Associations Among NEO Personality Assessments and Well-Being at Midlife: Facet-Level Analyses

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The association between well-being and personality was examined in 2,379 middle-aged adults. Measures that parallel C. D. Ryff's (1989) psychological model were selected to assess well-being. The 30 facet scales of the NEO-PI-R were used to measure personality. More than 83% of the facet–well-being correlations within the domains of Neuroticism, Extraversion, and Conscientiousness reached statistical significance, whereas, less than half of the correlations within the domains of Agreeableness and Openness were significant. The facets within each domain demonstrated different patterns of associations with the well-being measures, indicating that facet-level assessments yield additional information.

The present study had the following two goals: (a) to examine the associations between personality and multifaceted assessments of well-being in a large sample during midlife, and (b) to extend previous findings by examining the associations between well-being and the six facets that comprise each of the five NEO-PI-R domains (Costa & McCrae, 1992).

Background

A body of evidence has accumulated over the past 20 years, indicating that personality and well-being are moderately related (e.g., Costa & McCrae, 1980; DeNeve & Cooper, 1998; Diener & Lucas, in press; Okun, in press; Schmutte & Ryff, 1997). Although the association between well-being and personality has received considerable attention, certain important areas have not been fully examined.

Researchers who focus on theory-based conceptualizations of well-being have stressed that it is a multifaceted construct (Ryff, 1989, 1995), consisting of six distinct components of psychological functioning, for example, autonomy, environmental mastery, positive relations with others, purpose in life, personal growth, and self-acceptance. Importantly, studies have shown that different personality domains vary with respect to their associations with certain components of well-being. For example, neuroticism may be closely linked to self-acceptance, whereas openness may not (Schmutte & Ryff, 1997).

Within the literature that assesses the associations between personality and well-being, there are those who study what has been referred to as "subjective well-being," a construct that

generally contains well-defined affective components (see De-Neve & Cooper, 1998), whereas others focus on a construct defined as "psychological well-being," which is conceptually less related to positive and negative affect (see Ryff, 1989, 1995). In this article, we have chosen to study well-being measures that are less affective in nature and therefore more closely parallel Ryff's conception of psychological well-being. This decision was based in part on findings by Schmutte and Ryff (1997), indicating that examination of the facets that underlie the personality domains may offer additional information regarding the associations between personality and psychological well-being. Specifically, these authors investigated the associations between personality and psychological well-being while statistically partialing out the effect of positive and negative affect. Their findings showed that when the affective components of psychological well-being were removed, the associations between psychological well-being and neuroticism were weakened, compared with prior associations when the affective components were present. These findings led Schmutte and Ryff to conclude that the facets of neuroticism that are less related to affective experiences may be differentially associated with components of psychological well-being not directly related to emotion.

The period of midlife may be a particularly interesting time to further examine the associations between personality and well-being. Whereas personality has reached rank-order stability by midlife (Roberts & DelVecchio, 2000), research on well-being has shown that there are consistent age differences across specific dimensions of well-being (Ryff & Singer, 1998). After reviewing the findings of several studies, including those from a national survey conducted by the MacArthur Research Network on Midlife Development ($N = 30,203$), Ryff and Singer (1998) suggested that compared to those who are younger and older, middle-aged individuals may be better off, consistent with, or worse off with respect to well-being, dependent on the aspect of well-being assessed. Thus, examination of the patterns of associations between personality and well-being at midlife may reveal relations that are not observed during other periods of life.

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Method

Sample

Data were obtained from the University of North Carolina Alumni Heart Study (UNCAHS)—an ongoing prospective study of coronary heart disease and its risk that started its prospective data collection in 1986–1987 when alumni were in their early 40s (for additional sample description see Siegler, Peterson, Barefoot, Harvin, et al., 1992; Siegler, Peterson, Barefoot, & Williams, 1992; and for additional articles on this sample that analyzed NEO-PI–R facets see Siegler & Costa, 1994; Siegler, Feaganes, & Rimer, 1995, 1996). The present sample of 2,379 middle-aged adults (mean age = 50.3 years at assessment of personality) reflects the sociodemographic characteristics of UNC students in the 1960s (i.e., 80% male students, and minority enrollment was less than 1%).

Follow-up questionnaires were mailed to UNCAHS participants at 12–18 month intervals. In addition to other psychosocial and health related questions, the third (1989–1991) and sixth (1994–1996) follow-up questionnaires contained a set of items that estimate four of the psychological well-being components conceptualized by Ryff (1989, 1995). The seventh follow-up battery (1997–1998) included the NEO Personality Inventory— Revised (NEO-PI–R: Costa & McCrae, 1992). Thus, although the UNCAHS was not originally designed to explore the associations between well-being and personality, it does contain appropriate measures to examine this relationship.

Individuals from the UNCAHS who were born between 1946–1949 and had data on the measures of interest were used in this report. These restrictions provided assessments of well-being and personality that were each gathered during midlife for all participants. We note that both well-being and personality have been shown to be stable during the period of midlife (see Diener & Lucas, in press; Costa & McCrae, 1989). Thus, we do not believe that assessment time differences between these measures is of concern with respect to the present analyses.

Measures

NEO personality assessment. The NEO-PI–R comprises 240 items that assess the five personality domains of Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C; 48 items each). In addition, six personality facets are assessed within each domain (8 items each), and these are summed to form the respective domain.

Well-being indicators. Ideally, items from the UNCAHS that could represent all six of Ryff's psychological well-being components would have been selected for the present study. However, measures were not available to estimate the constructs of personal growth or autonomy. In this study, self-acceptance was represented by the Rosenberg Self-Esteem Scale (Rosenberg, 1965; higher scores indicate higher self-esteem). Environmental mastery was represented by a weighted summary score of two items: (a) a 4-level item that assesses goal realization with respect to career achievement, and (b) a 10-level item that rates income sufficiency from 1 (*not at all sufficient*) to 10 (*more than sufficient*; higher scores indicate higher satisfaction). Positive relations with others was captured by a weighted summary score of two measures: (a) the appraisal subscale from the Interpersonal Social Evaluation List (Cohen, Mermelstein, Kamarck, & Hoberman, 1985), and (b) a 4-level item that assesses goal realization with respect to personal relationships (higher scores indicate higher satisfaction). Purpose in life was approximated by an item asking how you feel about your life as a whole, ranging from 0 (*terrible*) to 6 (*delighted*).

Table 1 provides the sample characteristics along with the means and standard deviations for the NEO-PI–R domains and the well-being measures.

Statistical Analyses

Pearson correlation coefficients were computed to examine the associations among each of the four well-being scores and each of the 30

Table 1
Sample Characteristics

Characteristic	M	SD
NEO-PI–R domain		
Neuroticism	48.9	10.4
Extraversion	50.7	10.4
Openness	51.1	11.5
Agreeableness	49.3	10.0
Conscientiousness	51.6	10.4
Well-being measure		
Self-acceptance	34.2	4.4
Environmental mastery	12.0	3.8
Positive relations with others	53.3	12.7
Purpose in life	4.6	0.9

Note. Percentage of male sample = 79%. NEO Personality Inventory— Revised (NEO-PI–R) domain ratings were standardized to gender norms using t scores (Costa & McCrae, 1992). Self-acceptance (i.e., self-esteem), range = 10–40; Environmental mastery (i.e., income and career achievement), range = 1–20; Positive relations with others (i.e., appraisal of, and achievement in, social relations), range = 10–80; Purpose in life (i.e., overall life satisfaction), range = 0–6.

NEO-PI–R facets. Because of the present focus of the relation between well-being and personality at midlife, and hence the restricted age range of the sample, the effect of age was not analyzed.

When sample size becomes large, even trivial correlations may reach the traditional $p < .05$ level of statistical significance. Furthermore, the inclusion of facet-level data and the use of multiple assessments of well-being required that a large number of analyses be performed. Thus, to decrease the likelihood of Type I error, we used a rejection criterion of $p < .001$ for all analyses.

Results

The correlations among the well-being measures were as follows: (a) self-acceptance with environmental mastery = −.31; purpose in life = −.35, positive relations with others = −.31; (b) environmental mastery with purpose in life = .28; positive relations with others = .24; and (c) positive relations with others with purpose in life = .28.

Table 2 provides the correlations among each of the 30 NEO-PI–R facets and the well-being factors. Table 2 also provides descriptive information with respect to the facet scales by listing the adjectives that have been shown to be significantly associated with each of the 30 facets (McCrae & Costa, 1992).

The results showed that the associations between personality and well-being vary according to the domain measured. For example, 24 unique correlations were computed among the six facets and the four well-being measures for each personality domain. The following are the number of significant associations found for Neuroticism, Extraversion, Conscientiousness, Openness, and Agreeableness: 23, 22, 21, 8, and 11, respectively. In addition, the size of the relations among the facets and well-being within the domains of Neuroticism, Extraversion, and Conscientiousness varied widely (i.e., .01–.56); however, magnitude of the relations among the facets and well-being within the domains of Openness and Agreeableness were somewhat less varied (i.e., .01–.26). Overall, self-acceptance and purpose in life were the well-being measures most strongly related to the individual facets.

Table 2
Associations Among the Well-Being Factors and the 30 NEO-PI-R Facets

NEO-PI-R facets	Self-acceptance	Environmental mastery	Positive relations with others	Purpose in life
Neuroticism				
N1-anxiety (anxious, fearful, worrying)	−.43*	−.14*	−.15*	−.35*
N2-hostility (anxious, irritable, impatient)	−.32*	−.09*	−.13*	−.29*
N3-depression (worrying, −contented, −confident)	−.56*	−.19*	−.20*	−.43*
N4-self-consciousness (shy, −self-confident, timid)	−.47*	−.13*	−.17*	−.26*
N5-impulsiveness (moody, irritable, sarcastic)	−.23*	−.09*	−.05	−.12*
N6-vulnerability (−clear-thinking, self-confident, −confident)	−.49*	−.18*	−.17*	−.36*
Extraversion				
E1-warmth (friendly, warm, sociable)	.24*	.09*	.21*	.23*
E2-gregariousness (sociable, outgoing, pleasure seeking)	.17*	.08*	.10*	.17*
E3-assertiveness (aggressive, −shy, assertive)	.38*	.21*	.14*	.25*
E4-activity (energetic, hurried, quick)	.27*	.20*	.10*	.19*
E5-excitement-seek (pleasure seeking, daring, adventurous)	.08*	.02	−.01	.07*
E6-positive emotions (enthusiastic, humorous, praising)	.29*	.13*	.25*	.34*
Openness				
O1-fantasy (dreamy, imaginative, humorous)	−.07*	−.07	.08*	−.06
O2-aesthetics (imaginative, artistic, original)	−.01	−.06	.12*	−.03
O3-feelings (excitable, spontaneous, insightful)	.01	−.02	.15*	−.01
O4-actions (interests wide, imaginative, adventurous)	.09*	−.03	.09*	.06
O5-ideas (idealistic, interests wide, inventive)	.10*	−.02	.07*	−.01
O6-values (−conservative, unconventional, −cautious)	.02	−.01	.05	−.04
Agreeableness				
A1-trust (forgiving, trusting, −suspicious)	.23*	.09*	.17*	.26*
A2-straight forwardness (−complicated, −demanding, −clever)	.05	−.01	.02	.03
A3-altruism (warm, soft-hearted, gentle)	.21*	.12*	.17*	.18*
A4-compliance (−stubborn, −demanding, −headstrong)	.04	.01	.04	.12*
A5-modesty (−show-off, −clever, −assertive)	−.17*	−.05	.01	−.02
A6-tender-minded (friendly, warm, sympathetic)	−.02	−.05	.07*	.01
Conscientiousness				
C1-competence (efficient, self-confident, thorough)	.44*	.22*	.17*	.27*
C2-order (organized, thorough, efficient)	.16*	.10*	.05	.09*
C3-dutifulness (−defensive, −distractible, −careless)	.25*	.18*	.06	.16*
C4-achievement striving (thorough, ambitious, industrious)	.32*	.24*	.08*	.18*
C5-self-discipline (organized, −lazy, efficient)	.38*	.18*	.10*	.24*
C6-deliberation (−hasty, −impulsive, −careless)	.16*	.08*	.01	.10*

Note. Neuroticism = N, Extraversion = E, Conscientiousness = C, Openness = O, and Agreeableness = A. NEO Personality Inventory—Revised (NEO-PI-R) assessed at mean age 50.3; self-acceptance (i.e., self-esteem), environmental mastery (i.e., income and career achievement), and positive relations with others (i.e., appraisal of, and achievement in, social relations) assessed at mean age 42.6, and purpose in life (i.e., overall life satisfaction) assessed at mean age 47.4. McCrae and Costa (1992) examined correlations among the NEO-PI-R facets and 300 adjectives from the Adjective Check List. The parentheses contain examples of the adjectives that were most strongly associated with each of the 30 facets. Adjective descriptions are given in descending order of absolute magnitude, and minus signs before adjectives indicate negative correlations with the facet scale.
*p < .001.

Discussion

These results suggest that psychological well-being and personality are related at midlife and that the facets of Neuroticism, Extraversion, and Conscientiousness are those most closely associated with well-being. In fact, all six facets of each of these domains were significantly related to at least two of the four measures of well-being. Prior research has indicated that Agreeableness and Openness are found to be only slightly related to well-being (Diener & Lucas, in press; Seidlitz,1993), thus, it is not surprising that the facets within the domains of Openness and Agreeableness were unrelated to many aspects of well-being in this study. Indeed, O6-values and A2-straight forwardness were unrelated to any of the present well-being measures. In addition, our findings suggest that facet-level analyses supplied information beyond that provided by domain level analyses, as the facets within the personality domains

were differentially related to the present measures of well-being.

Our measure of self-acceptance was selected to reflect the component of well-being that deals with having a positive attitude toward one's self in general. This measure of well-being showed relatively strong negative associations with N3-depression, N1-anxiety, and N6-vulnerability, and it was positively associated with E3-assertiveness, C1-competence, and C5-self-discipline. To the extent that self-acceptance is related to emotional experience and the ability to be aggressive and efficient, this pattern of correlations seems quite understandable. The correlations among self-acceptance and the facets of Openness and Agreeableness were clearly lower in magnitude and less closely tied to one's general feelings of self-worth.

In the present study, environmental mastery was related primarily to the facets of Conscientiousness. However, this measure of

well-being was also moderately associated with two of the facets of Extraversion (i.e., E3-assertiveness and E4-activity) and showed modest relations with the facets of E1-warmth and E2-gregariousness. This pattern of correlations suggests that measures of Extraversion emphasizing warmth in social relationships may demonstrate slight associations with environmental mastery, whereas measures of Extraversion that reflect social dominance may show much stronger associations with environmental mastery. These associations are also likely to depend on the measure of Environmental Mastery used, e.g., the present findings suggest that Environmental Mastery measures with an economic or achievement orientation may be associated with certain aspects of Extraversion and not with others.

The well-being measure of positive relations with others in this study reflected one's appraisal of, and satisfaction with, close relationships. The present findings suggest that this form of well-being is primarily associated with E1-warmth, E6-positive emotions, N3-depression, A1-trust, A3-altruism, and C1-competence. Thus, a variety of personality facets across the five domains seem to be tied to how individuals get along with others. Interestingly, the results of related research that explored the associations between numerous personality constructs and well-being (DeNeve & Cooper, 1998) showed that trust was among the nine constructs most closely related to well-being.

Our well-being assessment labeled purpose in life was based on how one rated their feelings about their life as a whole. This type of assessment is likely to be closely related to the broad construct often referred to as life satisfaction. This well-being measure was related to all of the Neuroticism and Extraversion facets and was also moderately associated with A1-trust, C1-competence, and C5-self-discipline. Thus, much like positive relations with others, this rather broad aspect of well-being was linked to many facets of personality.

Within the domain of Neuroticism, there was little support for the notion that the facets least associated with affect (i.e., N4-self-consciousness and N5-impulsiveness) were differentially associated with well-being, as compared with the facets more closely related to affect. Specifically, although the magnitude of the associations among well-being and N4-self-consciousness and N5-impulsiveness were somewhat weaker than the other Neuroticism facets, the pattern of relations across well-being measures was generally consistent with that of the other facets. However, we note that we did not statistically control for positive and negative affect in these analyses, as did Schmutte and Ryff (1997), and it is likely that such analyses would yield somewhat different results.

Limitations exist with regard to the present findings. As previously mentioned, the UNCAHS is comprised of 99% Caucasian participants reporting a mean annual income of $60 thousand or more. Thus, because the UNCAHS does not represent a population-based sample, the present results may not replicate in more diverse populations. In addition, the present well-being measures were only intended to estimate those in Ryff's multidimensional model, thus they may have captured conceptually different information. Finally, although the UNCAHS is a longitudinal study, the analyses presented in this article are cross-sectional in nature, as the measures were not analyzed by time of measurement. Thus, these analyses cannot address questions regarding developmental changes in either personality or well-being.

In sum, the present findings suggest that being less neurotic and more extraverted and conscientious at midlife is associated with greater satisfaction with self-worth and with life as a whole. However, not all facets of personality within those personality domains had identical relationships with well-being. Although there were weaker facet–well-being associations within the domains of Agreeableness and Openness, significant associations were demonstrated. Thus, the facet scales on the NEO-PI-R are more than just a convenient way to remember the components of the domains—the "little 30" facets, which are basic personality traits, can add to our understanding of the way the "Big 5" domains are associated with important areas of adult life.

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