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# Relative and longitudinal evidence for the importance of the General Factor of Psychosocial Development in predicting well-being

Curtis S. Dunkel \*

Western Illinois University, Department of Psychology, Wagoner Hall, Macomb, IL 61455, United States

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## ABSTRACT

The relationship between the General Factor of Psychosocial Development (GFPD) and well-being was examined. Support for three hypotheses was found. First, the GFPD accounted for more variance in well-being than the shared unique variance of the individual psychosocial stages. In fact, a number of the stages were negatively associated with well-being when controlling for the GFPD. Second, the GFPD accounted for a significant amount of variance in well-being when controlling for the General Factor of Personality. Third, the GFPD partially mediated the relationship between well-being at two points in time.

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## 1. Introduction

There is an increasing understanding of the interrelatedness among measures of personality (e.g., Figueiredo et al., 2005; Figueiredo, Vásquez, Brumbach, & Schneider, 2004). This trend is most clearly seen in research on the relationship between the Big Five personality traits of openness, conscientiousness, extraversion, agreeableness, and neuroticism. The Big Five traits correlate, suggesting that higher order factors, sitting above the Big Five in a hierarchical structure, exist (Hofstee, 2003; Musek, 2007; Rushton & Irwing, 2011). In fact there may be a single factor at the apex of the hierarchy referred to as the Big One or the General Factor of Personality (GFP).

While there is a great deal of debate about the existence and the meaning of the GFP, for the purposes of the current investigation it is important to review the investigative strategy of the GFP taken by van der Linden, Scholte, Cillessen, te Nijenhuis, and Segers (2010) and van der Linden, te Nijenhuis, and Bakker (2010). They tested the predictive validity of the GFP and when doing so examined the variance in important psychological and behavioral variables explained by the shared variance of the Big Five (i.e., the GFP), and the combined unique variance of the five individual traits. van der Linden, te Nijenhuis, et al. (2010) found that the GFP accounted for more variance in employee performance appraisal by supervisors than the combined unique variance of the Big Five. Utilizing a sample composed of early adolescents van der

Linden, Scholte, et al. (2010), found that the GFP accounted for more variance in likeability than the combined unique variance of the Big Five, but that the combined unique variance of the Big Five accounted for more variance than the GFP when predicting popularity.

Variables in other domains of inquiry have also been reassessed to see if they too contain significant overlap. Judge, Erez, Bono, and Thoresen (2002) found that self-esteem, neuroticism, locus of control, and generalized self-efficacy shared a great deal of variance with intercorrelations between the variables of around  $r = .60$ . In the majority of tests they ran they found that the common factor formed by these four variables accounted for more variance in the Big Five traits than the unique variance of the individual measures. Consistently, they also found that the common factor formed by the four variables explained more variance in job satisfaction, stress, happiness, and life satisfaction than the unique variance of the individual measures.

Similarly, it has been found that various measures of Erikson's (1968) construct of ego-identity form a higher-order factor called identity consolidation (Schwartz, 2007; Schwartz et al., 2010). Schwartz et al. (2010) found that a single higher-order factor predicted a number of risky health behaviors such as driving while intoxicated. Replicating Schwartz et al. (2010) Dunkel, Mathes, and Harbke (2011) also found that a variety of identity measures formed an identity consolidation factor and, in turn, identity consolidation formed an even higher-order factor with measures of life history strategy and well-being.

Continuing this line of research Dunkel, Kim, and Papini (2012) proposed that Erikson's (1968) stages of psychosocial development of trust, autonomy, initiative, industry, identity, intimacy,

\* Tel.: +1 (309) 298 1708.

E-mail address: [c-dunkel@wiu.edu](mailto:c-dunkel@wiu.edu)

generativity, and integrity form a higher order general factor they labeled the General Factor of Psychosocial Development or GFPD. They found support for their hypothesis of the existence of the GFPD and found that the GFPD formed an even higher factor with the GFP and measures of life history strategy.

This leads to the purpose of the current investigation. While Dunkel, Kim, and Papini found evidence for the GFPD, the importance of the construct has not yet been examined.

The purpose of the current investigation was to examine the predictive validity of the GFPD. The GFPD is composed of the psychosocial stages and the stages themselves have repeatedly been found to be predictive of numerous psychological phenomena, including well-being (e.g., Rothrauff & Cooney, 2008; Waterman, 2007). Thus, if the stages are associated with well-being, and the stages make up the GFPD, then, of course, the GFPD should be predictive of outcomes including well-being.

Following Judge et al. (2002), van der Linden, te Nijenhuis, et al. (2010), and van der Linden, Scholte, et al. (2010), what is important is looking at the predictive significance of the GFPD relative to the individual stages. Thus the first hypothesis of the current investigation is, that while both the GFPD and the individual psychosocial stages will be positively correlated to indices of well-being, the relationship between the individual psychosocial stages and well-being will be attenuated when controlling for the GFPD.

However, it could also be that the GFPD is redundant with other higher-order factors. Dunkel et al. (2012) found that the GFPD and the GFP were strongly correlated. Thus while support for the first hypothesis could be found, the reason the GFPD is predictive of well-being may be simply because of the variance it shares with the GFP. Thus the second hypothesis is that the GFPD will be predictive of well-being after controlling for the GFP.

While hypotheses one and two address the importance of the GFPD in predicting well-being relative to the individual psychosocial stages and another higher-order factor, the third hypothesis further tests the importance of the GFPD in accounting for individual differences in well-being. Utilizing the longitudinal nature of the available data set the role of the GFPD in the stability of well-being across time was examined. It was hypothesized that the GFPD will partially mediate between well-being at two points in time.

## 2. Method

### 2.1. Data

Data from the Midlife Development in the United States (MIDUS; Brim et al., 1996) was utilized to test the hypotheses. The MIDUS data was intended to be representative of midlife adults in the United States. The sample is composed primarily of a national probability sample of adults with additional over sampling of siblings and individuals from metropolitan areas. An additional sample of twin pairs is also included.

The data used in the current investigation represents participants with responses complete enough to compute the GFPD. It included 4487 (2291 or 51.1% female) participants between the ages of 20–75 ( $M = 46.50$ ,  $SD = 12.49$ ). For the analyses, this number represents the maximum number, with missing data reducing the degrees of freedom for any particular analysis. The level of education of participants was measured on a Likert-type scale with poles beginning at 1 = no school or some grade school up to 12 = Ph.D., M.D., etc. ( $M = 6.91$ ,  $SD = 2.47$ ). Additional data was collected from the same sample in 2004–2006 allowing for longitudinal analyses ( $N = 2938$ ). Time two data collection was approximately 9 years after Time 1 data collection.

### 2.2. Measures

#### 2.2.1. Psychosocial stages and the GFPD

The choice of scales to measure the psychosocial stages was made after extensive review of the items from various scales designed to measure the psychosocial stages with consideration given to both the breadth of the constructs and potential coherence of the scales. The Measure of Psychosocial Development (MPD, Hawley, 1988) appears to be the most oft used measure of all eight psychosocial stages and the negatively valenced subscales were used in previous research on the GFPD (Dunkel et al., 2012). Therefore, for the sake of comparison items from the negatively valenced MPD subscales are included with the description of the scales selected from the MIDUS data file to measure each specific stage.

More than one scale in the data file was used for each stage. First the scales scores were transformed into z-scores. Next, the scores corresponding to each psychosocial stage was summed. This sum was then used to represent the particular psychosocial stages.

**2.2.1.1. Trust.** The psychosocial stage of trust was measured by combining three scales. The scales were Meaningfulness of Society (sample item/reversed: I cannot make sense of what's going on in the world), Acceptance of Others (sample item: I believe that people are kind), and Social Actualization (sample item: The world is becoming a better place for everyone). A sample MPD item is "It is a cold cruel world".

**2.2.1.2. Autonomy.** The psychosocial stage of autonomy was measured by combining two scales. The scales were Autonomy (sample item: I have confidence in my own opinions, even if they are different from the way most other people think) and Perceived Constraints (sample item/reversed: Other people determine most of what I can and cannot do). A sample MPD item is "I am easily swayed".

**2.2.1.3. Initiative.** The psychosocial stage of initiative was measured by combining three scales. The scales were Primary Control/Persistence (sample item: When I encounter problems I do not give up until I solve them), Flexible/Positive Reappraisal (sample item: When I am faced with a bad situation it helps to find a different way of looking at things), and Personal Mastery (sample item: I can do just about anything I set my mind to). A sample MPD item is "I tend to avoid or delay action".

**2.2.1.4. Industry.** The psychosocial stage of industry was measured by combining two scales. The scales were Environmental Mastery (sample item: I am good at managing the responsibilities of daily life) and Work Obligations (sample item: How much obligation would you feel to work hard even if you did not like or respect your employer or supervisor?). A sample MPD item is "I can't do anything well".

**2.2.1.5. Identity.** The psychosocial stage of identity was measured by combining three scales. The scales were Self-Acceptance (sample item: When I look at the story of my life I am pleased with the way things have turned out so far), Social Integration (sample item: I feel close to other people in my community), and Self-Directedness/Planning (sample item: I know what I want out of life). A sample MPD item is "I have not found my place in life".

**2.2.1.6. Intimacy.** The psychosocial stage of intimacy was measured by combining two scales. The scales were Positive Relations with Others (sample item/reversed: I have not experienced many warm and trusting relationships with others) and Spouse/Partner Affective Solidarity (sample item: How much can you relax and be your

self around your partner/spouse?). A sample MPD item is "I am wary of close relationships".

**2.2.1.7. Generativity.** The psychosocial stage of generativity was measured by combining two scales. The scales were the Loyola Generativity Scale (sample item: You like to teach things to people) and Social Contribution (sample item: I have something valuable to give the world). A sample MPD item is "I feel I have not gotten anywhere or accomplished anything".

**2.2.1.8. Integrity.** The psychosocial stage of integrity was measured by combining two scales. The scales were Personal Growth (sample item: For me, life has been a continual process of learning, changing and growth) and Purpose in Life (sample item: Some people wander aimlessly through life, but I am not one of them). A sample MPD item is "Life is a thousand little disgusts".

**2.2.1.9. GFPD.** The range of intercorrelations between the psychosocial stages was from  $r = .29$  to  $r = .56$ . A principal components analysis was run on the stages. The factor solution included one factor with an Eigenvalue above 1 (Eigenvalue = 3.93) and the factor accounted for 49.08% of the variance between stages. Previous analyses of correlation matrices of multiple measures of psychosocial development have yielded a single factor that accounts for roughly 50–60% of the variance between stages (Dunkel & Harbke, 2012), suggesting that the scales used from the MIDUS data file do not adhere quite as strongly.

The factor loadings for the stages using the MIDUS data is as follows, with the factor loadings from the previous analyses of multiple correlations matrices in parentheses: trust = .57 (.77); autonomy = .74 (.70), initiative = .73 (.69), industry = .67 (.76), identity = .84 (.76), intimacy = .65 (.64), generativity = .65 (.75), integrity = .72 (.79). The greatest deviation was trust. The trust scale constructed from the MIDUS data did not load as strongly on the GFPD as it has when scales used to measure the psychosocial stages were analyzed, however in each case all stages factor loadings were  $>.50$  (Dunkel & Harbke, 2012). The GFPD was computed by using the save as variables/method regression command in SPSS.

## 2.2.2. GFP

Participants rated the self-descriptiveness of adjectives associated with the Big Five of openness (sample item of seven: creative), conscientiousness (sample item of four: organized), extraversion (sample item of five: outgoing), agreeableness (sample item of five: warm), and neuroticism (sample item of four: moody). The items to measure the Big Five were selected from preexisting inventories and assessed via a pilot study. The Cronbach's alphas reported for the full MIDUS sample for the Big Five is as follows: openness  $\alpha = .77$ , conscientiousness  $\alpha = .58$ , extraversion  $\alpha = .78$ , agreeableness  $\alpha = .80$ , neuroticism  $\alpha = .74$ . The GFP was calculated by transforming the values for the individual traits to z-scores, weighting the values by the weights reported in the meta-analysis by van der Linden, te Nijenhuis, et al. (2010), and adding the values.

## 2.2.3. Well-being

Three facets of well-being were examined. Life satisfaction was measured by having participants rate their satisfaction overall and with three to four facets of life depending on whether or not the participant had children (sample item: rate your satisfaction with your health) using a 10-point Likert-type scale. The Cronbach's alpha reported for the full MIDUS sample is  $\alpha = .67$ . Positive affect was measured by asking participants how often they felt a certain way (sample of six items: cheerful) in the past 30 days. The Cronbach's alpha reported for the full MIDUS sample for positive affect is  $\alpha = .91$ . Negative affect was measured by asking participants how

often they felt a certain way (sample of six items: hopeless) in the past 30 days. The Cronbach's alpha reported for the full MIDUS sample for negative affect is  $\alpha = .87$ .

## 3. Results

### 3.1. Testing the importance of the GFPD in predicting well-being relative to the individual psychosocial stages

Bivariate correlations between the GFPD and the psychosocial stages and the indices of well-being can be seen in Table 1. The GFPD and each of the psychosocial stages were positively correlated to life satisfaction and positive affect and negatively correlated to negative affect. In order to assess the unique variance accounted for by the individual stages beyond their shared variance partial correlations between the stages and the indices of well-being were run while controlling for the GFPD. When controlling for the GFPD there was a reduction in the amount of variance explained by each of the psychosocial stages for each indicator of well-being. Most notably, in a number of the instances when the GFPD was controlled for, the psychosocial stages were negatively associated with well-being. This was found, for at least one of the indices of well-being, for the psychosocial stages of trust, autonomy, initiative, generativity, and integrity.

Next a series of regression analyses were conducted. The eight psychosocial stages were used to predict the three indices of well-being. The amount of variance explained for the indices of well-being by the eight stages were as follows: life satisfaction ( $R^2 = .41$ ), positive affect ( $R^2 = .36$ ), negative affect ( $R^2 = .32$ ). To compare the power of the eight stages in predicting well-being with the power of the GFPD, the  $R^2$  from the regression analyses can be compared to the squared correlations between the GFPD and the indices of well-being seen in Table 1; life satisfaction ( $r^2 = .30$ ), positive affect ( $r^2 = .30$ ), negative affect ( $r^2 = .25$ ). While the combined stages account for more variance in well-being than the GFPD alone, it is also apparent that variance shared by the stages as represented by the GFPD accounts for more variance in the indices of well-being than the unique variance of the stages.

### 3.2. Testing the importance of the GFPD in predicting well-being relative to the GFP

The correlation between the GFP and GFPD was  $r = .67$ . The correlations between the GFP and the indices of well-being were as follows: life satisfaction,  $r = .42$ ; positive affect,  $r = -.37$ ; negative affect,  $r = .48$ . To test to see if the GFPD was associated with the indices of well-being because of the shared variance with the GFP, three hierarchical regression analyses predicting the indices of well-being were conducted. In Step 1 the demographic variables of age, sex, and level of education were entered. In Step 2 the GFP

**Table 1**  
Bivariate correlations and partial correlations controlling for the GFPD.

Variable	Life satisfaction	Positive affect	Negative affect
GFPD	.55	.55	-.50
Trust	.28 (-.06)	.29 (-.04)	-.29 (-.00)
Autonomy	.37 (-.07)	.41 (.00)	-.44 (-.12)
Initiative	.36 (-.09)	.42 (.04)	-.30 (.10)
Industry	.48 (.18)	.43 (.11)	-.38 (-.05)
Identity	.50 (.09)	.51 (.11)	-.44 (-.05)
Intimacy	.54 (.29)	.48 (.15)	-.42 (-.15)
Generativity	.24 (-.19)	.23 (-.20)	-.17 (.24)
Integrity	.31 (-.15)	.30 (-.16)	-.33 (.05)

Note: Partial correlations are in parentheses. All correlations, save  $r = .00$ , are significant at  $p < .05$ .

**Table 2**

Hierarchical regression analyses examining the ability of the GFPD to predict the indices of well-being after controlling for age, sex, level of education, and the GFP.

Variable	Life satisfaction	Positive affect	Negative affect
	B/SEB/β	B/SEB/β	B/SEB/β
<i>Step 1</i>			
Age	.02/.00/.16	.01/.00/.10	-.01/.00/-.12
Sex	.07/.04/.03	-.04/.02/-.03	.09/.02/.08
Education	.04/.01/.07	.01/.00/.04	-.03/.00/-.11
	R <sup>2</sup> = .03	R <sup>2</sup> = .01	R <sup>2</sup> = .03
<i>Step 2</i>			
GFP	.27/.01/.41	.19/.01/.49	-.12/.01/-.37
	ΔR <sup>2</sup> = .16	ΔR <sup>2</sup> = .23	ΔR <sup>2</sup> = .13
<i>Step 3</i>			
GFPD	.62/.02/.52	.29/.01/.42	-.26/.01/-.44
	ΔR <sup>2</sup> = .14	ΔR <sup>2</sup> = .09	ΔR <sup>2</sup> = .10

Note: All ΔR<sup>2</sup> are significant at p < .001.

was entered. In Step 3 the GFPD was entered. The results can be seen in Table 2. As seen in Table 2, this accounted for an additional 9–14% of the variance in well-being after controlling of the demographic variables and the GFP. When the GFPD was entered in Step 2 and the GFP entered in Step 3, the GFP accounted for <1% of the additional variance for each measure of well-being.

### 3.3. Testing the mediation of GFPD between well-being at Time 1 and well-being at Time 2

To test for the mediation of the GFPD between well-being at Time 1 and Time 2 the steps for partial mediation set down by Baron and Kenny (1986) were taken. First, the relationship between the initial variable (well-being at Time 1) and the outcome variable (well-being at Time 2) was established. The correlations between the three indices of well-being from Time 1 to Time 2 were as follows: life satisfaction  $r = .54$ , positive affect  $r = .53$ , negative affect  $r = .51$ . Second, the relationship between the initial variable (well-being at Time 1) and the mediator (GFPD) needs to be established. This relationship was established in previous analyses as seen in Table 1.

Third the relationship between the mediator (GFPD) and the outcome variable (well-being at Time 2) while controlling for the initial variable has to be established. Results for these analyses related to each measure of well-being can be seen in Table 3. The regression weights for the GFPD on the second Step in the hierarchical regression predicting well-being at Time 2, after controlling for well-being at Time 1, were substantial.

Fourth, the effects for the initial variable (well-being at Time 1) on the outcome variable (well-being at Time 2) should be diminished when controlling for the mediator (GFPD). The results for

**Table 3**

Hierarchical regression analyses predicting the mediation of the indices of well-being at Time 1 and the indices of well-being at Time 2 by the GFPD.

Variable	Step 1	Step 2	Sobel test
	B/SEB/β	B/SEB/β	
<i>Regression predicting life satisfaction at T2</i>			
Life satisfaction T1	.54/.02/.53	.46/.02/.44	
GFPD		.17/.02/.15	8.36*
<i>Regression predicting positive affect at T2</i>			
Positive affect T1	.53/.02/.52	.43/.02/.43	
GFPD		.12/.01/.16	8.67*
<i>Regression predicting negative affect at T2</i>			
Negative affect T2	.51/.02/.51	.45/.02/.45	
GFPD		-.07/.01/-.12	6.89*

Note: T1 = Time 1, T2 = Time 2.

\* p < .001.

testing the fourth criterion for partial mediation can be seen in Table 3 as well. The regression weights for well-being at Time 1 are diminished when the GFPD is entered in Step 2. To test to see if the mediation is statistically significant three Sobel tests were computed (Preacher & Leonardelli, 2012). As seen in Table 3, these tests for mediation were significant.

### 4. Discussion

The reevaluation of purportedly distinct psychological measures has gathered momentum. Upon reevaluation it appears as if many measures once assumed to be chiefly independent are not so. This leads to the next set of questions, one of which concerns the importance of the higher-order factors relative to the more specific and molecular measures. If the higher-order factors explain little variance in important behavioral and psychological outcomes their value is clearly diminished. On the other hand, if the higher-order constructs explain substantial variance, especially in relation to the lower-order measures, this not only points to the importance of the higher-order constructs, but should lead to a reassessment of past findings that did not take the higher-order constructs into account.

Thus the first, and primary, purpose of the current investigation was to examine the relative importance of the individual stages and the GFPD in predicting well-being. The results of the partial correlations in comparison to the bivariate correlations and the hierarchical regression analyses clearly point to the importance of the GFPD. The finding that in many instances, once the shared variance of the stages was controlled, the unique variance of particular stages was negatively associated with well-being is compelling and should be investigated in future research. The finding suggests that to the extent the stages come together to form a "functioning whole" (Erikson, 1968) they are positively associated with well-being, however, if they are disparate they may actually become detrimental to well-being. For example, one could imagine that being generative and giving to others is only efficacious for well-being if buttressed by having a sense of trust in others, a sense of industry in that effort is meaningful, a sense of integrity that the time spent giving to others adds meaning and purpose to life, and so forth.

The importance of the GFPD is not just predicated on its contribution to psychological phenomena relative to the stages. Figueiredo et al. (2004, 2005) have shown that higher-order factors also come together to form an even higher-order factor labeled the Super-K factor. And Dunkel et al. (2012) have shown that this is the case with the relationship between the GFPD and the GFP; they shared variance with each other and with other higher-order factors forming a Super-K factor. In the current investigation the GFPD and GFP were correlated at  $r = .67$ , indicating a great deal of overlap between the two constructs and leading to the possibility that the variance shared by the GFP and the GFPD, and not the unique variance of the GFPD, is associated with well-being. However, the GFPD was still predictive of each indicator of well-being after controlling for the GFP.

Lastly, the importance of GFPD was tested by examining its role in well-being across time. The GFPD partially mediated life satisfaction, positive affect, and negative affect across a period of years in middle adulthood. It could be that well-being is ballasted by the GFPD so that the ups and downs and happenstances of life are less likely to diminish individuals' sense of well-being.

### 5. Directions for future research

The results suggest that the GFPD is a promising psychological construct, but its ability to predict outcomes beyond well-being

needs to be examined. For example, the MIDUS data allows for an examination into the extent to which the GFPD predicts various dependent measures of health (e.g., health behaviors, health status, psychological disorders). Again, the relative contribution of the GFPD to the individual psychosocial stages and core personality should be examined. The intriguing finding that, after controlling for the GFPD, the unique variances of a number of psychosocial stages were negatively correlated with well-being is especially in need of replication. This finding suggests that the GFPD needs to be taken into account when examining the relationship between individual psychosocial stages and other phenomena. The finding could lead to important new insight into psychosocial development or, alternatively, could simply be an anomaly of the sample.

The origins of the GFPD should also be examined. What accounts for individual differences in the GFPD? What is the ratio of influence from genes, shared environment, and non-shared environment? And to the extent that the environment plays a role, what specific environmental factors play a role?

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