood internalizing problems, externalizing problems and their co-occurrence and (mal)adaptive functioning in emerging adulthood: A 16-year follow-up study. *Social Psychiatry and Psychiatric Epidemiology*, 56, 193-206. <http://dx.doi.org/10.1007/s00127-020-01959-w>.
- Bakker, A. B., & De Vries, J. D. (2021). Job Demands–Resources theory and self-regulation:

- New explanations and remedies for job burnout. *Anxiety, Stress & Coping*, 34, 1-21.
<http://dx.doi.org/10.1080/10615806.2020.1797695>
- Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology*, 22, 309-328.
<http://dx.doi.org/10.1108/02683940710733115>
- Bakker, A. B., & Demerouti, E. (2017). Job Demands-Resources Theory: Taking stock and looking forward Job Demands – Resources Theory. *Journal of Occupational Health Psychology*, 22, 273–285. <http://dx.doi.org/10.1037/ocp0000056>
- Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. I. (2014). Burnout and work engagement: The JD–R approach. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 389–411. <http://dx.doi.org/10.1146/annurev-orgpsych-031413-091235>
- Bakker, A. B., & Derks, D. (2010). Positive occupational health psychology. In S. Leka & J. Houdmont (Eds.), *Occupational health psychology* (pp. 194–224). Wiley-Blackwell.
- Bakker, A. B., Van Der Zee, K. I., Lewig, K. A., & Dollard, M. F. (2006). The relationship between the Big Five personality factors and burnout: A study among volunteer counselors. *Journal of Social Psychology*, 146, 31–50.
<http://dx.doi.org/10.3200/SOCP.146.1.31-50>
- Bianchi, R. (2018). Burnout is more strongly linked to neuroticism than to work-contextualized factors. *Psychiatry Research*, 270, 901–905.
<http://dx.doi.org/10.1016/j.psychres.2018.11.015>
- Bleidorn, W. (2012). Hitting the road to adulthood: Short-term personality development during a major life transition. *Personality and Social Psychology Bulletin*, 38, 1594–1608. <http://dx.doi.org/10.1177/0146167212456707>
- Branje, S. J. T., van Lieshout, C. F. M., & Gerris, J. R. M. (2007). Big Five

- personality development in adolescence and adulthood. *European Journal of Personality*, 21, 45–62. [http://dx.doi.org/ 10.1002/per.596](http://dx.doi.org/10.1002/per.596)
- Brauchli, R., Jenny, G. J., Füllemann, D., & Bauer, G. F. (2015). Towards a Job Demands-Resources Health Model: Empirical testing with generalizable indicators of job demands, job resources, and comprehensive health outcomes. *BioMed Research International*, 2015. <http://dx.doi.org/10.1155/2015/959621>
- Bollen, K.A., & Long, J.S. (1993). *Testing structural equation models*. Sage.
- Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology*, 56, 453–484.
<http://dx.doi.org/10.1146/annurev.psych.55.090902.141913>
- Caspi, A. & Shiner, R.L. (2006). Personality development. In W. R. M. Lerner, N. Eisenberg, & W. Damon (Eds.), *Handbook of Child Psychology. Vol. 3. Social, Emotional and Personality Development* (6th ed., pp. 300-365). Wiley.
- Cheng, H., & Furnham, A. (2001). Attributional style and personality as predictors of happiness and mental health. *Journal of Happiness Studies*, 2, 307–327.
[http://dx.doi.org/ 10.1023/A:1011824616061](http://dx.doi.org/10.1023/A:1011824616061)
- Costa, P. T. & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences*, 13, 653-665. [http://dx.doi.org/10.1016/0191-8869\(92\)90236-I](http://dx.doi.org/10.1016/0191-8869(92)90236-I)
- Costa, P. T., McCrae, R. R., & Löckenhoff, C. E. (2019). Personality across the life span. *Annual Review of Psychology*, 70, 423–448. <http://dx.doi.org/10.1146/annurev-psych-010418-103244>
- De Fruyt, F., Bartels, M., Van Leeuwen, K. G., De Clercq, B., Decuyper, M., & Mervielde, I. (2006). Five types of personality continuity in childhood and adolescence. *Journal of Personality and Social Psychology*, 91, 538–552. <http://dx.doi.org/10.1037/0022-3514.91.3.538>

- Deary, I. J., Watson, R., & Hogston, R. (2003). A longitudinal cohort study of burnout and attrition in nursing students. *Journal of Advanced Nursing*, 43, 71–81.
<http://dx.doi.org/10.1046/j.1365-2648.2003.02674.x>
- Demerouti, E., & Bakker, A. B. (2008). The Oldenburg Burnout Inventory: A good alternative to measure burnout and engagement. In J. Halbesleben (Ed.), *Stress and burnout in health care* (pp. 65–78). Nova Sciences.
- Demerouti, E., Bakker, A. B., Nachreiner, F. & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499-512.
<http://dx.doi.org/10.1037/0021-9010.86.3.499>.
- Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments: A multitrait-multimethod analysis. *European Journal of Psychological Assessment*, 19, 12–23. <http://dx.doi.org/10.1027//1015-5759.19.1.12>
- Demerouti, E., Mostert, K., & Bakker, A. B. (2010). Burnout and work engagement: A thorough investigation of the independency of both constructs. *Journal of Occupational Health Psychology*, 15, 209-222. <http://dx.doi.org/10.1037/a0019408>
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95, 542-575.
<http://dx.doi.org/10.1037/0033-2909.95.3.542>
- Diener, E. (1994). Assessing subjective well-being: Progress and opportunities. *Social Indicators Research*, 31, 103–157. <http://dx.doi.org/10.1007/BF01207052>
- Diener, E., Colvin, C. R., Pavot, W. G., & Allman, A. (1991). The psychic costs of intense positive affect. *Journal of Personality and Social Psychology*, 6, 492-503. <http://dx.doi.org/10.1037/0022-3514.61.3.492>
- Diener, E., & Lucas, R. (1999). Personality and subjective well-being. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 213-229). Russell Sage Foundation.

- Duncan, T. E., Duncan, S. C., & Strycker, L. A. (2006). *An introduction to latent variable growth curve modelling: Concepts, issues, and applications* (2nd ed.). Erlbaum.
- Foster, Hagan, & Brooks-Gunn (2008). Growing up fast: Stress exposure and subjective “weathering” in emerging adulthood. *Journal of Health and Social Behavior*, 49, 162–177. <http://dx.doi.org/10.1177/002214650804900204>
- Friedman, H. S., Tucker, J. S., Tomlinson-Keasey, C., Schwartz, J. E., Wingard, D. L., & Criqui, M. H. (1993). Does childhood personality predict longevity? *Journal of Personality and Social Psychology*, 65, 176–185. <http://dx.doi.org/10.1037/0022-3514.65.1.176>
- Galambos, N., & Costigan, C. L. (2003). Emotional and personality development in adolescence. In I. B. Weiner (Series Ed.) & R. M. Lerner, M. A. Easterbrooks, & J. Mistry (Vol. Eds.), *Handbook of psychology: Vol. 6. Developmental psychology* (pp. 211–240). Wiley.
- Garcia, D. (2011). Two models of personality and well-being among adolescents. *Personality and Individual Differences*, 50, 1208–1212. <http://dx.doi.org/10.1016/j.paid.2011.02.009>
- Hakanen, J. J., & Bakker, A. B. (2017). Born and bred to burn out: A life-course view and reflections on job burnout. *Journal of Occupational Health Psychology*, 22, 354–364. <http://dx.doi.org/10.1037/ocp0000053>.
- Hampson, S.E., Goldberg, L.R., Vogt, T.M., & Dubanoski, J. P. (2007). Mechanisms by which childhood personality traits influence adult health status. *Changes*, 29, 997–1003. <http://dx.doi.org/10.1016/j.biotechadv.2011.08.021>
- Hill, P. L., Edmonds, G. W., & Jackson, J. J. (2019). Pathways linking childhood personality to later life outcomes. *Child Development Perspectives*, 13, 116–

120. <http://dx.doi.org/10.1111/cdep.12322>
- Hockey, G. R. J. (1993). Cognitive-energetical control mechanisms in the management of work demands and psychological health. In A.D.Baddeley & L.Weiskrantz (eds.), *Attention, selection, awareness and control. A tribute to Donald Broadbent*. Oxford University Press.
- Jenny, G. J., Bauer, G. F., Forbech Vinje, H., Vogt, K., Torp, S. (2016). The application of salutogenesis to work. In Mittelmark, M. B., Sagy, S., Eriksson, M., Bauer, G. F., Pelikan, J. M., Lindström, B. (eds), *The Handbook of Salutogenesis* (pp. 197–210). Springer.
- Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, 43, 207–222. <http://dx.doi.org/>
- Keyes, C. L. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, 73, 539–548. <http://dx.doi.org/10.2307/3090197>
- Keyes, C. L. (2014). Mental health as a complete state: How the salutogenic perspective completes the picture. In G. F. Bauer & O. Hämmig (Eds.), *Bridging occupational, organizational and public health: A transdisciplinary approach* (p. 179-192). Dordrecht: Springer. <http://dx.doi.org/10.1007/978-94-007-5640-3-11>
- Kim, H. J., Ji, J., & Kao, D. (2011). Burnout and physical health among social workers: A three-year longitudinal study. *Social Work*, 56, 258–68. <http://dx.doi.org/10.1093/sw/56.3.258>
- Kim, H. J., Shin, K. H., & Swanger, N. (2009). Burnout and engagement: A comparative analysis using the big five personality dimensions. *International Journal of Hospitality Management*, 28, 96-104. <http://dx.doi.org/10.1016/j.ijhm.2008.06.001>
- Kim, H. J., Shin, K. H., & Umbreit, W. T. (2007). Hotel job burnout: The role of personality

- characteristics. *International Journal of Hospitality Management*, 26, 421–434. <http://dx.doi.org/10.1016/j.ijhm.2006.03.006>
- Klimstra, T. A., Hale, W. W. III, Raaijmakers, Q. A. W., Branje, S. J. T., & Meeus, W. H. J. (2009). Maturation of personality in adolescence. *Journal of Personality and Social Psychology*, 96, 898–912. <http://dx.doi.org/10.1037/a0014746>
- Lodi-Smith, J., & Roberts, B. W. (2007). Social investment and personality: A meta-analysis of the relationship of personality traits to investment in work, family, religion, and volunteerism. *Personality and Social Psychology Review*, 11, 1-19. <http://dx.doi.org/10.1177/1088868306294590>
- Love, H., May, R. W., Cui, M., & Fincham, F. D. (2020). Helicopter parenting, self-control, and school burnout among emerging adults. *Journal of Child and Family Studies*, 29, 327–337. <http://dx.doi.org/10.1007/s10826-019-01560-z>
- Lucassen, N., Tharner, A., Van Ijzendoorn, M. H., Bakermans-Kranenburg, M. J., Volling, B. L., Verhulst, F. C., Lambregtse-Van den Berg, M. P., & Tiemeier, H. (2011). The association between paternal sensitivity and infant–father attachment security: A meta-analysis of three decades of research. *Journal of Family Psychology*, 25, 986–992. <http://dx.doi.org/10.1037/a0025855>
- Luyckx, K., De Witte, H., & Goossens, L. (2011). Perceived instability in emerging adulthood: The protective role of identity capital. *Journal of Applied Developmental Psychology*, 32, 137–145. <http://dx.doi.org/10.1016/j.appdev.2011.02.002>
- Lüdtke, O., Roberts, B. W., Trautwein, U., & Nagy, G. (2011). A random walk down university avenue: Life paths, life events, and personality trait change at the transition to university life. *Journal of Personality and Social Psychology*, 101, 620-637. <http://dx.doi.org/10.1037/a0023743>

- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefit of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131, 803–855. <http://dx.doi.org/>
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, 9, 111–131. <http://dx.doi.org/10.1037/1089-2680.9.2.111>
- Marques, S. C., Pais-Ribeiro, J. L., & Lopez, S. J. (2011). The role of positive psychology constructs in predicting mental health and academic achievement in children and adolescents: A two-year longitudinal study. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, 12, 1049–1062. <http://dx.doi.org/10.1007/s10902-010-9244-4>
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology* 52, 397–422. <http://dx.doi.org/10.1146/annurev.psych.52.1.397>
- Mäkikangas, A., Feldt, T., Kinnunen, U., & Mauno, S. (2013). Does personality matter? A review of individual differences in occupational well-being. In A. B. Bakker (Ed.), *Advances in positive organizational psychology: Vol. 1. Advances in positive organizational psychology* (p. 107–143). Emerald Group Publishing. [http://dx.doi.org/10.1108/S2046-410X\(2013\)00000001008](http://dx.doi.org/10.1108/S2046-410X(2013)00000001008)
- McCrae, R. R., & Costa, P. T. (1999). A five-factor theory of personality. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 139–153). Guilford.
- Meeus, W. H. J., Iedema, J., Helsen, M., & Vollebergh, W. (1999). Patterns of adolescent identity development: Review of literature and longitudinal analysis. *Developmental Review*, 19, 419–461. <http://dx.doi.org/10.1006/drev.1999.0483>
- Mervielde, I., & De Fruyt, F. (1999). Construction of the Hierarchical Personality Inventory for Children (HiPIC). In I. Mervielde, I. J. Deary, F. De Fruyt, & F. Ostendorf

- (Eds.), *Personality psychology in Europe* (pp. 107–127). University Press.
- Mischel, W., & Shoda, Y. (1995). A cognitive–affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review*, 102, 246–268. <http://dx.doi.org/10.1037/0033-295X.102.2.246>
- Mischel, W., & Shoda, Y. (1998). Reconciling processing dynamics and personality dispositions. *Annual Review of Psychology*, 49, 229–258. <http://dx.doi.org/10.1146/annurev.psych.49.1.229>
- Mittelmark, M. B., Sagy, S., Eriksson, M., Bauer, G. F., Pelikan, J. M., Lindström, B., & Espnes, G. A. (Eds.). (2017). *The Handbook of Salutogenesis*. Springer.
- Mukolo, A. and Wallston, KA (2012). The relationship between positive psychological attributes and psychological well-being in persons with HIV/AIDS. *AIDS and Behavior*, 16, 2374-81. <http://dx.doi.org/10.1007/s10461-011-0029-5>.
- Mustafa, M., Santos, A., & Chern, G. T. (2014). Emotion regulation and burnout among malaysian hr managers: The moderating role of Big Five personality traits. *International Journal of Employment Studies*, 22, 79-110. <http://dx.doi.org/10.3316/informit.901230736985563>
- Oswald, A. J., Proto, E., & Sgroi, D. (2015). Happiness and productivity. *Journal of Labor Economics*, 33, 789-822. <http://dx.doi.org/10.1086/681096>
- Ozer, D. J., & Benet-Martinez, V. (2006). Personality and the prediction of consequential outcomes. *Annual Review of Psychology*, 57, 401-421. <http://dx.doi.org/10.1146/annurev.psych.57.102904.190127>
- Paikoff, R. L., & Brooks-Gunn, J. (1991). Do parent–child relationships change during puberty? *Psychological Bulletin*, 110, 47–66. <http://dx.doi.org/10.1037/0033-782909.110.1.47>

- Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive behavior at work. *Journal of Applied Psychology, 91*, 636-652.
<http://dx.doi.org/10.1037/0021-9010.91.3.636>
- Pavot, W., & Diener, E. (2013). *The Satisfaction with Life Scale (SWL)*. Measurement Instrument Database for the Social Science.
- Peeters, F. P. M. L., Ponds, R. H. W. M., & Vermeeren, M. T. G. (1996). Affectiviteit en zelfbeoordeling van depressie en angst. *Tijdschrift Voor Psychiatrie, 38*, 240–250.
- Prinzle, P., Onghena, P., Hellinckx, W., Grietens, H., Ghesquière, P., & Colpin, H. (2003). The additive and interactive effects of parenting and children's personality on externalizing behavior. *European Journal of Personality, 17*, 95–117.
<http://dx.doi.org/10.1002/per.467>
- Reis, D., Xanthopoulou, D., & Tsaousis, I. (2015). Measuring job and academic burnout with the Oldenburg Burnout Inventory (OLBI): Factorial invariance across samples and countries. *Burnout Research, 2*, 8-18 <http://dx.doi.org/10.1016/j.burn.2014.11.001>
- Roberts B. W., & DelVecchio W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin, 126*, 3–25. <http://dx.doi.org/10.1037/0033-2909.126.1.3>
- Roberts, B. W., Kuncel, N. R., Shiner, R., Caspi, A., & Goldberg, L. R. (2007). The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science, 2*, 313-345. <http://dx.doi.org/10.1111/j.1745-6916.2007.00047.x>
- Roberts, B. W., Luo, J., Briley, D. A., Chow, P. I., Su, R., & Hill, P. L. (2017). A systematic review of personality trait change through intervention. *Psychological Bulletin, 143*, 117–141. <http://dx.doi.org/10.1037/bul0000088>

- Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 132, 1-25. <http://dx.doi.org/10.1037/0033-2909.132.1.1>
- Roberts, B. W., Wood, D., & Caspi, A. (2008). The development of personality traits in adulthood. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 375–398). The Guilford Press.
- Rose, G. (1981). Strategy of prevention: Lessons from cardiovascular disease. *British Medical Journal*, 282, 1847–1851. <http://dx.doi.org/10.1136/bmj.282.6279.1847>
- Rossier, J., Quartier, V., Enescu, R., & Iselin, A. (2007). Validation of the French version of the Hierarchical Personality Inventory for Children (HiPIC): Influence of gender and age on personality traits from 8 to 12 years. *European Journal of Psychological Assessment*, 23, 125–132. <http://dx.doi.org/10.1027/1015-5759.23.2.125>
- Ryan, R.M., & Deci, E.L. (2001). On happiness and human potentials: a review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52, 141–166. <http://dx.doi.org/10.1146/annurev.psych.52.1.141>
- Salmela-Aro, K. (2017). Dark and bright sides of thriving – school burnout and engagement in the Finnish context. *European Journal of Developmental Psychology*, 14, 337–349. <http://dx.doi.org/10.1080/17405629.2016.1207517>.
- Scales, P. C., Benson, P. L., Oesterle, S., Hill, K. G., Hawkins, J. D., & Pashak, T. J. (2016). The dimensions of successful young adult development: A conceptual and measurement framework. *Applied Developmental Science*, 20, 150-176. <http://dx.doi.org/10.1080/10888691.2015.1082429>
- Schafer, J. L. (1997). *Analysis of incomplete multivariate data*. Chapman & Hall.

- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293–315. <http://dx.doi.org/10.1002/job.248>
- Schaufeli, W. B. & Salanova, M. (2007). Work engagement: An emerging psychological concept and its implications for organizations. In S.W. Gilliland, D.D. Steiner & D.P. Skarlicki (Eds.), *Research in social issues in management: Vol. 5. Managing social and ethical issues in organizations*. Information Age Publishers.
- Schaufeli, W., & Taris, T. (2013). Het job demands-resources model: Overzicht en kritische beschouwing. *Gedrag en Organisatie*, 26, 203–204.
- Schaufeli, W. B., & Taris, T. W. (2014). *A critical review of the job demands-resources model: Implications for improving work and health*. In G. F. Bauer & O. Hämmig (Eds.), *Bridging occupational, organizational and public health: A transdisciplinary approach* (p. 43–68). Springer Science + Business Media.
http://dx.doi.org/10.1007/978-94-007-5640-3_4
- Seligman, M. E. P. (2002). *Positive psychology, positive prevention, and positive therapy*. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 3–9). Oxford University Press.
- Shiner, R., & Caspi, A. (2003). Personality differences in childhood and adolescence: Measurement, development, and consequences. *Journal of Child Psychology and Psychiatry*, 44, 2–32. <http://dx.doi.org/10.1111/1469-7610.00101>
- Shiner, R. L., & Masten, A. S. (2012). Childhood personality as a harbinger of competence and resilience in adulthood. *Development and Psychopathology*, 24, 507-528.
<http://dx.doi.org/10.1017/S0954579412000120>
- Steel, P., Schmidt, J., & Shultz, J. (2008). Refining the relationship between personality and subjective wellbeing. *Psychological Bulletin*, 134, 138-161.

<http://dx.doi.org/10.1037/0033-2909.134.1.138>

- Swider, B. W., & Zimmerman, R. D. (2010). Born to burnout: A meta-analytic path model of personality, job burnout, and work outcomes. *Journal of Vocational Behavior*, 76, 487–506. <http://dx.doi.org/10.1016/j.jvb.2010.01.003>
- Switek, M., & Easterlin, R. A. (2018). Life transitions and life satisfaction during young adulthood. *Journal of Happiness Studies*, 19, 297–314.
<http://dx.doi.org/10.1007/s10902-016-9817-y>.
- Taris, T. W., Le Blanc, P. M., Schaufeli, W. B., & Schreurs, P. J. G. (2005). Are there causal relationships between the dimensions of the Maslach Burnout Inventory? A review and two longitudinal tests. *Work and Stress*, 19, 238–255.
<http://dx.doi.org/10.1080/02678370500270453>
- Van den Akker, A., Deković, M., & Prinzie, P. (2010). Transitioning to adolescence: How changes in child personality and overreactive parenting predict adolescent adjustment problems. *Development and Psychopathology*, 22, 151–163.
doi:10.1017/S0954579409990320
- Van den Akker, A. L., Deković, M., Asscher, J., & Prinzie, P. (2014). Mean-level personality development across childhood and adolescence: A temporary defiance of the maturity principle and bidirectional associations with parenting. *Journal of Personality and Social Psychology*, 107, 736–750. <http://dx.doi.org/10.1037/a0037248>
- Van Eldik, W. M., De Haan, A. D., Arends, L. R., & Prinzie, P. (2020). Moderation of associations between interparental stress and (mal)adaptation by adolescents' personality: Contrasting differential susceptibility and diathesis-stress models. *Journal of Personality*, 1–17. <http://dx.doi.org/10.1111/jopy.12603>
- Van Leeuwen, K. G., Mervielde, I., Braet, C., & Bosmans, G. (2004). Child personality and parental behavior as moderators of problem behavior: Variable- and person-centered

approaches. *Developmental Psychology*, 40, 1028–1046.

<http://dx.doi.org/10.1037/0012-1649.40.6.1028>

Vukasović, T., & Bratko, D. (2015). Heritability of personality: A meta-analysis of behavior genetic studies. *Psychological Bulletin*, 141, 769–785.

<http://dx.doi.org/10.1037/bul0000017>

Watson, D., Clark, L. A., and Tellegen, A. (1998). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070. <http://dx.doi.org/10.1037//0022-3514.54.6.1063>.

Westerhof, G., & Keyes, C. (2010). Mental illness and mental health: The two continua model across the lifespan. *Journal of Adult Development*, 17, 110–119.

<http://dx.doi.org/10.1007/s10804-009-9082-y>

Witt, L. A., Andrews, M. C., & Carlson, D. S. (2004). When conscientiousness isn't enough: Emotional exhaustion and performance among call center customer service representatives. *Journal of Management*, 30, 149–160.

<http://dx.doi.org/10.1016/j.jm.2003.01.007>

World Health Organization (2006). *Constitution of the world health organization*. Geneva: World Health Organization.

Wrzus, C., & Roberts, B. W. (2017). Processes of personality development in adulthood: The TESSERA framework. *Personality and Social Psychology Review*, 21, 253–277. <http://dx.doi.org/10.1177/1088868316652279>