

Gratitude uniquely predicts satisfaction with life: Incremental validity above the domains and facets of the five factor model

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Received 2 January 2008; received in revised form 17 February 2008; accepted 22 February 2008

Abstract

The authors tested whether gratitude could explain variance in satisfaction with life (SWL) after controlling for both the domains and the facets of the Big Five. The GQ6 measure of gratitude, the NEO-PI-R measure of the Big Five, and the SWL scale were completed by 389 adults. Gratitude was correlated with each of the Big Five domains, and at the facet level showed a distinctive profile whereby gratitude was most strongly correlated with the facets representing well-being and social functioning. Gratitude explained an additional 9% of the variance in SWL after controlling for the Big Five domains ($r = .30$), and an additional 8% after controlling for the facets ($r = .28$). The results support perspectives suggesting that gratitude has a unique relationship with SWL, and clarifies how gratitude relates to personality at the facet level.

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Keywords: Gratitude; Satisfaction with life; SWL; Big Five; Five factor model; FFM; Incremental validity; NEO; NEO-PI-R; Domains; Facets; Neuroticism; Extraversion; Openness; Conscientiousness; Agreeableness

1. Introduction

Conceptually, trait gratitude should be strongly related to satisfaction with life (SWL) (Bono, Emmons, & McCullough, 2004; Emmons & Crumpler, 2000; Lyubomirsky, Sheldon, & Schkade, 2005; Watkins, 2004; Wood, Joseph, & Linley, 2007b). Gratitude is an emotion which is directed towards an external agency, and occurs following aid which is interpreted as costly, valuable, and altruistically intended (Lane & Anderson, 1976; Tesser, Gatewood, & Driver, 1968; Wood, Maltby, Stewart, Linley, & Joseph, in press). Trait gratitude represents individual differences in how frequently and intensely grateful affect is experienced, and the extent of the stimulation needed to elicit gratitude (McCullough, Emmons, & Tsang, 2002). McCullough et al. (2002)

argue that gratitude should be related to SWL as gratitude has a positive valiance, and the greater experience of positive emotions is related to SWL (Diener, 1984; Emmons & Diener, 1985; Keyes, Shmotkin, & Ryff, 2002). Additionally, the emotion of gratitude acts as a moral barometer, drawing attention to the aid that people receive in everyday life (McCullough, Kilpatrick, Emmons, & Larson, 2001). Being more likely to notice daily acts of help is likely to lead to greater SWL over time. Finally, Watkins (2004) argues that regular feelings of gratitude make people less likely to habituate to the positive in their social environments, enabling greater long term SWL. In a related vein, Lyubomirsky et al. (2005) see gratitude as integral to SWL, as gratitude offers an alternative to the “hedonistic treadmill”, where ever more possessions need to be purchased in order to maintain short term gains in happiness.

Whilst gratitude is predicted to be strongly related to SWL, the two concepts are not synonymous. Factor analytic studies have repeatedly shown that subjective

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well-being can be split into separate affective (positive and negative affect) and cognitive evaluation (SWL) factors (e.g., Stock, Okun, & Benin, 1986). The affective and cognitive factors have different patterns of correlations with socio-demographic and interpersonal variables (Beiser, 1974), are impaired to different degrees in medical groups (De Haes, De Rulter, Tempelaar, & Pennink, 1992), and have different developmental patterns over time (De Haes, Pennink, & Welvaart, 1986). SWL represents the cognitive evaluative dimension of subjective well-being (Diener, Emmons, Larsen, & Griffin, 1985), based on an individual's global judgment of how they evaluate the quality of their life (Pavot & Diener, 1993). Trait gratitude involves individual differences in the experience of the positively valenced grateful affect (McCullough et al., 2002); hence gratitude and SWL may be expected to represent different components of subjective well-being. More directly, McCullough et al. tested whether gratitude and SWL were separate constructs through confirmatory factor analysis. A model where gratitude and SWL formed a single latent variable exhibited very bad fit, whilst an alternate model where gratitude and SWL were separate but correlated constructs exhibited a fit which was both vastly superior and met Hu and Bentler's (1999) criteria for a well-fitting model. Such findings are intuitive; it is possible to imagine a successful individual who has high life satisfaction, but is smug, self-satisfied, and ungrateful, because they do not attribute any of their success to an external agency. Thus, whilst gratitude is expected to be strongly related to SWL, the concepts are not synonymous and "off-diagonal" individuals can be imagined who epitomize the dissociation between the constructs.

In the last five years there has been considerable empirical research on the relationship between dispositional gratitude and SWL (e.g., Emmons & McCullough, 2003; McCullough, Tsang, & Emmons, 2004; McCullough et al., 2002; Park, Peterson, & Seligman, 2004; Wood, Joseph, & Linley, 2007a). This research has suggested that gratitude has one of the strongest relationships with SWL of almost any trait (e.g., Park et al., 2004), and that this relationship is causal (e.g., Emmons & McCullough, 2003). However, it is not clear whether the relationship between gratitude and SWL is unique, or whether gratitude is simply related to SWL due to a third personality variable. For example, gratitude could simply be related to SWL because of the more general relationship between SWL and positive emotions. In their seminal paper on trait gratitude, McCullough et al. (2002) argue that as the last 50 years have lead to a proliferation of personality measures, it is necessary to show that gratitude effects outcome measures after controlling for other more widely researched traits.

In recent years, the Five Factor Model (McCrae & Costa, 1999) has achieved a widespread acceptance in personality psychology. There is now reasonable consensus that the Big Five domains of extraversion, agreeableness, openness, conscientiousness, and neuroticism represent

most of personality at the highest level of abstraction (Goldberg, 1993; John & Srivastava, 1999). These variables cover the breadth of personality, including positive and negative affect (respectively, existing under extraversion and neuroticism), and pro-social traits (under agreeableness). As may be expected from a social and well-being variable, gratitude is positively correlated with extraversion, agreeableness, openness, and conscientiousness, and negatively correlated with neuroticism (McCullough et al., 2002, 2004; Wood, Maltby, Gillett, Linley, & Joseph, in press; Wood, Maltby, Stewart, Linley, and Joseph, in press); together these Big Five variables explain between 21% and 28% of the variance in gratitude (McCullough et al., 2002). The Big Five traits themselves explain about a third of the variance in SWL (Schimmack, Oishi, Furr, & Funder, 2004). The third variable effects of the Big Five thus offer an alternative explanation of why gratitude is related to SWL. Demonstrating that gratitude is related to SWL above the effects of the Big Five is an important test of theoretical perspectives which see gratitude as a unique aspect of well-being (Lyubomirsky et al., 2005; Watkins, 2004). As the Big Five represent some of the most studied personality traits in psychology (McCrae & Costa, 1999), if the study of gratitude is to progress, it is important to demonstrate that gratitude operates independently of the Big Five, to avoid unnecessary duplication of prior research efforts, and allegations of "reinventing the wheel" (c.f. McCullough et al., 2002).

McCullough et al. (2002) demonstrated that gratitude is related to SWL after controlling for the domains of the Big Five. However, the Five Factor Model suggests that personality is hierarchically organized, with lower order personality facets existing under each of the Big Five domains. For example, in the NEO PI-R operationalization (Costa & McCrae, 1992), six facets exist under each of the five domains, with 30 facets covering the entire Big Five. Thus, existing under the agreeableness domain are the six facets of trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness (Costa & McCrae, 1995) (see Table 1 for a full list of the 30 facets). Gratitude is expected to be at the facet not the domain level of personality. As such, a full test of whether gratitude is uniquely related to SWL beyond the effects of the Big Five must control for the 30 facets, not only the five domains.

SWL was selected as an outcome variable for several reasons. First, there is the strong theoretical expectation that the gratitude would be uniquely important to SWL (e.g., Lyubomirsky et al., 2005; Watkins, 2004). Second, as SWL represents the cognitive appraisal dimension of subjective well-being, there is no domain overlap between SWL and the Big Five facets. This would not be true for other aspects of subjective well-being, such as happiness or depression, which are both represented as facets within the Big Five model. Third, SWL represents the participant's own evaluation of their life, rather than a conception of the 'good life' defined by a researcher. Fourth, the Big Five facets are very good predictors of SWL (Schimmack

Table 1
Correlations between the NEO and gratitude and SWL

NEO Variable	Gratitude	SWL
<i>Domains</i>		
Neuroticism	-.11*	-.35***
Extraversion	.34***	.41***
Openness	.24***	.10
Agreeableness	.27***	.18***
Conscientiousness	.11*	.18***
<i>Facets</i>		
N1: Anxiety	-.02	-.22***
N2: Anger hostility	-.18*	-.18***
N3: Depression	-.13*	-.37***
N4: Self-consciousness	-.08	-.25***
N5: Impulsiveness	.11*	.01
N6: Vulnerability	-.14**	-.42***
E1: Warmth	.34***	.36***
E2: Gregariousness	.26***	.25***
E3: Assertiveness	.10	.19***
E4: Activity	.12*	.25***
E5: Excitement seeking	.11*	.23***
E6: Positive emotions	.43***	.40***
O1: Fantasy	.15**	.06
O2: Aesthetics	.19**	-.03
O3: Feelings	.14**	.12*
O4: Actions	.23***	.11*
O5: Ideas	.16**	.09
O6: Values	.13*	.11
A1: Trust	.31***	.24***
A2: Straightforwardness	.09	.10
A3: Altruism	.26***	.28***
A4: Compliance	.11*	.04
A5: Modesty	.06	-.03
A6: Tender-mindedness	.30***	.11*
C1: Competence	.16**	.22***
C2: Order	.01	.07
C3: Dutifulness	.15**	.10*
C4: Achievement striving	.15**	.24***
C5: Self-discipline	.03	.16**
C6: Deliberation	.01	.02

et al., 2004). As such, this represents a strategy of comparing the predictive ability of gratitude with the facets on the latter's 'home turf', and a stringent test of the ability of gratitude to uniquely predict an outcome variable.

This paper reports on a test of whether gratitude has incremental validity in predicting SWL above the 30 Big Five facets. We were also interested in how gratitude related to the facets of the Big Five, as this has not previously been tested. Previous research examining how gratitude relates to Big Five domains has been somewhat inconsistent; for example, in three studies McCullough et al. (2002) showed that the correlation between gratitude and neuroticism ranged between $r = -.16$ and $-.42$ (a variation which exceeded statistical chance). This suggests that there may be a differential pattern of correlations between gratitude and the facet level of the Big Five. Showing how gratitude relates to both the domains and facets of the Big Five will provide a finer grained understanding of how gratitude is related to the facet level of personality.

2. Methods

2.1. Participants and procedure

Three hundred and eighty nine participants (194 female, 195 male) were recruited from a local community college, which specializes in "life long learning courses". Participants were aged between 18 and 55 ($M = 31.60$, $SD = 8.15$), and were predominantly White (73.5%), Black African (5.4%), Black Caribbean (4.9%), or Indian (4.9%). All participants completed measures in small groups (not greater than 20 people), and were debriefed following completion of the questionnaires.

2.2. Measures

2.2.1. Gratitude

The GQ6 (McCullough et al., 2002) was used to assess gratitude. Participants rate six statements on a 1 (strongly disagree) to 7 (strongly agree) scale, which assess how frequently and intensely participants experience gratitude (e.g., "I am grateful to a wide variety of people", and "I feel thankful for what I have received in life"). Psychometric development involved demonstrating a robust factor structure (through EFA, and four CFAs), convergent validity with peer reports, discriminant validity from related traits, and high internal consistency ($\alpha = .82$) (McCullough et al., 2002).

2.2.2. Big Five

The 240-item Revised NEO Personality Inventory (NEO-PI-R) (Costa & McCrae, 1992) was used to measure the Big Five domains and facets. Each domain is represented by six lower level facet scale scores (listed in Table 1), resulting in a total of 30 facet scores. Responses are scored on a five-point scale ranging from 0 (strongly agree) to 4 (strongly disagree) for each domain. The NEO-PI-R is one of the most widely used measures of the Big Five and has very strong psychometric properties. Six year test-retest reliability range from .63 to .82, there is strong consensual validity between self, peer, and spouse reports of the test and the validity evidence for the scales has been suggested with personality and mental health domains (Costa & McCrae, 1992).

2.2.3. Satisfaction with life

The satisfaction with life scale (Diener et al., 1985) was used to measure the cognitive evaluative dimension of well-being. Items assess the participants' global assessments of how satisfied they are with their lives (e.g., "The conditions of my life are excellent"). Five items are rated on a 1 ("Strongly Disagree") to 7 ("Strongly Agree") scale. The scale has good test-retest stability (ranging from .82 over 2-months to .54 over 4-years), whilst the measure remains sensitive to changes in life satisfaction due to life events and undergoing therapy (Pavot & Diener, 1993).

3. Results

3.1. Correlations between gratitude, SWL, and the Big Five

Gratitude and SWL were correlated at $r = .45$ ($p < .001$), replicating earlier findings (Wood et al., 2007a), and suggesting that gratitude can explain 20% of individual differences in SWL. Table 1 shows the correlation between the domains and facets of the Big Five and both gratitude and SWL. Gratitude was correlated with each of the domains of the Big Five. Grateful people were more extraverted, open, agreeable, conscientious, and less neurotic. However, as predicted, gratitude had varied relationships with the Big Five at the facet level. Gratitude was correlated with each of the openness facets. For the remaining facets, the results appeared to show a pattern whereby gratitude correlated most strongly with the facets most representative of well-being and social life.

Regarding neuroticism, gratitude was negatively correlated with anger/hostility, depression, and vulnerability. Each of these dimensions represents socially orientated negative emotions, with depression and anger/hostility respectively involving internalizing or externalizing negative social events, and vulnerability being a predisposition towards having aversive emotional consequences from being in social situations (Beck, 1976). Interestingly, gratitude actually had a positive correlation with impulsivity (although impulsivity was itself positively correlated with the other neuroticism facets at between $r = .11$ and $.29$).

Regarding the facets of extraversion, gratitude was most strongly related to the domains of warmth and gregariousness, which represent the positive relationship facets of extraversion, and positive emotions (Costa & McCrae, 1995). Gratitude was less strongly (or non-significantly) related to the remaining facets, which represent the behavioral activation facets of extraversion. Regarding agreeableness, gratitude was related to the trust, altruism, and tender-mindedness facets, which represent the relationship quality and pro-social aspects of agreeableness. Gratitude was weakly or non-significantly correlated with the remaining facets of agreeableness which tend to represent self-effacing, compliant, and straight talking behavioral patterns, which are less indicative of relationship quality. Of the conscientiousness facets, gratitude was only correlated with competence, dutifulness, and achievement striving, which are possibly the facets of conscientiousness that are most involved in social functioning. Across each of the Big Five domains, gratitude showed a pattern of facet correlations consistent with the conceptualization of gratitude as a personality trait important to social functioning and well-being.

3.2. Incremental validity

Having shown that gratitude had a diverse relationship with Big Five facets, we tested whether gratitude could explain unique variance in SWL after controlling for the

effects of the Big Five domains and facets. In the first test we performed a two-step hierarchical multiple regression to assess whether the GQ-6 had incremental validity from the domains of the NEO PI-R. In the first step, the five domains were entered, and a significant model emerged ($R^2 = .25$; $F(5, 383) = 25.37$; $p < .001$), accounting for 25% of variance in SWL. In the second step we entered both the five domains and the GQ6, which also lead to a significant model ($R^2 = .34$; $F(6, 382) = 32.91$; $p < .001$), accounting for 34% of the variance in SWL. The only difference between the two steps was the addition of the GQ6, suggesting that gratitude accounts for an additional 9% of the variance in SWL ($\Delta R^2 = .09$; $F(1, 382) = 53.26$; $p < .001$), above and beyond the effects of the Big Five domains. This result is consistent with McCullough et al. (2002).

In the second test, we conducted a second two-step hierarchical multiple regression, investigating whether the GQ-6 had incremental validity from the facets of the NEO PI-R. In the first step, the 30 facets were entered, and a significant model emerged ($R^2 < .35$; $F(30, 358) = 6.46$; $p < .001$), accounting for 35% of variance in SWL. In the second step we entered both 30 facets and the GQ6, which also lead to a significant model ($R^2 = .43$; $F(31, 357) = 8.84$; $p < .001$), accounting for 43% of the variance in SWL. Adding the GQ6 accounted for an additional 8% of the variance in SWL ($\Delta R^2 = .08$; $F(1, 357) = 52.26$; $p < .001$).

4. Discussion

Gratitude explained additional variance in SWL after controlling for both the Big Five domains (9%) and facets (8%), supporting conceptions of gratitude as uniquely important to well-being and social life (e.g., Lyubomirsky et al., 2005; Watkins, 2004). Gratitude also showed a distinctive pattern of correlations with the Big Five facets, where gratitude appears to correlate most strongly with the facets that represent well-being and social functioning.

These results provide the most stringent test yet conducted of whether gratitude explains SWL above the effects of the Big Five. Gratitude was shown to have incremental validity above the 30 facets of the Five Factor Model, as operationalized by the NEO PI-R (Costa & McCrae, 1992). The 30 facets (see Table 1 for a list) represent some of the most studied personality traits in the last 50 years (Goldberg, 1993), and are strong predictors of SWL (Schimmack et al., 2004). Demonstrating that gratitude predicts SWL above the effects of these 30 variables provides a validation of positions which see gratitude as uniquely related to SWL (e.g., Lyubomirsky et al., 2005; Watkins, 2004), and suggests that the study of gratitude can provide a genuinely new contribution to the understanding of SWL.

The magnitude of the relationship between gratitude and well-being was notable. The zero-order relationship between gratitude and the SWL was $r = .45$, and gratitude

was associated with SWL at $r = .28$ after controlling for the 30 facets of the Big Five. Cohen (1988, 1992) defines a medium effect size as $r = .30$, pointing out that most personality scales have zero-order intercorrelations of this magnitude; Cohen defines a large effect size as $r = .50$, considering that such effect sizes are rarely seen in personality psychology between non-overlapping constructs. Extending this approach, Hunsley and Meyer (2003) consider that an incremental validity of $r = .15$ should be considered “a reasonable contribution” (p. 451) when other variables are controlled (as in the current case). Based on these definitions it appears that (a) the zero-order correlation between gratitude and SWL approaches large, and (b) the size of the relationship between gratitude and SWL after controlling for the 30 facets is medium, as large as most zero-order correlations in personality psychology, and twice the size of the effect which Hunsley and Meyer consider a reasonable contribution.

The results also provide the first correlations between gratitude and the Big Five facets. Associating newly studied constructs with the Big Five allows positioning the new construct within the field of personality psychology; this positioning both helps integrate the field and suggests new lines of research for the new construct (Watson, Clark, & Harkness, 1994). The correlations between gratitude and the Big Five facets seemed to show a pattern whereby gratitude was most associated with traits involved in well-being and social functioning; the strongest correlations were between gratitude and warmth, gregariousness, positive emotions, open actions, trust, altruism, and tender-mindedness. This is consistent with approaches which see gratitude as a fundamentally social variable (e.g., McCullough et al., 2001).

The study has some limitations, particularly the reliance on self report. Future work should consider using peer-ratings, or behavioral criteria (c.f. Tsang, 2006). All research using classical test theory is sample specific, and future work should consider whether the results generalize to other samples. Research in gratitude is increasingly being studied with diverse samples, such as with Vietnam War veterans (Kashdan, Uswatte, & Julian, 2006), patients with neuromuscular disorders (Emmons & McCullough, 2003), and within school settings (Froh, Sefick, & Emmons, 2008). We encourage future work to consider issues of incremental validity within these and other diverse settings (c.f. Hunsley & Meyer, 2003). SWL is an ideal outcome variable for showing incremental validity above the Big Five (Schimmack et al., 2004), but the question naturally arises of whether gratitude also uniquely leads to other outcomes which do not have overlap with the NEO facets. The Big Five facets are a logical place in which to start demonstrating incremental validity, as they encompass most of personality and as the Five Factor model acts as an integrative force in personality psychology (Watson et al., 1994). The selection of other variables to demonstrate incremental validity would have been subjective, as other researchers would almost certainly have selected other vari-

ables (and as it will never be possible to control for all variables which could conceivably share variance with gratitude). Nevertheless, future research should develop theory about which variables may be related to gratitude, to test whether gratitude has a unique, shared, mediated, or moderated effect on SWL. Psychological well-being is conceptually distinct from subjective well-being (Keyes et al., 2002; Ryan & Deci, 2001; Waterman, 1993), and involves such traits as involving autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Ryff & Keyes, 1995). While most previous research has focused on subjective well-being constructs such as SWL, future research should consider whether gratitude can provide incremental validity in explaining psychological well-being.

Gratitude is increasingly being seen as a trait which is a major aspect of well-being (Wood, Maltby, Stewart, & Joseph, 2008). This paper is part of a growing research area which shows that gratitude is integral to SWL (e.g., Emmons & McCullough, 2003; McCullough et al., 2002, 2004; Park et al., 2004; Wood et al., 2007a). The paper builds on previous research by suggesting that gratitude has substantial incremental validity in the prediction of SWL above the domains and facets of the Big Five model.

Acknowledgement

This research was supported by a University of Warwick Research Fellowship awarded to the first author.

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