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Stability and well-being: Associations among the Big Five domains, metatraits, and three kinds of well-being in a large sample

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Abstract

Objective: The present study estimates associations of the Big Five domains and their metatraits with individual indicators of eudaimonic, hedonic, and social well-being, as well as broader factors that capture the tendency for these individual indicators to correlate.

Method: Using data from a large sample of adults from the United States, confirmatory factor analysis and exploratory structural equation modeling was used to verify the factor structure of Big Five personality and well-being in adulthood. The factor structure of the Big Five domains and well-being was carried forward to estimate associations between personality and well-being at each of three assessments and different levels of analysis using structural equation modeling.

Results: Associations between the Big Five metatraits and well-being were strong and consistent across the three measurements when the average ages of participants were 46, 54, and 63 years. Similar results were observed whether focused on a fine-grained or broad level of analysis.

Conclusions: For all types of well-being, the metatraits accounted for more variance than the Big Five domains, even when the Big Five were operationalized using latent factors, emphasizing the importance of considering this level of analysis when elucidating relations between personality and well-being.

KEYWORDS

Big Five, eudaimonic, hedonic, metatraits, social, well-being

1 | INTRODUCTION

The association of well-being with personality is a topic of long-standing interest, largely because people's assessments of their own well-being have been found to be remarkably stable over time (Lucas & Donnellan, 2007; Mann et al., 2020), suggesting that well-being itself might qualify as a component of personality (typically defined as any reasonably stable pattern of emotion, motivation, cognition, or behavior). Note that this similarity to personality does not suggest that well-being cannot change in response to circumstances, given that even broad personality traits can change in response to circumstances (Bleidorn et al., 2018). Nonetheless, the observation of the stability of well-being raises several questions, (1) what major domains of personality predict well-being, (2) how strongly are major domains of personality related to well-being, including the shared variance of all different types of well-being, (3) are associations between well-being and personality better explained by the Big Five domains or the two metatraits of the Big Five, Stability and Plasticity, and (4) are these associations consistent over time? Many of

these questions have been studied in previous research, but rarely have all of them been examined in a single study. The present study provides an integrated and extensive investigation of these questions, while also providing a novel perspective on the question of which level of analysis in a hierarchy of personality traits maximizes prediction of well-being by focusing on the metatraits in addition to the Big Five.

The personality traits most often studied in relation to well-being are the so-called "Big Five" or Five-Factor Model, which constitutes the most widely validated model of personality, capturing the major domains of covariation among the multitude of more specific personality traits (John et al., 2008). Although the Big Five were originally conceived as independent factors, it has been established that they show a regular pattern of intercorrelation that reveals two higher-order factors or *metatraits*, known as Alpha and Beta or Stability and Plasticity (DeYoung, 2006; DeYoung et al., 2002; Digman, 1997). Stability represents the shared variance of Agreeableness, Conscientiousness, and low Neuroticism, and Plasticity represents the shared variance of Extraversion and Openness/intellect. (Note that we will capitalize the metatraits throughout this manuscript to avoid confusing *Stability* the metatrait with temporal stability.) There are several reasons to think that the broad metatraits may be particularly relevant to well-being, which we discuss following an explanation of the different kinds of well-being that we considered in this investigation.

1.1 | Three kinds of well-being

One way in which the current study goes beyond much previous research on the links between well-being and personality is in considering multiple kinds of well-being. Well-being is unlikely to be captured adequately by a single construct or scale. Some argue that this is because well-being includes different components that must be combined together (Bishop, 2015). Others argue that it is because the concept of well-being is variable and should be understood differently depending on the context and our reasons for measuring it (Alexandrova, 2017). Still others argue that if well-being research is going to be used to inform policy, we must respect the different conceptions of well-being that are held by the individuals who are subject to these policies (Haybron & Tiberius, 2015). Whatever the explanation, it seems likely that we will understand well-being better if we pay attention to multiple conceptualizations and measures.

In this study, we use measures of three different broad kinds of psychological well-being. *Hedonic well-being* is defined by psychologists in terms of life satisfaction and the balance of positive relative to negative emotions, and it is typically measured using self-reports of happiness, positive and negative affect, and general satisfaction with life. *Eudaimonic well-being*, as conceived by psychologists (Keyes et al., 2002; Ryan & Deci, 2001), stems from a variety of intellectual traditions (reviewed by Ryff, 2014; Ryff & Singer, 2008), beginning with Aristotelian ethics and later incorporating psychological concepts including individuation (Jung, 1933), personal development (Erikson, 1959), and maturity (Allport, 1961). The most widely used measure of eudaimonic well-being is Ryff's (1995) multidimensional scale, which includes self-report measures of self-acceptance, environmental mastery, positive relations, purpose in life, personal growth, and autonomy. Finally, *social well-being* is centered on the quality of one's interpersonal relations, connections to community, and understanding of the world. Although related, social well-being is distinct from hedonic and eudaimonic well-being (and factor analyses indicate that Ryff's (1995) Positive Relations scale should be considered to assess this construct rather than eudaimonic well-being; Gallagher et al., 2009; Joshanloo, 2019).

Notably, despite the fact that different measures of well-being all tend to intercorrelate highly (Kashdan et al., 2008), the distinction between these three types is empirically supported by factor analytic work (Gallagher et al., 2009; Joshanloo, 2016; Joshanloo et al., 2017; Joshanloo & Jovanović, 2017; Keyes & Annas, 2009; Keyes et al., 2010; Linley et al., 2009). These three kinds of psychological well-being do not align perfectly with long-standing philosophical approaches to well-being (Bedford-Petersen et al., 2019; Tiberius, 2006). For example, eudaimonic well-being in psychological research is different from eudaimonism in philosophy because the former has to do with the subjective sense of such things as meaning in life, mastery, and autonomy, whereas the latter has to do with objective fulfillment of one's nature, which cannot, in principle, be adequately assessed by self-report. Nonetheless, the present study contributes to research on personality and well-being by using a collection of measures that captures the complexity of well-being as it has been studied in the psychological tradition.

Aggregating different measures of well-being into broad variables of eudaimonic, hedonic, and social well-being produces a meaningful taxonomy and increases the bandwidth with which each of the three constructs is assessed. Nonetheless, this aggregation involves a trade-off between bandwidth and fidelity. In other words, more fine-grained distinctions can be made in the measurement of well-being, further dividing eudaimonic, hedonic, and social well-being into their constituent parts, each of which could show distinct patterns of association with personality. Therefore, the present study not only examined the prediction of eudaimonic, hedonic, and social well-being, but also more narrowly defined measures of well-being, specifically the individual

scales that are used in aggregate to operationalize these three types of well-being.

1.2 | Well-being and the metatraits

Another way in which the current study extends research on the links between well-being and personality is in examining the two metatraits of the Big Five, thereby zooming out to understand how the intercorrelations among broad domains of personality may enhance the prediction of well-being. Previous work has shown that the prediction of well-being by personality can be increased by focusing on more narrowly defined facets of personality (Angelim & Grant, 2016). In fact, a recent meta-analysis found that personality facets typically increased the prediction of well-being by 20%, relative to prediction by domains (Angelim et al., 2020). Fewer studies have examined whether a more broad or general level of analysis, focusing on the metatraits, might also increase the prediction of well-being, relative to the Big Five domains.

There are both empirical and theoretical reasons to focus on the metatraits in relation to well-being. First, when considering multiple types of well-being, all of the Big Five have been identified as significant predictors. Variance common to subsets of the Big Five, captured by latent Stability and Plasticity factors, may be even stronger predictors of well-being than the Big Five themselves, if the tendency for domains of personality to correlate is particularly relevant to individual differences in well-being. Three meta-analyses have estimated correlations between the Big Five and hedonic well-being (Anglim et al., 2020; DeNeve & Copper, 1998; Steel et al., 2008), yielding similar results: Extraversion and (low) Neuroticism show the strongest associations with hedonic well-being, Conscientiousness and Agreeableness show weaker yet consistent associations with hedonic well-being, and Openness/intellect showed inconsistent or no relation to hedonic well-being. A large number of cross-sectional studies have also examined the Big Five correlates of eudaimonic well-being. When Neuroticism is reverse coded as emotional stability, a common pattern of results is a positive manifold of correlations with all of the Big Five, regardless of whether different aspects of eudaimonic well-being are analyzed individually or collectively (Anglim & Grant, 2016; Grant et al., 2009; Lamers et al., 2012; Sun et al., 2018). Recent meta-analytic results indicate that Neuroticism is the strongest correlate of eudaimonic well-being, followed by Conscientiousness and Extraversion, while correlations with Agreeableness and Openness/intellect are smaller than the other Big Five domains (Anglim et al., 2020). Nonetheless, Openness/intellect appears to be a stronger correlate of eudaimonic well-being than of hedonic well-being (Anglim & Grant, 2016; Garcia, 2011; Grant et al., 2009; Joshanloo & Nosratabadi, 2009; Schmutte & Ryff, 1997).

A recent study examined associations between the Big Five domains and eudaimonic, hedonic, and social well-being in MIDUS (Joshanloo, 2019). Consistent with previous studies, there was a positive manifold among zero-order correlations between the Big Five and eudaimonic, hedonic, and social well-being. The present study extends this research by estimating partial associations between the Big Five and a general factor of well-being that captures variance common to eudaimonic, hedonic, and social well-being. Moreover, the present study focuses on different levels of analysis when estimating associations between personality and well-being, comparing and contrasting associations of the Big Five domains and their two metatraits with both fine-grained indicators and broad latent factors of eudaimonic, hedonic, and social well-being. Finally, the present study examines the extent to which associations between personality and well-being remain stable over three measurement occasions, spanning nearly 20 years of adulthood.

One empirical reason to hypothesize that well-being should be related to Stability comes from clinical research demonstrating the existence of a general factor of psychopathology or *p*-factor (Caspi et al., 2014; Lahey et al., 2017). The *p*-factor reflects generally positive correlations among psychiatric symptoms and diagnoses of mental disorder, and studies of its correlates have found it to be associated with Neuroticism, low Conscientiousness, and low Agreeableness but generally unrelated to Extraversion and Openness/intellect (Caspi et al., 2014; Castellanos-Ryan et al., 2016; Tackett et al., 2013). A rough extrapolation based on these correlations and on meta-analytic factor loadings for the metatraits (Chang et al., 2012), suggests a correlation of about .7 between Stability and the *p*-factor. Given that psychopathology is associated with reduced well-being (Bartels et al., 2013; Kendler et al., 2011), it follows that low Stability is likely to be associated with reduced well-being as well as psychopathology (Strus & Cieciuch, 2017).

DeYoung and Krueger (2018) interpreted the apparent association of Stability with the *p*-factor in light of Cybernetic Big Five Theory (CB5T; DeYoung, 2015). On this account well-being and psychopathology are opposed because the latter reflects persistent failure to move toward one's goals, due to failure to generate effective goals, interpretations, or strategies when existing ones prove unsuccessful. CB5T describes well-being in terms of the ability to pursue one's important goals successfully and interprets Stability as reflecting the ability and tendency to maintain stable goals, interpretations, and strategies without having them frequently disrupted by impulses, emotions, and doubts. Thus, higher levels of Stability naturally make it easier for people to achieve high levels of well-being.

Old as well as new theories suggest reasons to expect the metatraits to be linked to well-being. Allport's (1937, 1961) pioneering work on the structure and development of

personality expounded the criteria for a mature personality, the development of which he believed to be crucial for both mental health and well-being. Many of Allport's criteria for maturity align with the metatrait Stability, including "emotional poise" (low Neuroticism), competent planning for the future (Conscientiousness), and social adjustment marked by intimacy and compassion (Agreeableness). Notably, the more recent theory of personality development known as the *maturity principle* explains the normative increases in Agreeableness, Conscientiousness, and emotional stability observed from late adolescence into mid-adulthood as being due to increasing demands for maturity involved in typical social roles (Roberts et al., 2008). In general, the Big Five show patterns of correlated change that correspond to their groupings within the two metatraits, further suggesting the importance of the metatraits in longitudinal research (Klimstra et al., 2013).

Allport (1961, p. 283) additionally noted that, with increasing maturity, "new ambitions, new memberships, new ideas, new friends, new recreations and hobbies, and, above all, one's vocation become incorporated into the sense of self," suggesting that aspects of Openness/intellect and Extraversion, or their shared variance, Plasticity, may also be likely to facilitate the development of a mature personality. Given that CB5T posits that Plasticity reflects an exploratory tendency that allows people to generate new goals, interpretations, and strategies, one might hypothesize that Plasticity would also predict well-being, although it seems likely to be less crucial to well-being than Stability.

We know of no studies that have examined associations between the metatraits and different types of well-being. However, a number of studies have examined prospective associations between the Big Five domains and well-being. For example, Neuroticism and Extraversion have been shown to predict hedonic well-being prospectively (Charles et al., 2001; Friedman et al., 2010), even after accounting for prior levels of well-being, providing some evidence that the link between personality and hedonic well-being is directional, moving from personality to well-being (Kandler et al., 2015; Soto, 2015; Tauber et al., 2016). Other studies have found evidence for reciprocal effects of hedonic well-being on personality (Soto, 2015; Specht et al., 2013). In comparison, prospective links between eudaimonic well-being and personality are less clear, as are prospective links between social well-being and personality (Hill et al., 2012).

Quantitative genetic studies have also begun to examine genetic and environmental contributions to the covariation between personality and well-being. Using data from the first wave of MIDUS, Weiss et al. (2008) tested whether latent additive genetic variance in hedonic well-being was shared with or independent of the Big Five domains. Results suggested that genetic variance in hedonic well-being overlapped entirely with genetic variance in the Big Five domains, particularly Extraversion, Neuroticism, and Conscientiousness. However, Weiss et al. (2008) measured hedonic well-being using only three questions about general life satisfaction. It was unclear whether the finding of complete genetic overlap with personality would replicate using a more comprehensive measure of well-being or different types of well-being.

Reconsidering the degree of overlap between personality and well-being, Keyes et al. (2015) analyzed data from the second wave of MIDUS using more comprehensive assessments of well-being. Specifically, measures of eudaimonic, hedonic, and social well-being were specified as indicators of a general well-being factor. Results indicated that "approximately one-third of the genetic variation in subjective well-being is distinctive from the genetic variation in personality" (p. 665). Further, the magnitude of concurrent overlap between personality and well-being was relatively small (mean pairwise $r = .22$). Taken together, these findings led the authors to conclude that well-being is not simply "a personality thing."

Despite all the impressive work examining relations between personality and well-being, a number of questions remain unanswered. For example, although there is now considerable evidence that facets of Big Five personality predict more variation in well-being than the Big Five domains (Angelim & Grant, 2016; Angelim et al., 2020), it is unclear whether the metatraits are stronger correlates of different types of well-being than the Big Five domains. It is also unclear whether associations between the Big Five and well-being are consistent over time. Therefore, using three waves of data from MIDUS, the present study examined associations between the Big Five, their metatraits, and different types of well-being at different levels of the construct hierarchy. Older meta-analyses and many studies of personality and well-being operationalized well-being based on the hedonic conception, to the exclusion of others (e.g., DeNeve & Copper, 1998; Kandler et al., 2015; Steel et al., 2008; Weiss et al., 2008). The most recent meta-analysis to date examined hedonic and eudaimonic well-being but not social well-being (Angelim et al., 2020). Other relevant studies have operationalized well-being in a way that collapses across different conceptions of well-being (e.g., Keyes et al., 2015). These strategies preclude comparisons across different types of well-being and across different levels of the construct hierarchy. Therefore, the present study furthers research on personality and well-being by examining associations of the Big Five domains and their metatraits with individual indicators of eudaimonic, hedonic, and social well-being, as well as broader factors that capture the tendency for these individual indicators to correlate.

2 | METHOD

2.1 | Sample

The sample included adults who participated in the National Survey of Midlife Development in the United

States (MIDUS; Brim et al., 2004). The first wave of data collection took place between 1995 and 1996 (n = 7,109) and included a subsample of twins (n = 1,914). At the first wave of data collection, the age of participants spanned 20–75 years (mean = 46.38 years, SD = 13.00 years). The sample was approximately 48% male and 52% female. Among those who provided valid responses (n = 6,210), the self-reported racial/ethnic composition of the sample was 92% white/Caucasian, 6% Black/African-American, 2% other race/ethnicity.

The second wave of data collection took place approximately 9 to 10 years after the first, between 2004 and 2006 (n = 4,963). Longitudinal retention rates were high from wave 1 to wave 2 for the full sample and twin subsample (~70% and 78%, respectively). At the second wave, the age of participants spanned 28–84 years (mean age = 55.43 years, SD = 12.45 years), approximately 47% male and 53% female, and the self-reported racial/ethnic composition of the sample was 90% white/Caucasian, 5% Black/African-American, 5% other race/ethnicity.

The third wave of data collection took place between 2013 and 2014 (n = 3,294). By this time, 210 participants from wave 2 were deceased and an additional 65 had withdrawn from the study due to physical or cognitive impairment. Nevertheless, longitudinal retention rates remained high from wave 2 to wave 3 for the full sample and twin subsample (~66% and 69%, respectively). At the third wave, the age of participants spanned 39–93 years (*mean* age = 63.64 years, SD = 11.35 years). The sample was approximately 45% male and 55% female, and the self-reported racial/ethnic composition was approximately 89% White/Caucasian, 4% Black/African-American, 7% other Race/Ethnicity. At each wave, participants were compensated $20 after completing surveys. Additional information regarding participant recruitment and data collection can be found elsewhere (Brim et al., 2004; Ryff & Krueger, 2018).

2.2 | Measures

2.2.1 | The Big Five

Personality traits were measured by asking participants to indicate "how well each of the following [adjectives] describes you." As reported in Table 1, five adjectives were used to measure Agreeableness and Extraversion. Four adjectives were used to measure Conscientiousness and Neuroticism. Seven adjectives were used to measure Openness/intellect. Items were rated on a 4-point scale (4 = A lot, 3 = Some, 2 = A little, 1 = Not at all). When necessary, items were reverse coded so that higher average scores reflected higher levels of the trait.

2.2.2 | Well-being

Three types of well-being were operationalized based on past factor analytic work in MIDUS: eudaimonic, hedonic and social well-being (Gallagher et al., 2009). *Eudaimonic well-being* was measured using five scales (Ryff & Keyes, 1995). (1) The self-acceptance scale measured positive feeling and attitudes toward the self and one's past (e.g., "When I look at the story of my life, I am pleased with how things have turned out so far"). (2) The autonomy scale captured variation in independence and self-determination (e.g., "I have confidence in my own opinions, even if they are different from the way most other people think"). (3) The personal growth scale measured attitudes and feelings toward intrapersonal development and self-improvement (e.g., "I think it is important to have new experiences that challenge how I think about myself and the world."). (4) The environmental mastery scale measured the ability to effectively manage everyday affairs and change one's surroundings to best suite their personal needs (e.g., "I am good at managing the responsibilities of daily life"). (5) The purpose in life scale captured variation in feelings of meaning and directedness in life (e.g., "I sometimes feel as if I've done all there is to do in life."). All items measuring eudaimonic well-being were rated on a 7-point scale (1 = Strongly agree; 4 = Don't know; 7 = Strongly disagree). Items were reverse coded when necessary so that higher scores indicated higher levels of well-being. Although Ryff's measure of well-being includes a positive relations scale, factor analysis has shown that this scale should be treated as an indicator of social well-being, instead of eudaimonic well-being (Gallagher et al., 2009).

Hedonic well-being was measured using three scales. (1) The positive affect scale measured how often participants felt positive emotions ("cheerful," "in good spirits," "extremely happy," "calm and peaceful," "satisfied," and "full of life"). (2) The negative affect scale measured how often participants felt a series of negative emotions (e.g., "so sad nothing could cheer you up," "nervous," "restless or fidgety," "hopeless," "that everything was an effort," and "worthless"). Items measuring positive and negative affect were rated on a 5-point scale (1 = All of the time; 3 = Some of the time; 5 = None of the time). (3) The life satisfaction scale asked participants to rate their quality of life overall on a 11-point scale (0 = the worst possible; 10 = the best possible). The life satisfaction scale also had participants rate their work, health, and relationships with their partner and children. Item responses were reverse coded such that higher values indicated higher overall levels of hedonic well-being.

Social well-being was measured using six scales, each consisting of three items. (1) The positive relations with others scale measured the quality of interpersonal warmth in one's close relationships (e.g., "Maintaining close relationships

TABLE 1 Results of the exploratory structural equation model of the Big Five domains

	F1		F2		F3		F4		F5		
Big Five adjectives	***λ***	***SE***	***λ***	***SE***	***λ***	***SE***	***λ***	***SE***	***λ***	***SE***	R^2
Conscientiousness											
"Organized"	.61	.01	−.06	.02	.00	.01	.02	.01	.00	.01	.36
"Responsible"	.76	.02	.21	.03	−.02	.01	−.03	.01	−.04	.01	.68
"Hardworking"	.57	.02	.13	.02	.04	.02	.11	.02	.09	.02	.48
"Careless" ®	38	.02	.08	.02	−.31	.02	−.12	.02	−.17	.02	.26
Agreeableness											
"Helpful"	.27	.02	.46	.02	.01	.01	.03	.01	.28	.02	.57
"Warm"	−.01	.01	.66	.01	−.06	.01	−.10	.01	.51	.02	.84
"Caring"	.17	.02	.73	.01	.09	.01	.02	.01	.17	.02	.77
"Softhearted"	−.09	.02	.76	.01	.06	.01	.10	.02	−.04	.01	.57
"Sympathetic"	.01	.01	.74	.01	.06	.01	.12	.02	.02	.01	.62
Neuroticism											
"Worrying"	−.04	.01	−.14	.02	.59	.01	.07	.01	−.02	.01	.37
"Nervous"	.09	.01	.09	.01	.84	.01	−.06	.01	−.04	.01	.74
"Calm" ®	.04	.01	.05	.01	.84	.01	−.02	.01	−.04	.01	.75
"Worrying"	−.08	.01	−.31	.02	.53	.01	−.17	.02	.03	.01	.44
Openness											
"Creative"	−.03	.01	.08	.02	−.02	.01	.83	.01	−.07	.01	.66
"Imaginative"	−.08	.01	.10	.02	−.02	.01	.89	.01	−.01	.01	.80
"Intelligent"	.33	.02	−.04	.01	−.05	.01	.40	.02	.11	.02	.41
"Curious"	.17	.02	.01	.01	.05	.01	.52	.01	.16	.02	.46
"Broad Minded"	.07	.02	.21	.02	−.10	.01	.35	.02	.02	.02	.25
"Sophisticated"	.20	.02	−.09	.02	.07	.01	.36	.02	.23	.02	.32
"Adventurous"	.09	.02	−.09	.01	−.02	.01	.43	.02	.34	.02	.44
Extraversion											
"Outgoing"	−.02	.01	.00	.01	.02	.01	.02	.01	.83	.01	.69
"Friendly"	.00	.01	.51	.02	−.07	.01	−.12	.02	.64	.02	.82
"Lively"	.13	.02	.07	.01	.00	.01	.09	.01	.68	.01	.64
"Active"	.36	.02	−.03	.01	−.04	.01	.21	.02	.37	.02	.51
"Talkative"	−.10	.02	.08	.01	.20	.01	.05	.01	.68	.01	.49
	Factor correlations										
	F1		**F2**		**F3**		**F4**		**F5**		***FD***
F1	1.00		.30		−.15		.29		.32		.84
F2			1.00		.07		.17		.30		.91
F3					1.00		−.06		−.17		.91
F4							1.00		.39		.91
F5									1.00		.91

Note: Adjectives were rated on a 4-point ordinal scale. Estimator = diagonally weighted least squares with mean and variance adjustments. F1–F5 = Latent Factors. λ = Geomin rotated loading. *SE* = standard error. R^2 = percent of explained variance. Factor loadings and correlations printed in bold font are statistically significant at $p < .001$. ® indicates that responses were reverse coded. Correlations between latent factors are reported below factor loadings. *FD* = factor score determinacy estimated using maximum likelihood with robust standard errors.

has been difficult and frustrating for me."). (2) The social coherence scale (a.k.a. meaningfulness of society) measured one's ability to make sense of the world (e.g., "I cannot make sense of what's going on in the world"). (3) The social integration scale measured the extent to which one feels supported as a member of a community (e.g., "I feel close to other people in my community."). (4) The social acceptance scale (a.k.a. acceptance of others) measured one's tendency to view others as caring, kind, and altruistic (e.g., "People who do a favor expect nothing in return"). (5) The social contribution scale measured the extent to which one feels they have something to contribute to society (e.g., "I have nothing important to contribute to society," reverse coded). (6) The social actualization scale captured variation in optimism about the future of society (e.g., "The world is becoming a better place for everyone"). All items were rated on a 7-point scale (1 = Strongly agree; 4 = Don't know; 7 = Strongly disagree), and items were reverse coded as necessary so higher scores indicated higher levels of their respective constructs.

2.3 | Data analytic procedures

Data were downloaded from the Inter-University Consortium for Political and Social Research (ICPSR; https://www.icpsr.umich.edu/icpsrweb) and prepared for analyses with R version 3.2.2. Data were then exported from R using the "MplusAutomation" package version 0.7.1 (Hallquist & Wiley, 2018). Structural equation models were estimated using Mplus version 8.1 (Muthén & Muthén, 1998–2017). All available data on focal study constructs were used for inferential analyses, which included observations from $n = 6{,}380$ participants. Siblings and twins were nested within the same family. Therefore, indicating a family identification number as a clustering variable, a sandwich estimator was used to account for the nonindependence of observations that results from relatedness. Absolute and incremental model fit was evaluated using root mean squared error of approximation (RMSEA), comparative fit index (CFI), and non-normed fit index (NNFI). Models that included ordinal indicators were estimated using weighted least squares with mean and variance adjustments and compared using root deterioration per restriction (RDR), calculated using change in model chi-squared ($\Delta\chi^2$), which rescales $\Delta\chi^2$ to approximate an RMSEA metric ($RDR = \sqrt{[\Delta\chi^2 - \Delta df] / [\Delta df \times n]}$). Models that included only continuous indicators were estimated using maximum likelihood with robust standard errors and also compared using RDR and information criteria (AIC & BIC).[1] Finally, the results of models were compared by the arithmetic means and ranges of standardized regression coefficients predicting well-being (β) and the percent of variance explained in well-being (R^2).

There is strong support for longitudinal measurement invariance of the Big Five domains and measures of well-being in MIDUS, but only mixed support for cross-sectional measurement invariance across biological sex and race/ethnicity (Mann et al., 2020). To help ensure that results are not the artifact of group differences associated with demographic factors, scale scores of for the Big Five and well-being were residualized for the cross-sectional effects of mean-centered age, mean-centered age squared, sex, self-reported Black/African-American, Native-American, Asian-American, and Other Race/Ethnicity (with White, the largest group, as the reference group). Residual scores from multiple linear regressions were then saved for further analyses. Omega coefficients (ω_T), zero-order correlations, and partial correlations between measures of the Big Five and well-being are reported at each assessment in supplemental materials (see Tables S1–S3).

Before estimating associations between the Big Five domains, metatraits, and well-being, a correlated three factor model of well-being was estimated across the three measurement occasions (see Figure S1 in supplemental materials). In this model, continuous measures of positive affect, negative affect, and life satisfaction were specified to load onto a latent factor at each assessment (labeled "Hedonic Well-Being"). Continuous measures of social growth, social contribution, social acceptance, social integration, social cohesion, and positive relations with others were specified to load onto a second latent factor at each assessment (labeled "Social Well-Being"). Finally, continuous measures of self-acceptance, autonomy, personal growth, environmental mastery, and purpose in life were specified to load onto a third latent factor at each assessment (labeled "Eudaimonic Well-Being"). Latent factors were scaled using unit loading identification. Factor variances, factor loadings, intercepts, and residual variances of indicators were freely estimated and constrained to equality across the three assessments. To capture shared method variance, covariances between the residual variances of identical measures were freely estimated and constrained to equality across assessments. This model was then extended to include a general, higher-order factor of well-being, which captured the general tendency for subordinate well-being factors to correlate. Factor loadings of subordinate factors onto the general factor were freely estimated but constrained to equality across assessment.

Next, an exploratory structural equation model (ESEM) was used to examine the latent factor structure of Big Five personality at the first assessment. In this model, items from adjectival scales were specified as ordinal indicators of five latent variables. An ESEM was preferred over a confirmatory factor analysis (CFA) model for two reasons. First, model fit statistics for ESEMs tend to evince better fit to the data, compared to CFA models, especially when ordinal items are

analyzed (Marsh et al., 2010). Second, forcing simple structure in a CFA model, whereby each item loads onto only one latent factor, can lead to inflated correlations among the Big Five domains, even if only minor cross-loadings exist in the population (Marsh et al., 2010; McCrae et al., 1996). Note that some researchers have advocated more lenient rules of thumb when evaluating model fit using traditional fit statistics (Marsh et al., 2004), specifically for personality data when researchers analyze individual items with ordinal responses, which have more measurement error than continuous scale scores (Hopwood & Donnellan, 2010). The factor structure of the metatraits was informed by a meta-analytic, multi-trait, multi-method study, which found evidence that Conscientiousness, Agreeableness, and Neuroticism load onto one latent factor, labeled Stability, and Openness/intellect and Extraversion load onto a second latent factor, labeled Plasticity (Chang et al., 2012).[2] The factor structure of the metatraits cannot be verified within an ESEM framework because observed indicators are necessary criteria for the identification of exploratory latent factors.

Finally, the factor structures of the Big Five domains and well-being were carried forward from the previous analyses to estimate associations between personality and well-being at each assessment and at different levels of analysis. Depicted in Figure 1, nine structural equation models (SEMs) were estimated. First, continuous observed scores for the Big Five domains were included as predictors of observed scores for individual indicators of eudaimonic, hedonic, and social well-being. These regressions quantify the association between each Big Five domain and indicators of well-being at each assessment, controlling for the other Big Five domains. Second, continuous observed scores for the Big Five domains were included as predictors of latent well-being factors at each assessment. These regressions quantify the association between each Big Five domain and latent eudaimonic, hedonic, and social well-being factors, controlling for the other Big Five domains. To account for the longitudinal stability of focal study constructs, cross-time within-construct correlations were also estimated. Third, covariation among eudaimonic, hedonic, and social well-being factors was captured by a general higher-order factor at each assessment, which was also regressed on observed scores for the Big Five domains. These regressions quantify the association between each Big Five domain and the shared variance of all the subordinate factors of well-being. This model is more restrictive than the last (i.e., has more degrees of freedom), as associations between each of the Big Five domains with eudaimonic, hedonic, and social well-being factors are fully accounted for by the general higher-order factor. In all three models, standardized multiple regression coefficients are interpreted as the predicted standard deviation increase for the relevant well-being variable given a standard deviation

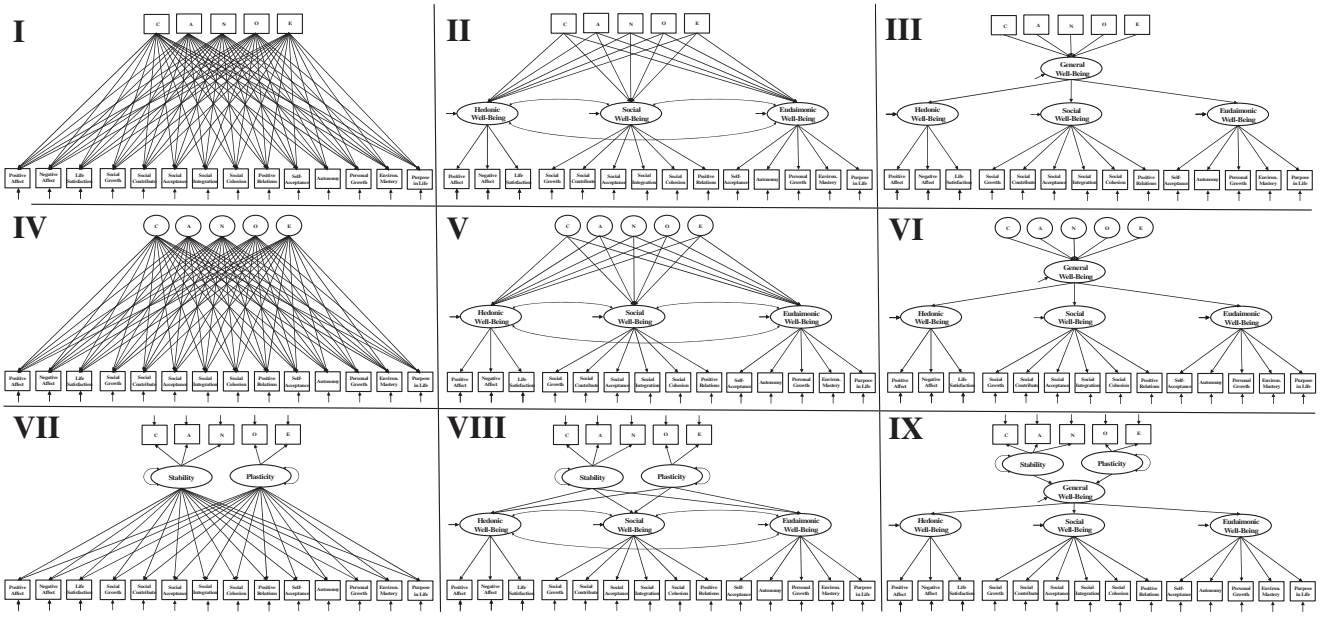

FIGURE 1 Path diagrams of structural equation models estimating associations between Big Five personality and well-being. Only one wave of data is depicted per cell to ease visualization. On the top panel, well-being is predicted at different levels of analysis (individual scales, subordinate factors, and a high-order factor) by the Big Five domains operationalized using observed scales, abbreviated (C, A, N, O, E). On the middle panel, well-being is predicted at different levels of analysis by the Big Five domains operationalized using latent factors (ordinal indicators not depicted). On the bottom panel, well-being is predicted at different levels of analysis by the Big Five metatraits. All pathways were freely estimated but factor loadings, intercepts, and residual variances were constrained to equality across assessments to reflect longitudinal measurement invariance, and cross-time same-variable correlations were freely estimated. For models I, IV, & VII, covariances among the residuals of well-being measures were freely estimated. For the remaining models, covariation among measures of well-being was accounted for by latent factors

increase in a Big Five domain, at average levels of the other Big Five domains.

The fourth, fifth, and sixth models were identical to the first, second, and third, respectively, except the Big Five domains were operationalized using latent factors at each assessment, which were identical to the factors derived from the ESEM. Specifically, factor loadings and item thresholds for ordinal indicators of the Big Five domains were included as fixed parameters at each assessment. The inclusion of fixed parameters (instead of freely estimated parameters) not only imposes longitudinal measurement invariance, but also ensures that Big Five domains are apposite to the latent factors extracted from the ESEM, which verified the factor structure of the Big Five domains. These models were estimated to ensure that comparisons between the Big Five domains and metatraits in the prediction of well-being are not biased by whether the Big Five domains are operationalized using observed scores or latent factors.

The seventh, eighth, and ninth models included the specification of the two metatraits of the Big Five at each assessment, whereby continuous measures of Conscientiousness, Agreeableness, and Neuroticism loaded onto a latent Stability factor, and Extraversion and Openness/intellect loaded onto a latent Plasticity factor. In these models, either individual indicators of well-being, eudaimonic, hedonic, and social well-being factors, or a general high-order factor of well-being were regressed on the metatraits at each assessment. For all SEMs, to estimate the consistency of associations across assessments, regressions of well-being (individual indicators, eudaimonic, hedonic, and social factors, or a general high-order factor) on personality were freely estimated at each of the three assessments. Next, a series of constrained models were fit to the data, whereby regressions of well-being on personality were constrained to equality at each of the three assessments. Constrained and unconstrained models were compared using *RDR* and information criteria when available. These model comparisons test whether constraining associations between personality and well-being to be equal at the three measurement occasions results in a loss of fit to the data.

3 | RESULTS

3.1 | Well-being: CFA models

Model fit statistics for the correlated factor model of well-being (*RMSEA* = .036, *CFI* = .90, *NNFI* = .90) and higher-order factor model of well-being (*RMSEA* = .038, *CFI* = .88, *NNFI* = .89) evinced good and adequate absolute and incremental fit to the data, respectively. Although, *CFI* and *NNFI* for these models were below conventional standards for good model fit (i.e., <.90), it has been argued that *RMSEA* is a preferred fit statistics "in confirmatory contexts, when researchers wish to determine whether a given model fits well enough to yield interpretable parameters" (Rigdon, 1996, p. 378). Factor loadings were moderate to large and statistically significant for indicators of eudaimonic well-being (*range* of $\lambda = .39$ to .78, $ps < .001$), hedonic well-being (*range* of $\lambda = -.73$ to .80, $ps < .001$; negative loading for negative affect), and social well-being (*range* of $\lambda = .49$ to .64, $ps < .001$). In the correlated factors model, correlations between well-being factors were high (*range* of $r = .63$ to .83, $ps < .001$). In the higher-order factor model, factor loadings of subordinate well-being factors onto the general factor were large (*range* of $\lambda = .87$ to .96, $ps < .001$). Path diagrams of these models are reported in supplemental materials (Figure S1).

3.2 | The Big Five: ESEM

Standardized parameter estimates from the exploratory structural equation model of ordinal indicators for the Big Five domains are reported in Table 1. The pattern of factor loadings provided support for the construct validity of the Big Five adjectival scales. Items that measured Conscientiousness loaded onto the first latent factor (*range* of $\lambda = .38$ to .76, $ps < .001$), with smaller but appreciable cross-loadings from items that measured Agreeableness (e.g., "helpful"; $\lambda = .27$, $p < .001$), Openness (e.g., "intelligent"; $\lambda = .33$, $p < .001$), and Extraversion (e.g., "active"; $\lambda = .36$, $p < .001$). Items that measured Agreeableness loaded onto the second latent factor (*range* of $\lambda = .46$ to .76, $ps < .001$), with smaller but appreciable cross-loadings from items that measured Conscientiousness (e.g., "responsible"; $\lambda = .21$, $p < .001$), Neuroticism (e.g., "worrying"; $\lambda = -.31$, $p < .001$), and Extraversion (e.g., "friendly"; $\lambda = .51$, $p < .001$). Items that measured Neuroticism loaded onto the third latent factor (*range* of $\lambda = .53$ to .84, $ps < .001$), with smaller but appreciable cross-loadings from items that measured Conscientiousness (e.g., "careless" reverse coded; $\lambda = -.31$, $p < .001$) and Extraversion (e.g., "talkative"; $\lambda = .20$, $p < .001$). Items that measured Openness loaded onto the fourth latent factor (*range* of $\lambda = .35$ to .89, $ps < .001$), with smaller but appreciable cross-loadings from items that measured Extraversion (e.g., "active"; $\lambda = .21$, $p < .001$). Finally, items that measured Extraversion loaded onto the fifth latent factor (*range* of $\lambda = .37$ to .83, $ps < .001$), with appreciable cross-loadings from items that measured Agreeableness (e.g., "warm"; $\lambda = .51$, $p < .001$) and Openness (e.g., "adventurous"; $\lambda = .34$, $p < .001$). Maximum likelihood estimated factor score determinacies were high (*range* = .84 to .91), and correlations between latent factors were small-to-moderate and statistically significant ($ps < .001$).

3.3 | The Big Five and well-being

Model fit statistics are reported in Table 2. Absolute and incremental fit statistics evinced good and adequate fit to the data. Using *AIC* as an indication of comparative fit, models that freely estimated associations between the Big Five and well-being were preferred over models that constrained these associations to equality over the three assessments. However, *BIC* indicated that models constraining associations between the Big Five and well-being to equality over time were preferred. This discrepancy between *AIC* and *BIC* is not surprising, as *BIC* favors parsimony more than *AIC* by including a greater penalty for the number of estimated parameters.[3] Although changes in model chi-squared indicated that constraining associations to equality over the three assessments resulted in a loss of fit to the data, root deterioration per restriction indicated that these differences were small (*RDRs* < .05). To enable visual comparison of effect sizes across waves of data collection, results of unconstrained models are plotted in Figures 2–5, whereby associations between personality and well-being were freely estimated at each assessment. Consistent with small *RDR*s, associations between personality and well-being were similar across wave, with overlapping 95% confidence intervals for the majority of estimates within-construct.

Results are displayed in Figures 2–5, which depict multiple regression coefficients and 95% confidence intervals for personality (observed domains, latent domains, and latent metatraits) predicting different types of well-being (individual indicators, eudaimonic, hedonic, and social factors, and a general higher-order factor). A summary of the strength of relations at different levels of analysis is reported in Table 3.

At least two findings are particularly noteworthy. First, the strength of the relations between Big Five domains and well-being increased when domains were operationalized using latent factors, compared to observed scores. Second, as the level of analysis broadened from domains to metatraits, the strength of the relations between personality and well-being increased. Moreover, the increased prediction of well-being by the metatraits was observed regardless of whether well-being was narrowly or broadly construed. Compared to latent Big Five domains, on average, the metatraits were

TABLE 2 Fit statistics for structural equation models estimating associations between Big Five personality and eudaimonic, hedonic, and social well-being depicted in Figure 1

	Absolute & incremental fit					Comparative fit				
Model:	χ^2	*df*	*RMSEA*	*CFI*	*TLI*	*AIC*	*BIC*	$\Delta\chi^2$ (Δdf)	*p*	*RDR*
I	4,594.25	566	.033	.95	.87	837,870.26	845,604.76			
I constrained	4,914.09	706	.031	.95	.89	837,897.96	844,685.93	292.82 (140)	<.001	.013
II	12,362.19	1,462	.034	.87	.86	844,837.69	846,514.40			
II constrained	12,438.79	1,492	.034	.86	.86	844,853.83	846,327.71	71.00 (30)	<.001	.015
III	18,291.81	1,589	.041	.79	.80	851,203.45	852,021.53			
III constrained	18,329.59	1,599	.040	.79	.81	851,204.18	851,954.64	21.83 (10)	.016	.014
IV	15,909.31	5,863	.016	.96	.95	–	–			
IV constrained	15,858.12	6,003	.016	.96	.95	–	–	529.76 (140)	<.001	.021
V	25,261.69	6,819	.020	.92	.92	–	–			
V constrained	25,128.69	6,849	.020	.92	.92	–	–	137.81 (30)	<.001	.024
VI	27,473.97	6,885	.022	.91	.91	–	–			
VI constrained	27,331.61	6,895	.021	.91	.91	–	–	43.97 (10)	<.001	.023
VII	8,149.77	706	.041	.93	.84	841,392.36	848,180.33			
VII constrained	8,389.18	762	.040	.93	.85	841,529.78	847,939.13	233.63 (56)	<.001	.022
VIII	17,245.54	1,598	.039	.85	.85	849,997.14	850,754.36			
VIII constrained	17,303.63	1,610	.039	.85	.85	850,043.73	850,719.82	60.57 (12)	<.001	.025
IX	18,156.23	1,613	.040	.84	.84	850,991.93	851,647.74			
IX constrained	18,175.75	1,617	.040	.84	.84	851,004.77	851,633.54	19.52 (4)	<.001	.024

Note: χ^2 = model chi-squared. *df* = model degrees of freedom. *RMSEA* = root mean squared error of approximation. *CFI* = Comparative Fit Index. *TLI* = Non-Normed Fit Index (a.k.a. Tucker-Lewis Index). *AIC* = Akaike Information Criterion. *BIC* = Bayesian Information Criterion. $\Delta\chi^2$ (Δdf) = change in model chi-squared (change in model degrees of freedom). *RDR* = root deterioration per restriction, which rescales change in model chi-square to an *RMSEA* metric. "Constrained" indicates that the regressions of well-being on personality were freely estimated but constrained to equality across the measurement occasion. Models IV–VI were estimated using diagonally weighted least squares with mean and variance adjustments, which precludes calculation of information criteria due to the absence of a fitted likelihood function.

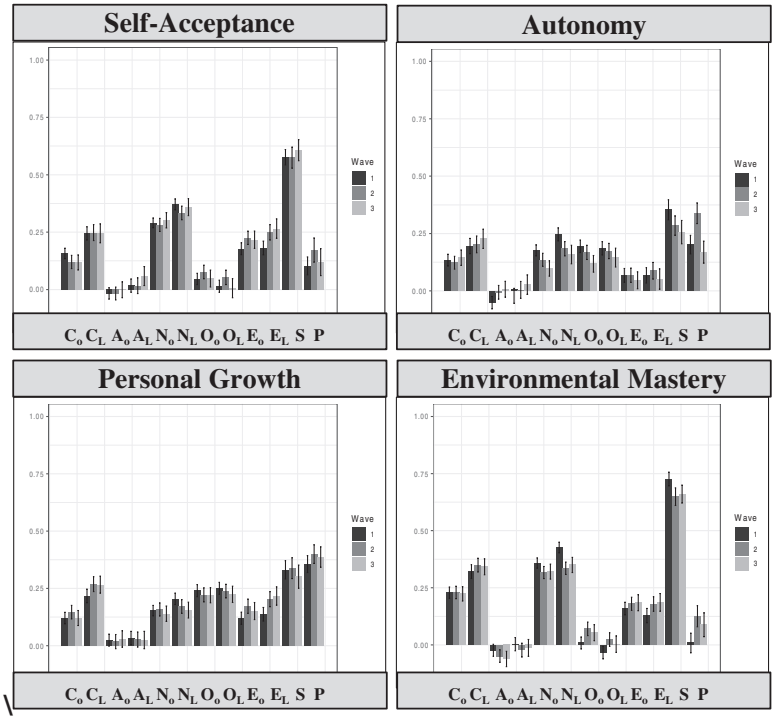

FIGURE 2 Regressions for indicators of eudaimonic well-being at three assessments on the Big Five domains or metatraits. Indicators of well-being were either regressed simultaneously on the Big Five domains (C, A, N, O, E) or Big Five metatraits (S & P), which are plotted along the *x*-axis. Subscripts "O" and "L" indicate whether the Big Five domains were operationalized using observed scores or latent variables. Adjacent bars depict standardized multiple regression coefficients at each of the three assessments when the average age of participants was 46, 54, & 63 years. Coefficients were reflected for Neuroticism to help ease comparison with the other Big Five domains and metatraits. Bars depict 95% confidence intervals

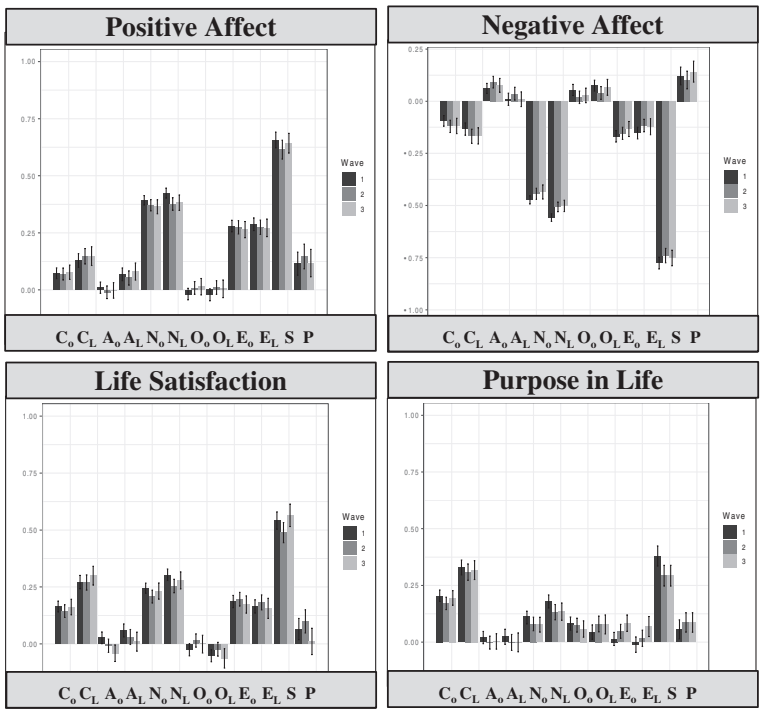

FIGURE 3 Regressions for indicators of hedonic well-being and purpose in life at three assessments on the Big Five domains or metatraits. Indicators of well-being were either regressed simultaneously on the Big Five domains (C, A, N, O, E) or Big Five metatraits (S & P), which are plotted along the *x*-axis. Subscripts "O" and "L" indicate whether the Big Five domains were operationalized using observed scores or latent variables. Adjacent bars depict standardized multiple regression coefficients at each of the three assessments when the average age of participants was 46, 54, & 63 years. Coefficients were reflected for Neuroticism to help ease comparison with the other Big Five domains and metatraits. Bars depict 95% confidence intervals

more strongly related to fine-grained indicators of well-being (mean $\beta = .29$ vs. .15), broad latent factors of well-being (mean $\beta = .49$ vs. .23), and a general higher-order factor of well-being (mean $\beta = .53$ vs. .26).

For specific indicators that focus on narrowly defined aspects of well-being, on average, the metatraits explained twice the variance of the observed Big Five domains (26% vs. 13%). However, when the Big Five were operationalized using latent factors, the metatraits explained a similar amount of variance as the Big Five domains (26% vs. 24%). Nevertheless, for indicators of eudaimonic well-being, the metatrait Stability was more strongly related to self-acceptance and environmental mastery than any given Big Five domain, even when the domains were operationalized using latent factors (see Figure 2). Moreover, the metatrait Stability was the strongest correlate for all indicators of hedonic well-being, including positive affect, negative affect, and life satisfaction (see Figure 3). The metatrait Stability was also

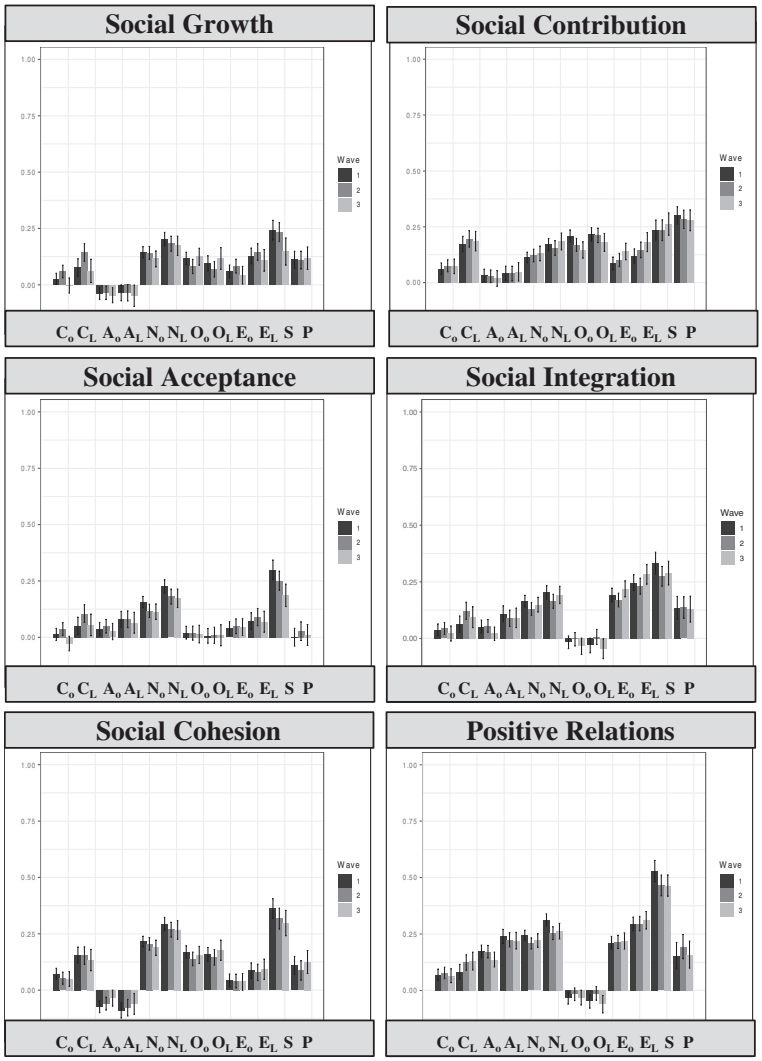

FIGURE 4 Regressions for indicators of social well-being at three assessments on the Big Five domains or metatraits

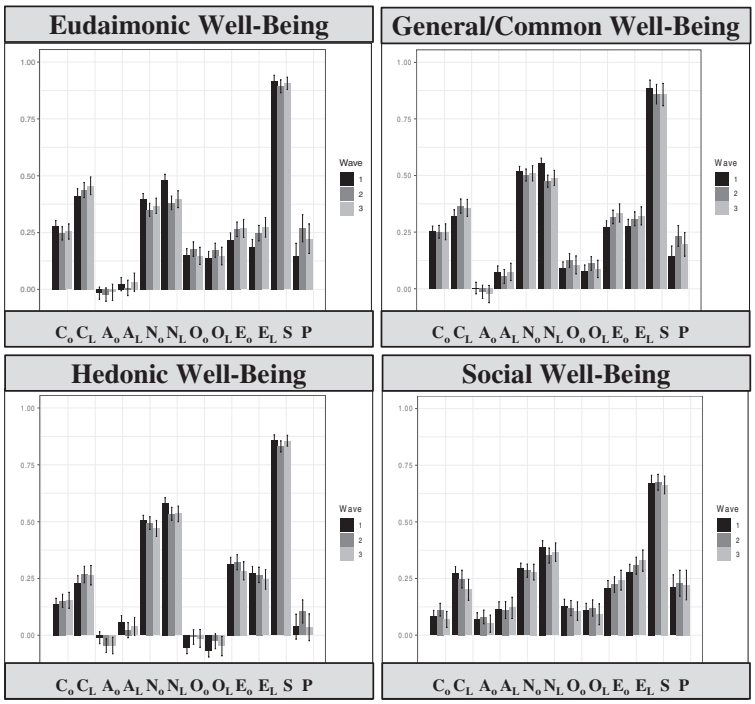

FIGURE 5 Regressions of latent well-being factors at three assessments on the Big Five domains or metatraits

TABLE 3 Summary of relations between Big Five personality and well-being at different levels of analysis in MIDUS

	Levels of analysis		β		Multiple R^2	
Model	Personality predictor	Well-being outcome	Mean	Range	Mean	Range
I	Observed domains	Observed indicators	.11	.00–.47	.13	.02–.28
IV	Latent domains	Observed indicators	.15	.00–.56	.24	.05–.40
VII	Latent metatraits	Observed indicators	.29	.01–.77	.26	.04–.59
II	Observed domains	Latent factors	.19	.01–.51	.40	.26–.49
V	Latent domains	Latent factors	.23	.01–.58	.56	.43–.68
VIII	Latent metatraits	Latent factors	.49	.03–.92	.74	.53–.93
III	Observed domains	General latent factor	.24	.00–.52	.55	.53–.57
VI	Latent domains	General latent factor	.26	.05–.55	.71	.69–.73
IX	Latent metatraits	General latent factor	.53	.14–.89	.86	.85–.88

Note: β = absolute value of standardized multiple regression coefficient. R^2 = percent of variance explained by Big Five personality domains or metatraits.

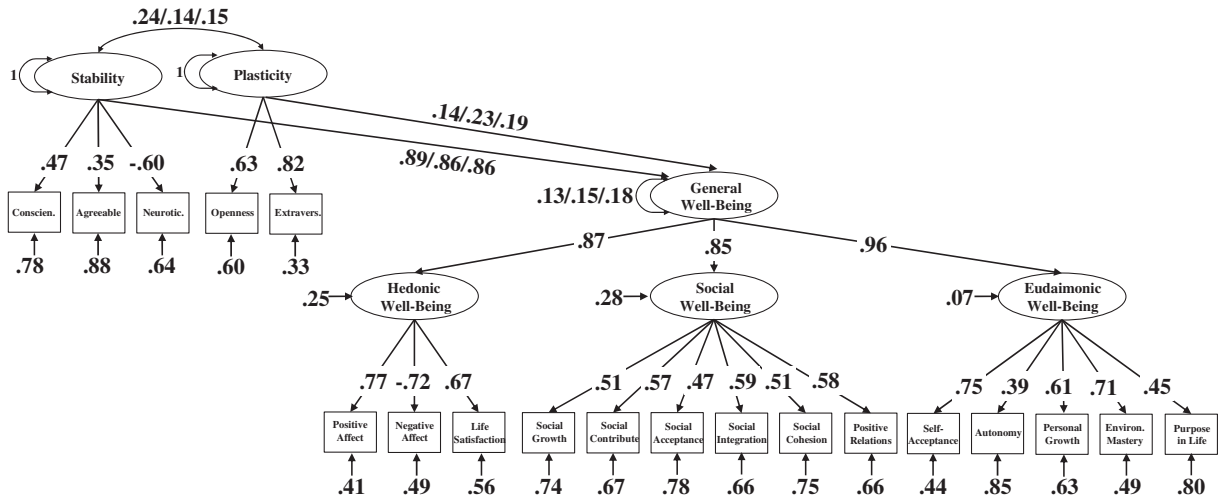

FIGURE 6 Path diagram of Model F estimating associations between the Big Five metatraits and general well-being factors at three assessments. Standardized estimates are reported. Pathways with a single coefficient were freely estimated but constrained to equality across wave. Pathways with three coefficients were freely estimated at each wave, listed from left-to-right (W1/W2/W3). All pathways are statistically significant (ps < .001)

the strongest correlate for all indicators of social well-being, though increased prediction in comparison to the Big Five domains was especially pronounced for positive relations with others (see Figure 4). Personal growth and social contribution were the only indicators of well-being for which the metatrait Plasticity was more strongly related than Stability or any given Big Five domain. However, the greater prediction of well-being by Plasticity for these indicators was not especially pronounced, as confidence intervals overlapped with those for the Stability and other Big Five domains.

For eudaimonic, hedonic, and social well-being factors, on average, the metatraits explained more variance (*mean* $R^2 = 74\%$) than the Big Five domains, irrespective of whether domains were operationalized using latent factors (*mean* $R^2 = 56\%$) or observed scores (*mean* $R^2 = 40\%$). The metatraits also explained more variance in a general high-order factor of well-being (*mean* $R^2 = 86\%$), compared to the Big Five domains, irrespective of whether domains were operationalized using observed scores (*mean* $R^2 = 55\%$) or latent factors (*mean* $R^2 = 71\%$). Especially noteworthy is that Stability was very strongly related to eudaimonic and hedonic well-being factors (see Figure 5) as well as the higher-order factor of well-being (see Figure 6).

4 | DISCUSSION

The present study found that 48% to 49% of the variance in eudaimonic well-being, 40% to 46% of the variance in hedonic well-being, and 26% to 30% of the variance in social well-being were accounted for by observed measures of the Big Five domains. When the Big Five domains were operationalized using latent factors, these estimates increased to 66% to 68% of the variance in eudemonic, 51% to 58% of

the variance in hedonic, and 43% to 50% of the variance in social well-being factors. Shifting attention to a broader level of analysis, 92% to 93% of the variance in eudaimonic, 72% to 75% of the variance in hedonic, and 53% to 56% of the variance in social well-being factors was accounted for by the metatraits, Stability and Plasticity. A higher-order well-being factor, which captured the general tendency to experience higher or lower levels of eudaimonic, hedonic, *and* social well-being, was more strongly related to the metatraits (range of $R^2 = .85–.88$) than to the Big Five domains, whether operationalized using observed (range of $R^2 = .53–.57$) or latent variables (range of $R^2 = .69–.73$). Furthermore, model comparisons indicated that these associations were largely consistent across three waves of data collection spanning approximately two decades.

These strong associations between the metatraits and well-being are consistent with the premises of CB5T, which argues that Stability and Plasticity represent individual variation in two crucial needs of any organism that must adapt to complex and changing circumstances (DeYoung, 2015). Stability reflects the capacity to maintain stable goal-directed functioning, whereas Plasticity reflects the capacity to explore and adapt to novelty. If, as CB5T asserts, well-being is crucially dependent on the capacity to make progress toward one's goals, then, it is sensible that variation in Stability is strongly linked to well-being. CB5T would also expect Stability to be more strongly linked to well-being than Plasticity is, as shown in our results, because exploration is beneficial only inasmuch as it ultimately furthers goal pursuit, and exploration under the wrong circumstances can be destabilizing. Importantly, the present study furthers research on personality and well-being by highlighting the metatraits of the Big Five as an especially potent level of analysis for explaining individual differences in well-being. Previous studies of the Big Five and well-being may have underestimated their interdependence by focusing exclusively on the Big Five domains without considering the metatraits.

Of the three kinds of well-being examined in the present study, eudaimonic and hedonic well-being were more strongly tied to Stability than was social well-being. Associations between well-being and the Big Five domains, particularly Agreeableness and Openness, also provide evidence for the discriminant validity of eudaimonic, hedonic, and social well-being. Agreeableness was positively associated with social well-being but not with eudaimonic or hedonic well-being. Openness/intellect was positively correlated with eudaimonic well-being and, to a lesser extent, with social well-being but was not correlated with hedonic well-being. In sum, results of the present study highlight the importance of studying different aspects of well-being, despite their high correlations with one another that are evident in high standardized loadings on a general higher-order factor. Our results also suggest that social well-being in particular is more distinct from broad domains and metatraits of personality than are eudaimonic and hedonic well-being.

The multivariate associations between personality and well-being documented in the current study remained largely unchanged across three waves of data collection, spanning nearly two decades. This finding suggests that the role of personality in explaining individual differences in well-being remains relatively unchanged across adulthood. Although this study is more comprehensive than most studies of links between personality and well-being, it nonetheless has limitations. Variables were measured during a period of life span development for which, in general, there is relatively little personality change, so it remains an open question whether the findings of strong overlap between the metatrait Stability and well-being would generalize to younger ages.

Another limitation is that all variables were measured using self-report scales. Consequently, the extent to which shared method variance contributed to associations between personality and well-being remains unknown. Future studies of the metatraits and well-being would benefit from incorporating information from multiple informants in the measurement of personality and well-being. Nonetheless, using the metatraits as simultaneous predictors of well-being allows inferences regarding their unique associations with well-being that are less confounded by method variance, by controlling for their shared variance. This shared variance appears to be due to an artifact known as halo or evaluative consistency bias, which refers to the tendency for people to be consistent in rating themselves as having desirable qualities or not (Anusic et al., 2009). That this bias inflates the correlation between the metatraits is evident in the fact that they are uncorrelated when estimated using multiple raters (Chang et al., 2012; DeYoung, 2006). Using the metatraits as simultaneous predictors and thereby estimating their unique associations with well-being after removing the variance they share helps to ensure that the strong association of Stability with well-being is not merely due to bias in self-ratings.

The bandwidth-fidelity problem was described long ago (Cronbach, 1949; Cronbach & Gleser, 1957), defined by the trade-off between the use of constructs that cover extensive variance in personality (e.g., the metatrait level of analysis) and measures that focus more narrowly on a smaller subset of behavior and experience (e.g., the facet level of analysis). In contrast to previous meta-analytic work that has demonstrated the utility of increasing fidelity by focusing on narrowly defined facets of personality in the prediction of well-being (Anglim et al., 2020; Briley & Tucker-Drob, 2012), the present study found that increasing bandwidth also improves the prediction of well-being. It has been suggested that when personality is broadly construed it is likely to provide high prediction of broadly construed outcomes, such that predictive power will be maximized when the degree of generality or specificity for predictors matches the degree of generality

or specificity for outcomes (Ones & Viswesvaran, 1996). However, the present study found that the metatraits, relative to the Big Five, were more strongly related not only to broad factors of well-being, but often to specific indicators of well-being as well. Thus, irrespective of the level of analysis used to operationalize well-being, the metatraits tended to outperform the Big Five in the prediction of well-being. Moreover, the same conclusion held even when the Big Five were operationalized using latent factors, placing them on more equal psychometric footing to the metatraits by accounting for unsystematic measurement error that is unique to individual items.

5 | CONCLUSION

Across adulthood, personality is strongly predictive of self-ratings of three broad types of well-being (eudaimonic, hedonic, and social) and, even more so, of the general tendency to experience all three types of well-being. The two metatraits of the Big Five accounted for more of the variance in well-being than the Big Five themselves, which is notable in part because larger sets of predictors have an inherent advantage over smaller sets in accounting for variance in any criterion. Stability, the shared variance of Conscientiousness, Agreeableness, and low Neuroticism, accounted for a remarkably large amount of the variance in well-being, suggesting that the degree to which well-being is consistent over time has much to do with the ability and tendency of the person to avoid disruption of their ongoing goal pursuit by emotions, impulses, and doubts. This study helps to connect research on well-being with current theoretical accounts of the Big Five and their metatraits (DeYoung, 2015; DeYoung & Krueger, 2018). Moreover, it is also consistent with a much older theoretical account of personality, as it shows that well-being is closely tied to what Gordon Allport deemed a mature personality.

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CONFLICT OF INTEREST

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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ENDNOTES

[1] There is no fitted likelihood function when models are estimated using weighted least squares. Consequently, information criteria cannot be computed for these models, including ***AIC*** and ***BIC***, because $\boldsymbol{AIC} = -2\ln + 2\boldsymbol{p}$ and $\boldsymbol{BIC} = -2\ln + \ln(\boldsymbol{n})\boldsymbol{p}$, where $\boldsymbol{L}$ is the fitted likelihood function, $\boldsymbol{p}$ is the number of freely estimated parameters, and $\boldsymbol{n}$ = sample size.

[2] This meta-analysis did not find evidence supporting a general factor of personality (GFP). The metatraits appear to be correlated only in single-informant data, indicating that the GFP is likely a statistical artifact rather than a substantive trait (see also Revelle & Wilt, 2013).

[3] If $\boldsymbol{n} > 7$, then, ***BIC*** entails a greater penalty for model complexity than ***AIC*** because $\ln(8) > 2$.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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