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Abstract

Past work has demonstrated that Big Five personality traits both predict relationship success and respond to changes in relationship status. The current study extends this work by examining how developments on the Big Five traits correspond to another important social outcome in adulthood, social well-being. Using the Mid-Life Development in the U.S. longitudinal data sample of adults, the authors examined traits and social well-being at two time points, roughly 9 years apart. Results find support for two primary claims. First, initial levels of social well-being correlated positively with initial standing on extraversion, agreeableness, conscientiousness, emotional stability, and openness. Second, *changes* in social well-being over time coincided with *changes* on these traits, in the same directions. Taken together, these findings provide broad support that trait development and social well-being development coincide during adulthood.

Keywords

adult personality development, social well-being, big five, personality change

When considering well-being as a psychological construct, most studies focus on emotional, subjective, or psychological well-being. Relative to these domains, more research is needed on the topic of social well-being, particularly given the prominent and long-standing declarations of its importance to mental health (e.g., U.S. Department of Health and Human Services, 1999; World Health Organization, 1948). For example, while researchers have focused on interpersonal indicators of social health, such as social support, less work has examined social well-being from the level of the individual (Keyes & Shapiro, 2004). However, studies that have examined social well-being following this conception note that it predicts several important outcomes, such as depression and anxiety problems (Keyes, 2005), as well as general mental and physical health (Zhang, Chen, McCubbin, McCubbin, & Foley, 2011). In addition, individuals higher on social well-being tend to be more predisposed toward civic engagement and prosocial behavior (Keyes & Ryff, 1998).

Accordingly, work is needed to examine the correlates of social well-being as well as factors that can contribute to increases in social well-being over time. One logical candidate to is personality, given that personality traits have been shown to consistently predict both interpersonal and well-being outcomes (see for a review, Ozer & Benet-Martinez, 2006). However, few studies have used a lifespan developmental perspective in which both personality and social outcomes are

seen as dynamic constructs that change over time and with experience. Following a lifespan developmental perspective, the current study examined not only how traits correlate with social well-being but also how personality trait changes correspond to well-being changes. Using the Mid-Life Development in the U.S. (MIDUS) longitudinal sample, we examined the longitudinal relations between Big Five traits and social well-being at two measurement occasions, roughly 9 years apart.

Personality Trait Development in Adulthood

With respect to Big Five traits, the story typically told during the adult years is one of the increasing consistency combined with continued capacity for growth (Roberts, Wood, & Caspi, 2008). Indeed, trait levels evidence stronger test-retest stabilities after the emerging adult years (e.g., Roberts & DelVecchio,

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2000). That said, changes do occur throughout the lifespan, and general developmental patterns have been discerned. For example, individuals tend to increase in agreeableness, conscientiousness, and emotional stability during adulthood (Roberts, Walton, & Viechtbauer, 2006). Levels of openness though may decline, at least in late adulthood. While continuity and normative change in personality traits are important, they fail to capture all of the dynamics of personality development. It is worth noting that interindividual differences in personality trait change exist, which indicates that some individuals change more or less than the normative trends demonstrated at the population level (e.g., Mroczek & Spiro, 2003).

An important question then is whether and how personality traits correspond to changes in adaption and well-being in adulthood. Given the fact that personality traits are both continuous and changing, several longitudinal models have tested the developmental interplay between personality and well-being (e.g., Lehnart & Neyer, 2006; Lüdtke, Roberts, Trautwein, & Nagy, 2011; Roberts & Chapman, 2000). On one hand, personality traits will predict experiences down the road or in the years following the assessment of personality traits. For example, individuals higher in neuroticism in high school tend to have more negative life experiences in the subsequent years when they go to college (Lüdtke et al., 2011). Alternatively, life experiences, and variables that represent evaluations of life experiences, often are correlated with changes in personality traits. In the example above, pre-event levels of neuroticism predicted negative life events, and negative life events were associated with increases in neuroticism over time. In the following study, we tested the developmental interplay between personality traits and social well-being, which can be viewed as a marker of how people evaluate their life experiences.

Big Five Traits and Social Well-Being

Keyes (1998) proposed that individual-level social well-being can be described on multiple dimensions, including social integration, social acceptance, social contribution, and social actualization. Social integration implies felt commonality and connectedness to society. Social acceptance entails that one views others in a generally positive light and believes that people are kind and care about each other. Social contribution involves a sense that one can provide or has provided to society. Social actualization can be defined as the belief that society has the potential for growth and is developing in an adaptive fashion. While Keyes finds evidence for considering these as separate elements, his studies demonstrate that all components are correlated with markers of adaption such as happiness, life satisfaction, generativity, and self-rated physical health. That said, both theoretical and empirical grounds exist for considering social well-being as an aspect separable from either hedonic or eudemonic well-being (e.g., Gallagher, Lopez, & Preacher, 2009; Keyes, 2005). For instance, Gallagher, Lopez, and Preacher (2009) examined the relationships between these three forms of well-being and demonstrated that the best-fitting model for these constructs allowed for a higher-order

well-being factor with three lower-order factors for social, hedonic, and eudemonic well-being. In other words, the authors found that while three types of well-being are very highly correlated, there is empirical support for considering them as separable, rather than simply a one-factor solution.

Only a handful of studies have examined the relations between the Big Five traits and social well-being, as conceptualized in this manner. However, in research examining constructs similar to social well-being, individuals high on extraversion, agreeableness, conscientiousness, and emotional stability fair better socially (for a review, see Ozer & Benet-Martinez, 2006). For example, research suggests that individuals high on negative emotionality (a construct similar to neuroticism) have diminished romantic relationship success (e.g., Donnellan, Larsen-Rife, & Conger, 2005). One thus would expect that certain traits would predict greater social well-being, because traits shape many of the attitudes and behaviors that form Keyes' four dimensions of social well-being. For example, extraverted individuals should be more socially integrated and thus should possess higher levels of social integration. Likewise, agreeable persons are typically defined as being more accepting of others, and thus should have higher levels of social acceptance. Consistent with these conceptual arguments, one study found that social well-being scores correlated positively with extraversion, conscientiousness, emotional stability, and openness, and a trend was evident for agreeableness (Wilt, Cox, & McAdams, 2010). Moreover, research has demonstrated that the Big Five traits can show differential relations according to the facet of interest (Joshani & Nosratabadi, 2009). For example, in their study of Iranian undergraduates, extraversion, agreeableness, and conscientiousness evidenced somewhat stronger relations with contribution and coherence than the other facets. Moreover, while openness also correlated positively with those two facets, it actually correlated negatively with acceptance. Therefore, it appears of interest to examine these relations separately by facet.

Previous research and theory on constructs analogous to social well-being would lead us to expect there to be a relationship between social well-being and traits over time. For instance, trait change might be linked to social investment, or the commitment to and experience of social roles indicative of adulthood, such as family, occupational, and community engagement (e.g., Helson, Kwan, John, & Jones, 2002; Lehnart, Neyer, & Eccles, 2010; Roberts & Wood, 2006; Roberts, Wood, & Smith, 2005). This work posits that making such commitments corresponds with increases on those traits that facilitate social investment, such as agreeableness, conscientiousness, and emotional stability. In other words, not only do social roles change during adulthood, but individuals may also react by adapting their personalities to better suit these roles. Several longitudinal studies have supported this claim by showing relations between changes in relationship outcomes and changes in the Big Five traits (e.g., Neyer & Asendorpf, 2001; Neyer & Lehnart, 2007; Scollon & Diener, 2006). For instance, one study demonstrated that decreases in indicators

of relationship quality with respect to both peer and family relations were associated with increases in neuroticism during young adulthood (Neyer & Lehnart, 2007). In addition, changes in extraversion and neuroticism have been linked to changes in romantic relationship satisfaction (Roberts & Chapman, 2000; Scollon & Diener, 2006). However, most of this longitudinal work has focused on specific relationship contexts (e.g., romantic, peer, family), rather than on social well-being from the perspective of the individual.

Current Study

The current study sought to examine whether and how personality traits correlate with levels of social well-being, as well as if *changes* on personality traits coincide with social well-being *changes*. First, based on the literature above, we predicted that all Big Five traits should initially correlate with greater social well-being, although these correlations may differ by facet. Second, we predicted that adaptive developments on these traits should coincide with increases in social well-being, insofar that people become more extraverted, agreeable, conscientious, and open to experience, as well as less neurotic, as their social well-being improves. We tested these predictions using data from the MIDUS sample, in which participants reported on their personality and social well-being across two measurement occasions about 9 years apart.

Method

Sample and Longitudinal Design

The first wave of the MIDUS study (MIDUS 1) collected survey data from 7,108 noninstitutionalized, English-speaking adults in the coterminous United States, aged 25–74. Data were collected in 1995–1996. A longitudinal follow-up of the original MIDUS study was conducted in 2004–2006 (MIDUS 2). Every attempt was made to contact all the original respondents and invite them to participate in a second wave of data collection. The average longitudinal follow-up interval was approximately 9 years (7.8–10.4 years). Of the 7,108 participants in MIDUS 1, 4,963 (75% response rate, adjusted for mortality) were successfully contacted to participate in another phone interview of approximately 30 min in length. Those who completed both the self-administered questionnaires and phone interviews at MIDUS 1 and MIDUS 2 numbered 3,990.

Approximately, 70% of participants were retained from MIDUS 1 to MIDUS 2 (6% deceased; 12% refusal; 3% unable to interview; 9% no working phone number). Analysis of attrition revealed that respondents lost to follow-up differed from those who participated in the longitudinal panel on certain variables. The longitudinal sample was significantly higher on conscientiousness ($d = .17$) but significantly lower on both neuroticism ($d = .05$) and agreeableness ($d = .06$). Moreover, the longitudinal sample scored higher on integration ($d = .13$), acceptance ($d = .12$), contribution ($d = .20$), and actualization ($d = .08$), all p 's < .05. While these were significant differences, all effect sizes would be categorized as small (all d 's

equal to or less than .20) in magnitude (Cohen, 1992). The overall survey contained multiple indices of personality, health, well-being, and behaviors, and we report below on the primary measures of interest.

Measures of Interest

Big Five personality traits. The MIDUS Big Five Adjectival scale was developed from a combination of existing personality trait lists and inventories (see Lachman & Weaver, 1997). Respondents were asked how much each of 25 adjectives described themselves on a scale ranging from 1 (*not at all*) to 4 (*a lot*). The adjectives were: moody, worrying, nervous, calm (*neuroticism*); outgoing, friendly, lively, active, talkative (*extraversion*); creative, imaginative, intelligent, curious, broad-minded, sophisticated, adventurous (*openness*); organized, responsible, hardworking, careless (*conscientiousness*); helpful, warm, caring, softhearted, sympathetic (*agreeableness*). This scale has good construct validity (Mroczek & Kolarz, 1998), and α reliabilities for the traits were moderate across the two time points (α 's range from .56 to .81).

Social well-being. The Social Well-Being scale (short version) assesses five different well-being dimensions (Keyes, 1998): social integration, social acceptance, social contribution, social actualization, and social coherence. The MIDUS data file included 3-item measures of integration, acceptance, contribution, and actualization at both time points. Therefore, we focused on these facets of social well-being. Participants rated their agreement to these items on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Sample items include “I feel close to other people in my community” (*integration*), “I believe that people are kind” (*acceptance*), “I have something valuable to give to the world” (*contribution*), and “The world is becoming a better place for everyone” (*actualization*). Reliabilities were moderate (α 's greater than or equal to .65) at both time points for integration, contribution, and actualization, but lower ($\alpha = .40$ and $.41$) for acceptance. However, for acceptance, the average interitem correlations were still .20, suggesting that the lower reliabilities were mostly due to the short nature of the scale. Correlations between facets ranged from .25 to .48 (average $r = .36$; all p 's < .05) at MIDUS 1, suggesting that while these facets tap a similar overarching construct, it may be valuable to consider them as separate outcomes. Moreover, past work with the MIDUS 2 sample has suggested that it may be inappropriate to consider these facets as tapping a single higher-order factor (Gallagher et al., 2009).

Plan of Analysis

We fit structural equation models to simultaneously examine latent changes in personality traits and social well-being facets. Figure 1 represents the basic dual latent change model we fit. At each time point, the item indicators load onto latent mean constructs. These latent means then form latent intercept and change parameters, with both time points loading onto the intercept, and the second time point loading onto the change

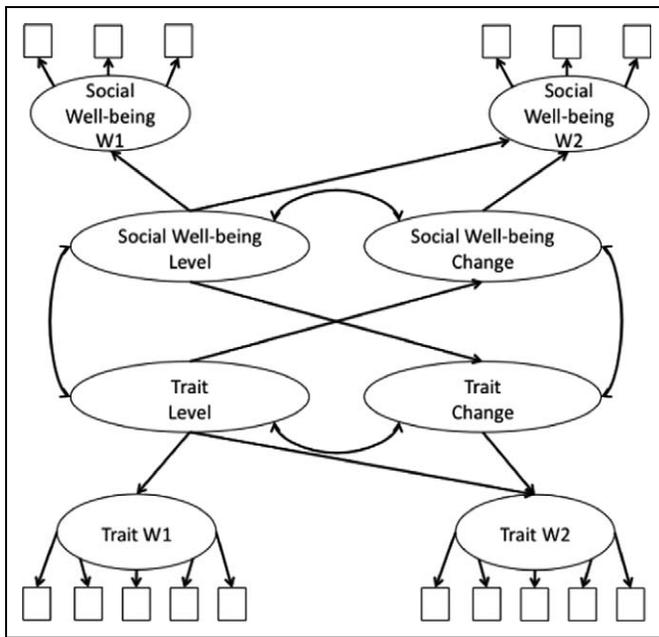


Figure 1. Representation of the dual latent change models investigated in the current study. The number of trait indicators differs depending on the trait being analyzed.

construct. We fixed all item factor loadings and item residual variances to be equivalent across time points, and same item residuals were allowed to correlate across time. Intercept and change parameters for traits and well-being facets were allowed to correlate. In addition, we allowed the intercept parameters to predict change in the opposite construct. We fit these latent change models separately for each Big Five trait, and for each of the four social well-being facets. For the construct of openness, we fit all models using three parcels of 1–2 items each, given that using all 7 items as separate indicators led to less-than-acceptable model fits. Parcels better adhere to the assumptions of normality than single items, and when parceling, we followed an item-to-balance approach (Little, Cunningham, Shahar, & Widaman, 2002). For all models, we controlled for sex and age effects on the intercept and change parameters, and estimated missing data using full information maximum likelihood techniques. This technique allows us to use participants' data for a wave when they have included some information at that wave, but participants with information at only one wave have little to no effect on the longitudinal results evidenced.

When interpreting these results, three parameters are of particular interest. First, a significant correlation between the intercepts would suggest that trait levels and social well-being levels were related at the initial time point. Second, a positive correlated change effect would suggest that participants who increased on trait levels increased on well-being, while a negative correlated change effect would suggest the changes on the constructs were significantly linked in opposite directions. Third, it is possible that initial levels of one construct would predict change in the other. When discussing change effects below, we tend to focus on a single description

of these effects, although they obviously can be described in either direction. For example, while we may discuss that individuals who increase on a trait also increase in social well-being, it should be noted that one instead could state that those who decline on the trait decline in well-being.

Results

We first examined sex and age effects on the intercepts and changes in personality traits and social well-being, by fitting latent change models separately for each construct. Table 1 presents the results for these models. From these models, three results are of interest. First, looking at the means for change in column 2, our sample evidenced significant mean-level declines in extraversion, agreeableness, neuroticism, and openness, but an increase in conscientiousness. All social well-being variables evidenced significant mean-level increases over time, except for contribution. Second, as shown in column 3, we found significant interindividual variance in all intercept and change parameters, allowing us to examine predictors and correlates of these constructs. Third, as shown in column 6, for all constructs, we found a negative correlation between the intercept and change parameters. Such results are typical as individuals initially higher on a construct have less ability to evidence further increases over time. Put differently, adults with lower initial levels have a greater ability to increase their levels.

We proceeded to test our primary hypotheses of interest. Table 2 presents the results of our simultaneous latent change models. All models evidenced good model fits (all comparative fit index [CFI]'s $> .93$, all root mean square error approximation [RMSEA]'s $< .05$). Accordingly, we proceeded to interpret the parameter estimates of interest. For parsimony, we discuss in detail only those effects that reached at least .1 in magnitude in the Results section. As evident in columns 3 and 4 of Table 2, few meaningful effects were found either for personality level predicting change in social well-being, or for social well-being level predicting personality change. Only two effects reached the .1 threshold, and both were counterintuitive in direction (greater initial integration and actualization predicted increases in neuroticism). Therefore, little evidence was present that these level-to-change effects were of practical significance, and we thus focus our discussion on the initial correlations and correlated change effects.

With respect to extraversion, individuals with higher levels on the trait reported greater initial social well-being with respect to all four facets (r 's range from .19 to .35). In addition, *changes* in extraversion correlated with *changes* on all four facets (r 's range from .08 to .24), and all but actualization reached .1. For agreeableness, initial levels were correlated with greater social well-being across all facets (r 's range from .09 to .27). Correlated change effects also were evidenced across all four well-being facets (r 's range from .05 to .17). In both cases, all facets reached the .1 threshold except for actualization.

Conscientious individuals reported higher initial social well-being on all facets (r 's range from .15 to .32). Changes

Table 1. Means and Variances for Intercept and Change Parameters, Along With Standardized Beta Weights for the Sex and Age Effects on the Intercept and Change Parameters, and the Correlation Between Intercept and Slope Parameters

Construct	Mean (SE)	Variance (SE)	Age	Sex	r_{IC}
Personality					
Extraversion intercept	—	0.39* (.012)	-.02	-.07*	-.28*
Extraversion change	-0.11* (.088)	0.17* (.008)	.07*	-.02	—
Agreeableness intercept	—	0.12* (.004)	.07*	-.30*	-.34*
Agreeableness change	-0.03 (.005)	0.07* (.003)	.06*	-.04	—
Conscientiousness intercept	—	0.18* (.010)	.06*	-.16*	-.35*
Conscientiousness change	0.02* (.007)	0.09* (.007)	-.10*	.04	—
Neuroticism intercept	—	0.22* (.009)	-.11*	-.15*	-.47*
Neuroticism change	-0.15* (.007)	0.12* (.006)	-.03	.00	—
Openness intercept	—	0.25* (.007)	-.07*	.07*	-.30*
Openness change	-0.11* (.007)	0.12* (.005)	.04	-.02	—
Social Well-Being					
Integration intercept	—	1.20* (.048)	.23*	-.04*	-.53*
Integration change	0.12* (.017)	0.77* (.039)	-.09*	.01	—
Acceptance intercept	—	0.33* (.033)	.22*	-.13*	-.51*
Acceptance change	0.13* (.013)	0.13* (.020)	-.06*	.02	—
Contribution intercept	—	0.70* (.030)	-.12*	.01	-.39*
Contribution change	-0.02 (.013)	0.33* (.022)	-.07*	.02	—
Actualization intercept	—	0.69* (.038)	.00	.02	-.50*
Actualization change	0.14* (.015)	0.48* (.031)	-.06*	.04	—

Note: *indicates $p < .05$; a negative sex effect suggests that females scored higher than males. Intercepts were estimated with a mean of 0, to scale the change factor.

Table 2. Results of the Latent Change Models Broken Down by Personality Trait, Controlling for Age and Sex Effects. All Parameters Reported are Either Correlations or Standardized Betas

SWB Facet	P_i w/ $SoWB_i$	$P_i \rightarrow SoWB_C$	$SoWB_i \rightarrow P_C$	P_C w/ $SoWB_C$	χ^2	df	RMSEA	CFI
Extraversion								
Integration	.35*	-.06*	-.08*	.17*	1773.39	129	.04	.94
Acceptance	.20*	.01	-.03	.14*	1579.09	129	.04	.94
Contribution	.34*	-.07*	-.07*	.24*	1749.61	129	.04	.94
Actualization	.19*	.02	-.01	.08*	1505.01	129	.04	.95
Agreeableness								
Integration	.25*	-.04	-.04	.10*	1347.23	129	.04	.96
Acceptance	.18*	.01	.00	.13*	1167.23	129	.03	.96
Contribution	.27*	-.06*	-.06*	.17*	1378.46	129	.04	.96
Actualization	.09*	.01	.01	.05*	1199.61	129	.03	.96
Conscientiousness								
Integration	.19*	.02	-.06*	.05*	895.36	97	.03	.95
Acceptance	.15*	.06	-.02	.11*	716.24	97	.03	.95
Contribution	.32*	-.01	-.07*	.17*	773.56	97	.03	.96
Actualization	.18*	.05	-.04	.07*	706.23	97	.03	.96
Neuroticism								
Integration	-.24*	.05*	.13*	-.10*	1429.37	97	.04	.95
Acceptance	-.25*	.07*	.07*	-.08*	1198.74	97	.04	.94
Contribution	-.26*	.02	.07*	-.14*	1134.18	97	.04	.95
Actualization	-.27*	.06*	.10*	-.09*	1007.29	97	.04	.96
Openness								
Integration	.18*	.00	-.07*	.10*	416.67	69	.03	.99
Acceptance	.14*	.00	-.03	.13*	403.96	69	.03	.98
Contribution	.45*	-.07*	-.04	.21*	572.44	69	.03	.98
Actualization	.24*	-.03	-.01	.08*	316.91	69	.02	.99

Note: *indicates $p < .05$. In order, Columns 2 through 5 of the table present the initial correlation, the effect of personality intercept on social well-being change, the effect of social well-being change on personality intercept, and the correlation between the change parameters.

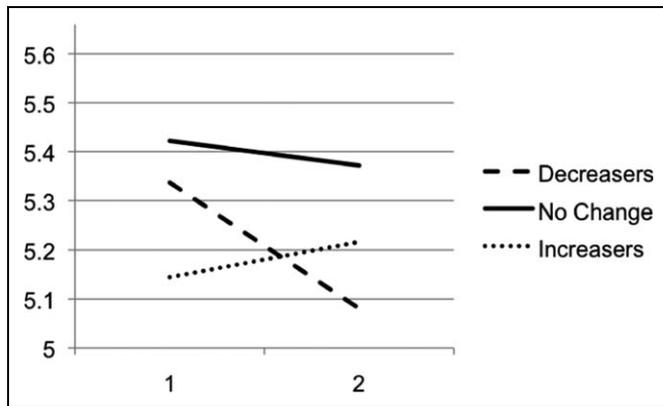


Figure 2. Estimated social contribution levels at Waves 1 and 2 plotted for adults who increased, decreased, or did not appreciably change on conscientiousness across time. The y-axis is scaled to reflect a full standard deviation centered on the Wave 2 mean for social contribution. Note. Decliners were defined as individuals at least 1 SD below 0 on trait change, increasers were at least 1 SD above 0 on trait change, and the no change group was between -1 and 1 SD around 0 on trait change.

in conscientiousness also correlated with changes on all facets (*r*'s range from .05 to .17), with the effects for both acceptance and contribution reaching our threshold. To represent how this change might look, Figure 2 presents latent estimates of the social contribution levels for adults who changed on conscientiousness. The relationship appears to be primarily driven by people who decreased in social contribution over time, who also tended to decrease in conscientiousness. For neuroticism, initial levels correlated negatively with all social well-being facets (*r*'s range from -.24 to -.27). In addition, individuals who became more neurotic tended to decline on all facets (*r*'s range from -.08 to -.14), with integration and contribution reaching the .1 threshold.

Openness demonstrated the most differentiated results by social well-being facet. With respect to integration, acceptance, and actualization, levels of openness correlated initially with these facets (*r*'s range from .14 to .24) and changes in openness correlated with changes on these facets (*r*'s range from .08 to .13). Again, actualization was the only facet that failed to reach threshold. While these effects also held for contribution, the magnitudes of these effects were generally much stronger in magnitude (initial *r* = .45; correlated change *r* = .21). Figure 3 presents the graphical representation of how changes on openness coincide with social contribution levels. In this case, the association between changes appears to work in both directions.

Finally, we examined whether sex or age might moderate the correlated change estimates. Toward this end, we fit the models without control variables separately for males and females, and for younger (up to 45 years) and older (over 45 years) adults, based on the median age for our sample. With respect to sex differences, in no case did the correlated change estimates differ in magnitude by more than .1 between the sexes (average difference = .05), and the effects were always

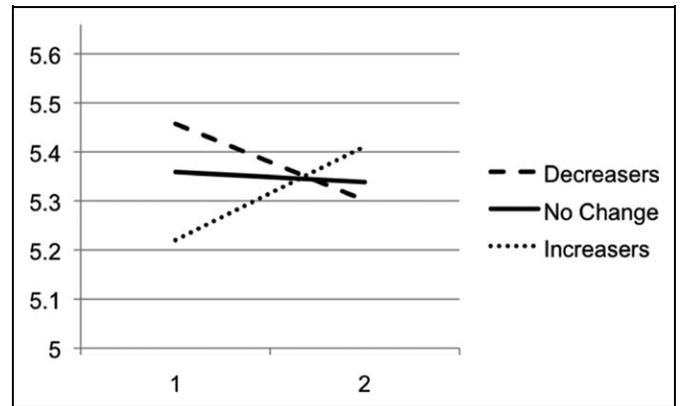


Figure 3. Estimated social contribution levels at Waves 1 and 2 plotted for adults who increased, decreased, or did not appreciably change on openness across time. The y-axis is scaled to reflect a full standard deviation centered on the Wave 2 mean for social contribution. Note. Decliners were defined as individuals at least 1 SD below 0 on trait change, increasers were at least 1 SD above 0 on trait change, and the no change group was between -1 and 1 SD around 0 on trait change.

in the same direction. With respect to age group differences, all correlated change estimates differed in magnitude by .13 or less (average difference = .05), and the effects again were all in the same direction. Of the 40 total sex and age difference comparisons, only two comparison tests reached statistical significance, which is exactly the number one would anticipate by chance. Therefore, it appears that trait changes correlate with social well-being changes to relatively similar extents between males and females, and between younger and older adults.

Discussion

The current study sought to examine the longitudinal relations between the Big Five personality traits and social well-being in a sample of mid-life adults. We found broad support that social well-being during adulthood is linked longitudinally with personality trait profiles. Adults initially higher on extraversion, agreeableness, conscientiousness, and openness, as well as those lower in neuroticism reported higher levels of social well-being. Moreover, increases on these traits (but decreases in neuroticism) correlated with increases in social well-being in all models. Therefore, our results provide support for the adaptive nature of these traits insofar that they correlate with initial social well-being levels, and even tend to increase in tandem with well-being levels.

Overall, we found few differential effects by social well-being facet, but two trends were apparent. First, changes in actualization were the least strongly related to trait changes; indeed, the correlated change effects for this facet never reached our threshold for discussion. This result might occur because social actualization corresponds less to the connections between the individual and society, and more on the individual's perception for society's future. As such, one might anticipate weaker correlations with trait changes, because this

facet captures less of how the individual is interacting within his or her community.

Second, the most pronounced differences occurred with respect to the trait of openness, which also was the trait that demonstrated the most differential profile of cross-sectional social well-being correlates in Joshanloo and Nosratabadi's (2009) work. Building on Joshanloo and Nosratabadi's cross-sectional study, we found both a stronger concurrent and a stronger longitudinal relation between openness and social contribution than between the trait and the other facets. Paired together, these results suggest that open individuals are more predisposed toward believing that they can provide for future generations, and have something to give to the world. Past work has suggested that creative individuals score higher on social contribution (Kashdan et al., 2009). Accordingly, one explanation for the link between openness and social contribution may be that open individuals tend to be more artistic and believe that through their creative work, they can provide substantive contributions to society.

In the case of openness, research has noted a distinction between the "Intellect" component, which focuses more on intelligence, creativity, and competence, and the "Openness" component, which emphasizes aesthetics, fantasy, and imagination (e.g., DeYoung, Quilty, & Peterson, 2007). Accordingly, the social benefits of openness might focus more on the benefits of the Intellect aspect than the Openness aspect. Indeed, research has noted that people place importance on competence when forming initial impressions of others (see for a review, Cuddy, Fiske, & Glick, 2008); therefore, competent individuals should benefit socially by virtue of being perceived in a more favorable light. To this end, it is worth noting that several of our adjectives for the openness domain appear to focus on the Intellect facet instead of the Openness facet. However, this speculation warrants further empirical study, as relatively few studies have examined the effects of openness on relationships. Indeed, several studies cited in the introduction failed even to assess openness, and thus our study provides a valuable contribution to the literature just for demonstrating the importance of examining openness in future work.

A few limitations of the current work also are worth noting, as additional directions for future research. First, it would be preferable to have more than two waves of data in order to better estimate the changes in personality and social well-being over time. Second, a few of our measures showed less-than-ideal reliability at one or both measurement occasions, and as such, it would be beneficial to replicate these findings using more reliable measures for these constructs. That said, all analyses were conducted using structural equation modeling, which should help account for any possible measurement error. Third, it would be worthwhile to test these effects in a non-American sample, as different personality profiles may prove more adaptive in other cultures. This point is supported by the fact that Big Five demonstrated somewhat different correlations with social well-being in the Iranian sample discussed above (Joshanloo & Nosratabadi, 2009).

In summary, our results demonstrate that certain individuals may be better equipped for the social environmental changes that occur during adulthood. Generally speaking, individuals higher on extraversion, agreeableness, conscientiousness, emotional stability, and openness tend not only to report higher levels of social well-being but also are more likely to increase in well-being during adulthood. Furthermore, adults who gain on these traits tend also to gain in social well-being. In this respect, our research demonstrates the adaptive nature of these five traits insofar that changes on these traits coincide with developments in social well-being during adulthood.

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References

- Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155–159.
- Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The stereotype content model and BIAS map. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (vol. 40, pp. 61–149). New York, NY: Academic Press.
- DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology*, *93*, 880–896.
- Donnellan, M. B., Larsen-Rife, D., & Conger, R. D. (2005). Personality, family history, and competence in early adult romantic relationships. *Journal of Personality and Social Psychology*, *88*, 562–576.
- Gallagher, M. W., Lopez, S. J., & Preacher, K. J. (2009). The hierarchical structure of well-being. *Journal of Personality*, *77*, 1025–1050.
- Helson, R., Kwan, V. S. Y., John, O. P., & Jones, C. (2002). The growing evidence for personality change in adulthood: Findings from research with personality inventories. *Journal of Research in Personality*, *36*, 287–306.
- Joshanloo, M., & Nosratabadi, M. (2009). Levels of mental health continuum and personality traits. *Social Indicators Research*, *90*, 211–224.
- Kashdan, T. B., Gallagher, M. W., Silvia, P. J., Winterstein, B. P., Breen, W. E., Terhar, D., & Steger, M. F. (2009). The curiosity and exploration inventory-II: Development, factor structure, and psychometrics. *Journal of Research in Personality*, *43*, 987–998.
- Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, *61*, 121–140.

- Keyes, C. L. M. (2005). Mental health and/or mental illness? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology, 73*, 539–548.
- Keyes, C. L. M., & Ryff, C. D. (1998). Generativity in adult lives: Social structural contours and quality of life consequences. In D. McAdams & E. de St. Aubin (Eds.), *Generativity and adult development: Perspectives on caring for and contributing to the next generation* (pp. 227–263). Washington, DC: American Psychological Association.
- Keyes, C. L. M., & Shapiro, A. D. (2004). Social well-being in the United States: A descriptive epidemiology. In O. G. Brim, C. D. Ryff, & R. C. Kessler (Eds.), *How healthy are we? A national study of well-being at midlife* (pp. 350–372). Chicago, IL: University of Chicago Press.
- Lachman, M., & Weaver, S. L. (1997). *The Midlife Development Inventory (MIDI) personality scales: Scale construction and scoring* (Tech. Rep. No.1). Waltham, MA: Brandeis University, Department of Psychology.
- Lehnart, J., & Neyer, F. J. (2006). Should I stay or should I go? Attachment and personality in stable and instable romantic relationships. *European Journal of Personality, 20*, 475–496.
- Lehnart, J., Neyer, F. J., & Eccles, J. (2010). Long-term effects of social investment: The case of partnering in young adulthood. *Journal of Personality, 78*, 639–670.
- Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling, 9*, 151–173.
- Lütke, 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.
- Mroczek, D. K., & Kolarz, C. M. (1998). The effect of age on positive and negative affect: A developmental perspective on happiness. *Journal of Personality and Social Psychology, 75*, 1333–1349.
- Mroczek, D. K., & Spiro, A., III. (2003). Modeling intraindividual change in personality traits: Findings from the Normative Aging Study. *Journals of Gerontology, 58*, 153–165.
- Neyer, F. J., & Asendorpf, J. B. (2001). Personality-relationship transaction in young adulthood. *Journal of Personality and Social Psychology, 81*, 1190–1204.
- Neyer, F. J., & Lehnart, J. (2007). Relationships matter in personality development: Evidence from an 8-year longitudinal study across young adulthood. *Journal of Personality, 75*, 535–568.
- Ozer, D. J., & Benet-Martinez, V. (2006). Personality and the prediction of consequential outcomes. *Annual Review of Psychology, 57*, 401–421.
- Roberts, B. W., & Chapman, C. (2000). Change in dispositional well-being and its relation to role quality: A 30-year longitudinal study. *Journal of Research in Personality, 34*, 26–41.
- Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin, 126*, 3–25.
- Roberts, B. W., Walton, K., & 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.
- Roberts, B. W., & Wood, D. (2006). Personality development in the context of the Neo-Socioanalytic Model of personality. In D. Mroczek & T. Little (Eds.), *Handbook of personality development* (pp. 11–39). Mahwah, NJ: Lawrence Erlbaum.
- 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). New York, NY: Guilford.
- Roberts, B. W., Wood, D., & Smith, J. L. (2005). Evaluating five factor theory and social investment perspectives on personality trait development. *Journal of Research in Personality, 39*, 166–184.
- Scollon, C. N., & Diener, E. (2006). Love, work, and changes in extraversion and neuroticism over time. *Journal of Personality and Social Psychology, 91*, 1152–1165.
- U.S. Department of Health and Human Services. (1999). *Mental health: A report of the surgeon general*. Rockville, MD: Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health.
- Wilt, J., Cox, K. S., & McAdams, D. P. (2010). The Eriksonian life story: Developmental scripts and psychosocial adaptation. *Journal of Adult Development, 17*, 156–161.
- World Health Organization. (1948). World Health Organization constitution. In *Basic documents*. Geneva.
- Zhang, W., Chen, Q., McCubbin, H., McCubbin, L., & Foley, S. (2011). Predictors of mental and physical health: Individual and neighborhood levels of education, social well-being, and ethnicity. *Health & Place, 17*, 238–247.

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