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## Refining the Relationship between Personality and Subjective Well-Being

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## Refining the Relationship between Personality and Subjective Well-Being

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## Abstract

Understanding subjective well-being (SWB) has historically been a core human endeavor and presently spans fields from management to mental health. Previous meta-analyses indicated that personality traits are one of the best predictors. Still, the results previously obtained indicate only a moderate relationship, weaker than several lines of reasoning suggests. This may be because of the *commensurability* problem, where researchers have grouped together substantively disparate measures in their analyses. We review and address this problem directly, focusing on individual measures of personality (e.g., the NEO) and categories of SWB (e.g., Life Satisfaction). In addition, we take a multivariate approaching, assessing how much variance personality traits account for individually as well as together. Results indicate that different personality and SWB scales can be substantively different and that the relationship between the two is typically *much* larger (e.g., four times) than previous meta-analyses indicate. Total SWB variance accounted for by personality can reach as high as 41% or 63% unattenuated. These results also speak meta-analysis in general and the need to account for scale differences once a sufficient research base has been generated.

Words: 180 of 180

Keywords: personality, subjective well being, meta-analysis, job satisfaction, commensurability.

### Refining the Relationship between Personality and Subjective Well-Being

Subjective well-being (SWB) is a fundamental human concern. Since at least the sixth century BC, the Classic Greeks explored the issue under the rubric of *eudaemonia*, that is human flourishing or living well. This followed with the Hellenistic Greeks and the Romans exploring *ataraxia*, a form of happiness within one's own control (Leahey, 2000). Similarly, interest in subjective well-being has continued to the present day, also under a variety of terms and methodologies (e.g., Diener, Eunkook, Lucas, & Smith, 1999; Lyubomirsky, Sheldon, & Schkade, 2005). More recently, the study of SWB has focused on its relationship to personality and sufficient research has been conducted to permit several meta-analyses (Ozer & Benet-Martínez, 2006). In particular, DeNeve and Cooper's (1998) work, which summarizes the correlations of SWB with 137 traits, has been cited close to 200 times in fields ranging from economics (Frey & Stutzer, 2002) to gerontology (Isaacowitz & Smith, 2004). They show that personality is one of the foremost predictors of SWB, which underscores the importance of using personality to understand happiness. Building on this innovative research base by meta-analytically reexamining the role personality has with SWB is the focus of this study.

The major reason for this reanalysis is twofold. First, there has been explosion of interest in "positive psychology" in the new millennia (e.g., Seligman & Csikszentmihalyi, 2000), generating considerably more data since DeNeve and Cooper (1998) conducted their study. For example, their earlier investigation of the personality trait Psychoticism's relationship with SWB was based on 5 samples, while for the present meta-analysis we were able to obtain over 43. This allows us to refine our estimates to much greater degree. Second and more importantly, despite the empirical results from the DeNeve and Cooper's meta-analysis, as well as other summaries indicating that personality is one of the strongest predictors of SWB, it is still weaker than

expected. For example, Extraversion, which is among the most strongly related, achieves a correlation of just .27. This is inconsistent with theoretical reviews which suggest personality's relationship with SWB should be even larger (e.g., Deiner et al., 1999). As Keyes, Shmotkin, and Ryff (2002) conclude: "Integrative reviews of the literature indicate that personality, despite its impact, can explain only limited variance relating to the vicissitudes of SWB and its reactivity to mental processes and life experiences" (p. 1010).

We begin by considering three major reasons the personality-SWB relationship should be extremely strong. After this, we review how the relationship between SWB and personality could be better assessed. Due to the recent proliferation of SWB research, several improvements to the meta-analytic procedure are now available. To begin with, previous research was primarily univariate, examining the relationship of individual traits with SWB. We will examine the multivariate impact of all major personality traits simultaneously. More importantly, we review how past meta-analyses aggregated dissimilar operational definitions of personality and SWB constructs, likely affecting the summary estimates. We argue that a multivariate analytic approach that controls for measurement differences should yield the most appropriate and accurate meta-analytic effect sizes.

#### *Why the SWB-Personality Relationship is Likely Underestimated*

As mentioned, many strong theoretical linkages between the personality traits and SWB have already been thoroughly reviewed (e.g., Diener et al., 1999; Diener & Lucas, 1999). In the following sections, we review three other arguments that suggest a far greater connection between SWB and personality than what is presently found. We first note that at a definitional or conceptual level, there are impressive similarities between specific personality traits and SWB components. Second, we examine research regarding genetic determinants of SWB. This

literature indicates that long-term SWB is largely determined by personality traits. Third, we note that the situational strength does not affect the results as would be expected. In particular, life satisfaction should be more closely connected to SWB than job satisfaction; however, the opposite effect has been observed.

*Construct similarities.*

One basic reason why the relationship between personality and SWB should be much stronger is that the two constructs are *very* similar. In particular, Neuroticism and Extraversion are nearly identical to two elements of SWB, negative and positive affect, respectively. Neurotic individuals tend to be anxious, easily upset, and moody or depressed while Extraverts tend to be sociable, optimistic, outgoing, energetic, expressive, active, assertive, and exciting. As Yik and Russell (2001) note, many of these very terms used to describe Neuroticism and Extraversion appear in measures of negative and positive affect, and “even when the terms are not exactly the same, similar ideas are found on both the personality and affect scales” (p. 251).

Further underscoring their similarity, Watson and Clark (1992) found that negative affect facets loaded onto the same factor as Neuroticism and, as their later work indicated, that positive affect is at the center of the broad trait of Extraversion (Watson & Clark, 1997). Other empirical studies support that the constructs overlap considerably (e.g., Lucas & Fujita, 2000; Suh, Diener, & Fujita, 1996). For example, Burger and Caldwell (2000) noted that “the results from several investigations indicate that the PANAS trait positive affect scale and the NEO Extraversion appear to be measure highly overlapping, if not the same, constructs” (p. 54). It is unsurprising then, that Tellegen and Waller (1996) have gone so far to suggest that Neuroticism should be relabeled negative affect while Extraversion should be relabeled positive affect. Given this extreme conceptual overlap, we would expect correlations much higher than what is presently

reported (John & Srivastava, 1999).

*Stability and heritability of SWB.*

As Lyubomirsky et al. (2005) review, there appears to be a happiness “set point,” that is, SWB over the long-term tends to be stable. Adoption and twin research studies by Lykken and Tellegen (1996) and more recently by Nes, Røysamb, Tambs, Harris, and Reichborn-Kjennerud (in press), indicate that genes account for about 80% of this stability. Environmental influences are still important but they primarily affect only present mood, having little lasting impact in the long term. After excluding other individual characteristics, such as demographics, the predominant conclusion is that “it appears a substantial portion of stable SWB is due to personality” (Diener & Lucas, 1999, p. 214). Similarly, Lyubomirsky et al. (2005) note “the set point probably reflects relatively immutable intrapersonal, temperamental, and affective personality traits, such as extraversion, arousability, and negative affectivity, that are rooted in neurobiology” (p. 117). Also, Nes et al. (in press) indicate that the long-term stability of SWB may “reflect stable and heritable personality traits, such as neuroticism and extraversion” (p. 6-7). Finally, Eid, Rieman, Angleitner, and Bornenau (2003), based on their own twin study research, conclude “that it is reasonable to consider sociability, energy, and positive affect as different facets of one multidimensional personality trait called extraversion or positive emotionality” (p. 338).

Given that genes appear to account for 80% of the variance in long-term SWB, and that these genes appear to be primarily expressed in terms of personality traits, the expected correlation between traits and SWB should be much higher than what is presently observed. Consider Ilies and Judge (2003) research that estimates up to 45% of genetic influences on job satisfaction, an element of overall SWB, are expressed through personality traits. As the

subsequent section on situational strength indicates, we would expect that traits mediate even more of the relationship between genes and long-term SWB than it does for genes and job satisfaction. Still, if about half of the genetic sources of long-term SWB can also be attributed to major personality traits, we then we would expect to see individual correlations approaching at least .50.

*Situational strength and SWB.*

Though long-term SWB is largely determined by genetic influences, the environment may at times mediate the relationship. Also described as “nature via nurture,” this instrumental perspective suggests an indirect link between traits and SWB where individuals who possess high levels of Extraversion or low levels of Neuroticism are more likely to position themselves in positive life situations (McCrae & Costa, 1991). For example, extraverts are genetically disposed to have more energy, which in turn may help them engage in recreational activities that produce pleasure. Consequently, constrained environments which preclude or reduce situational choice should diminish the personality-SWB relationship. More generally, the phenomenon is known as *situational strength*, which indicates the degree that the environment, rather than dispositions, influences a person’s attitudes and behaviors (Mischel, 1977; Withey, Gellatly, & Annett, 2005).

Given the concept of situational strength, previous meta-analytic SWB research results are counterintuitive. It indicates that job satisfaction (Judge, Heller, & Mount, 2002) is better predicted by personality traits than general levels of SWB (DeNeve & Cooper, 1998). For the Big Five personality traits, all except for Openness to Experience correlate more strongly with job satisfaction than overall SWB. We would expect the opposite. As Staw and Cohen-Charash (2005) review, organizations often represent strong situations, especially in the common



circumstance “where the organization controls key outcomes for the individual, such as incomes, status, and social identification” (p. 63). Though the degree of situational strength will vary among organizations, situations within the work context should typically be more powerful relative to most life domains. Consequently, situational strength should mitigate the personality-job satisfaction association to a greater degree than personality-SWB relationships.

Other research also indicates that situations should strongly affect job satisfaction. Heller, Watson, and Ilies (2004) conducted research that examined the associations between personality traits and a number of satisfaction domains. The authors initially performed a meta-analysis that investigated the relations between the Big Five personality constructs and life, health, marital, and social satisfaction. Based on their analyses and the previous meta-analysis conducted by Judge et al. (2002), the authors suggested that life satisfaction is more proximally related to personality constructs than other satisfaction domains. Furthermore, Schjoedt, Balkin, and Baron (2005) examined the role of dispositional and situational variables in predicting job satisfaction. Their results demonstrated that situational variables accounted for more variance than dispositional variables in job satisfaction.

As such, it appears that job satisfaction is more situation specific and previous meta-analytic findings could better portray the relative relationship between personality and job and life satisfaction domains. We should expect that more general indices of SWB are more closely linked to personality than they are presently summarized.

#### *Improving Estimation: The Issue of Commensurability*

Given that the SWB-Personality relationship appears to be underestimated, we are presently in a position to address this issue. Simply, many more studies are now available. A larger sample will improve the precision of any estimate but it will also enable other meta-

analytic techniques. For example, previous meta-analytic research primarily collected and provided only univariate correlations between SWB and personality traits. By collecting the intercorrelations among personality elements as well, we can conduct multivariate analyses and determine how much total variance can be accounted for by personality. However, the major benefit of significantly more data is the ability to tackle the *commensurability* or “apples and oranges” problem (e.g., Sharpe, 1997).

Commensurability is a classic difficulty in meta-analysis, reflecting that we often must merge dissimilar studies together in order to achieve a sufficient sample. This practice creates method variance (Kenny & Zaurtra, 2001), as inevitably no two studies are truly identical (e.g., even if you limit yourself to “apples” alone, they themselves come in a wide variety ranging from Fuji to Macintosh). Though a strong case can be made for aggregating slightly different studies, at some point the differences no longer remain trivial and become substantive. There is no definite point at which this happens, but when we start grouping extremely diverse studies together, Eysenck’s (1978) criticism of meta-analysis as “mega-silliness” becomes understandable. Indeed, the effects of commensurability are typically large (Cortina, 2003). For example, meta-analytic research by Doty and Glick (1998) found that 32% of variance in scores was attributed to methods of measurement. Also, as Hunter and Schmidt (1990) concluded, it can create meta-analyses that “are difficult or impossible to interpret” (p. 481).

In exploring this issue, we consider construct variation with personality and SWB separately. For both personality and SWB, we first establish that there is considerable variability regarding how they are measured and that these differences are substantive. Following this, we discuss how past research has only partially dealt with the problems of construct variation

*Construct variation in personality.*

Initially, the issue of commensurability does not appear to be a pressing issue in the measurement of personality. For over 20 years, the five-factor model (FFM) of personality has been commonly accepted (Goldberg, 1990; Lee & Ashton, 2004). Even earlier models, such as the three-factor structure seen in Eysenck's Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975) can be largely understood in terms of five factors. For example, the Psychoticism factor of the Eysenck inventory consists of low levels of Conscientiousness and Agreeableness (Brand, 1997; John, 1990; McCrae & Costa, 1985). Despite these commonalities, many scales possess unique properties and there are compelling reasons to believe they should only be cautiously aggregated.

Even among personality scales with similar or identical nomenclature, there are substantive differences. For example, the NEO-PI Openness scale correlates with the comparable Hogan Personality Inventory (HPI) Intellectance scale at .67, while the same HPI scale correlates with the Interpersonal Adjective Scales-Big 5 (IASR-B5) Openness scale only at .44 (Widiger & Trull, 1997). Especially problematic, however, to SWB research is the impulsivity facet and its "wandering" nature (Revelle, 1997). Impulsivity has been nested under Extraversion for the EPI, under Psychoticism for the EPQ, and under Neuroticism for the NEO-PI-R. Aluja, Garcia, and Garcia (2004) factor analyzed several personality inventories including the NEO-PI-R and the EPQ-RS. Interestingly, the results suggested that the impulsiveness scale, a facet of NEO's Neuroticism dimension, actually loaded with the Extraversion dimensions from both the NEO and EPQ inventories. The concern is that impulsiveness should be relevant in the prediction of SWB (Emmons & Diener, 1986), and is positively associated with negative affect. Depending on where it is placed then, it has the capacity to affect correlations, such as diminishing the Extraversion relationship with SWB. Consequently, the combination of diverse personality

measures has the potential to underestimate correlations in SWB meta-analytic research.

*Past practices and research implications.*

Hogan, Hogan, and Roberts (1996) suggested that combining non-equivalent scales is a major problem that all personality researchers face when conducting meta-analyses. Other researchers agree. Post hoc classification threatens the construct validity of Big Five personality dimensions, simply because there are an extremely large number of traits, many of which do not fit cleanly into the Big Five framework (Hurtz & Donovan, 2000; Salgado, 1997). Consequently, it is very easy to make dubious or mistaken classifications. For example, consider the meta-analysis of the Big Five and job performance conducted by Barrick, and Mount (1991), two extremely capable and experienced researchers whose methodology is likely one of the “best case” scenarios. As Hogan et al. (1996) noted, they made a few misclassification errors and Hurtz and Donovan (2000) raised concerns regarding their rater agreement, as it reached “only 83% or better rater agreement on 68% of the classifications” (p. 872).

Given the challenge in sorting a diverse array of personality measures with no clear guidelines for equivalency, other methods have been developed to address the issue of commensurability. Notably, Judge et al. (2002) attempted to account for this threat to construct validity by conducting a moderator analysis that compared the effect sizes derived from direct measures of Big Five traits to scales that indirectly measured these traits. The results of this moderator analysis did show some limited incommensurability, as indirect measures tended to produce larger effect sizes with job satisfaction than the direct measures. However, this methodology still assumes that direct measures are relatively uniform in meaning, which is not necessarily the case.

Other researchers have suggested that the best approach to control for variation in construct validity, and reduce the level of subjective judgments, is to examine evidence associated with a single scale (e.g., Hogan et al., 1996; Hunter & Schmidt, 1990). By doing so, interrater agreement will not be sacrificed, and more importantly, there will be no comparison made between non-commensurate measures. This methodology was adopted by Lucas and Fujita (2000), who addressed commensurability in a focused SWB meta-analysis, examining the univariate relationship of Extraversion with pleasant affect. They limited their meta-analysis to three popular scales: the NEO-PI (Costa & McCrae, 1992), Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975) and the Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1964).

We independently derived an identical approach to commensurability as Lucas and Fujita (2000), focusing our meta-analysis also on the NEO-PI, the EPQ, and the EPI. They are popular enough to provide sufficient sample for summary and reflect what Hogan et al. (1996) describe as “good personality measures.” They provide scores that are temporally stable and relate to meaningful non-test behaviours (e.g., Kirkhart, Morgan, & Sincavage, 1991; Murray, Rawlings, Allen, & Trinder, 2003). Furthermore, the measures have favorable psychometric properties. For instance, internal-consistency reliabilities for the scales are typically around .80 (e.g., Costa & McCrae, 1992; Eysenck, Eysenck, & Barret, 1985; John, Donahue, & Kentle, 1991).

*Construct variation in SWB.*

SWB is far from a unitary concept. Its definition and measurement can vary greatly across research studies. Diener and Lucas (1999) defined SWB as people’s evaluation of their lives. These evaluations include “both cognitive judgments of ones’ life satisfaction in addition to affective evaluations of mood and emotions” (p. 213). Facets within SWB differ through

varying levels of affective, temporal, and cognitive dimensions (Okun, Stock, & Covey, 1982), suggesting that these SWB categories are not entirely equivalent. In particular, several researchers have found significant differences between affect and happiness or satisfaction (Deiner & Deiner, 1996; Steel & Ones, 2002; Veenhoven, 1994; Weiss, 2002) and within affect itself, there are substantive differences between its positive and negative form (e.g., Connolly & Viswesvaran, 2000).

Though the field has yet to come to a consensus regarding the domains of SWB (e.g., happiness is considered at times to represent *either* affect or satisfaction), a few prominent divisions reoccur with regularity: life satisfaction, happiness, affect (overall, positive and negative), quality of life, and job satisfaction. The differences among these five categories will now be discussed.

First, life satisfaction has been defined as the “global evaluation by the person of his or her life” (Pavot, Diener, Colvin, & Sandvik, 1991, p. 150). Consequently, this includes studies that incorporate scales assessing participants’ cognitive appraisal of overall life circumstances. Second, happiness normally refers to a consistent, optimistic mood state which “is itself the highest good, the *summon bonum* of classical theory” (Averill & More, 1993, p. 617). Third, positive and negative affect are measures that gauge the propensity for an individual to assess life events in either a positive or a negative manner, respectively. Overall affect or hedonic balance examines the equilibrium between positive and negative affect, often operationalized as the difference score between the positive and negative affect scales. Of note, life satisfaction and happiness typically assess SWB over considerable duration, such as a lifetime. Affect, on the other hand can be assessed at either a state or a trait level. State affect involves emotional experience over a short period in time (e.g., today, this week, this month), while trait affect spans

across a long duration of time (e.g., years). Fourth, quality of life is a global measure assessing an individual's psychological well-being (Campbell, Converse, & Rodgers, 1976).

Finally, job satisfaction is a complex category that deserves special consideration. Its primary purpose in this analysis is to exemplify situational specificity and demonstrate that personality should have weaker associations with this construct than the other four SWB dimensions. Moreover, it is particularly important from an organizational perspective as satisfied employees are more likely to be superior performers (Judge, Thoresen, Bono, & Patton, 2001) and less likely to participate in counterproductive behaviours, while contributing to a positive work environment and promoting corporate health (Hardy, Woods, & Wall, 2003). Job satisfaction should be a subset of life satisfaction, where the latter is influenced by the former (Hart, 1999) but ultimately has separate causes and consequences (Weiss, 2002). Unfortunately, as Weiss (2002) reviews, the job satisfaction literature has not consistently acknowledged the difference between cognition and affect, though it has tended to favor cognition during operationalization.

*Past practices and research implications.*

For the most part, researchers have been fairly rigorous in separating different categories of SWB during analysis. DeNeve and Cooper (1998) sorted their measures into four groups: Life Satisfaction, Happiness, Positive Affect, and Negative Affect. Similarly, Lucas, Diener, and Suh (1996) categorized subjective well-being measures into four dimensions, which include life satisfaction, optimism, self-esteem, and affect. Thoresen, Kaplan, Barsky, Warren, and de Chermont (2003) focused on affect alone. Finally, Connolly and Viswesvaran (2000) considered both positive and negative affect but evaluated the overall affective disposition as well. However, two problematic issues arise.

To begin with, affect is a *bridge* concept, as it can be considered both a personality trait (a predictor) and a measure of SWB (a criterion) simultaneously. This generates a situation where the focus of many studies is to use affect, one measure of SWB, to predict another (e.g., job satisfaction: Connolly & Viswesvaran, 2000; Thoresen et al., 2003). DeNeve and Cooper (1998) dealt with this confusion by considering only state affect as representing SWB. This choice, though, is at odds with life satisfaction, which deals with judgments regarding one's entire life. This means that though we have long-term measures of cognitive SWB, we asymmetrically have no corresponding affective ones. If subjective well-being is our criterion of interest, we should examine both long- and short-term affect, using moderator analyses to assess whether personality is differentially related to the two levels.

The second issue directly pertains to commensurability. Researchers have appeared to be fairly inclusive in regards to what is considered SWB. Connolly and Viswesvaran (2000) as well as Thoresen et al. (2003) used a wide variety of measures to describe affect: from anxiety (e.g., State-Trait Anxiety Inventory) and optimism (e.g., Life Orientation Test), to Extraversion and Neuroticism (e.g., the EPQ). As mentioned, Weiss (2002) concludes that the job satisfaction literature has not been careful in differentiating between cognitive and affective forms of SWB, meaning that it can be very difficult to determine whether to group different measures together.

In the present meta-analysis, we attempt to reduce commensurability problems through several ways. First, we broaden the number of SWB categories as compared to previous research. We consider life satisfaction, happiness, affect (overall, positive and negative), quality of life, and job satisfaction. Second, approximately 90% of the SWB scales we used were published measures and less than 3% were based on single items. Third, scales were sorted based on the input of all three authors, excluding any where clear consensus could not be achieved. A



list depicting what scales were sorted into which categories (e.g., Satisfaction with Life Scale into the Life Satisfaction category) is available from the authors.

## Methods

### *Literature Search*

Our literature search procedure was designed to include all relevant articles on the topic, including foreign language and unpublished works. The first strategy was to conduct searches in the PsycInfo, Medline, and Proquest (unpublished dissertations) databases using keywords for articles that included both subjective well-being and personality measures. Searches combined 36 keywords related to happiness, life satisfaction, affect, or quality of life *with* 15 key words related to either the Eysenck or the NEO personality inventories. The personality keywords included NEO personality inventory, NEO personality, NEO five-factor inventory, NEO-FFI, NEO-PI, NEO-PI-R, Eysenck personality inventory, Eysenck personality questionnaire, EPI, EPQ, EPQ-J, EPQ-R-S, and EPQ-R-X. Second, the Social Sciences Citation Index (i.e., Web of Science) was searched for all publications that cited articles providing various measures of the above listed key words. Meta-analyses (e.g., DeNeve & Cooper, 1998; Steel & Ones, 2002; Judge et al., 2002) and websites (e.g., World Database of Happiness) were examined to identify many of the major measures. In total, the citations of more than 80 articles were searched. Third, authors who published more than one study within our initial search were contacted to secure any unpublished research in attempt to address the “file drawer” problem. In total, 903 published articles, masters and doctoral dissertations, book chapters, and conference proceedings have been identified in various languages. We included six different revised NEO measures, in part to accommodate language translations between 1985 and 1992. There were 10 different EPQ scales, mostly from translations into various languages. Lastly, there were four EPI measures.

Similarly, between 14 and 19 scales were identified measuring each construct of job satisfaction, happiness, life satisfaction, overall affect, positive affect, negative affect, and quality of life.

#### *Eligibility Criteria and Data Coding Procedures*

Of the 903 identified articles, 223 contained usable data. Usable data included effect sizes expressed as a correlation, t-score, d-score or F-score. All articles were double coded by two authors and all entered correlations were compared to identify and correct any data entry errors. The inter-rater reliability of the coding was 96.4%. Any inconsistencies were resolved by re-examining the articles. Outliers were defined as individual correlations that were four standard deviations above or below the mean of the correlations in the sample. The existence of outliers was addressed by further examining the original article to ensure that data entry errors did not occur. If the outlier did not result from an entry error, then the sample size of the outlying correlation was reduced until it was not significant (i.e., below four standard deviations from the mean). If the sample size had to be reduced to fewer than 300, approximately the overall average sample size, it was removed from the analysis. Any other discrepancies were resolved via a consultation process that included all three authors.

#### *Statistical Analysis*

We employed the meta-analysis procedures proposed by Hunter and Schmidt (1990) to conduct this research. Correlations were weighted according to sample size and then corrected for unreliability and sampling error in the measures at the aggregate level. Other corrections, specifically for dichotomizing a continuous variable, uneven splits, range restriction, and standard deviation splits, were conducted at the individual level. Consistent with the procedures of Judge et al. (2002), we inserted the internal consistency reliability figure as averaged within each SWB facet in the analysis when the alpha was not reported. For single-item measures of job

satisfaction, we followed the research of Nagy (2002) and assumed a reliability coefficient of .63. Correlations were deemed significant if the confidence interval did not include zero. When multiple measures were used within one facet of subjective well-being (i.e., two measures of affect) in a primary study, they were averaged to avoid overweighting these studies.

Moderator analysis used weighted least squares regression, as per Steel and Kammeyer-Mueller (2002). Moderator variables that were examined include self- versus other-ratings of personality, gender, type of sample (e.g. student population, employee, or general population), and average age of the sample. Furthermore, the analyses tested if our findings are *statistically* different from previous findings. The information used for the moderator variables was explicitly labeled in the individual studies; consequently, the analysis consisted of coding the requisite information and separately analyzing the correlations for each moderator variable.

### Results

In total 1,645 correlation coefficients were examined to determine the relationship between SWB and personality, as measured by NEO, EPQ and EPI personality inventories. The coefficients were derived from 223 studies. The total number of participants across all studies was 91,074, with a mean of 335 participants per study. The mean age of the sample was 36.85 (SD = 7.26), 46% of which were males. The research methodology was almost exclusively self-report, with 3% using other-report. A large proportion (84%) of the studies assessing job satisfaction was conducted with employee samples. The majority of the studies were conducted in North America (k = 88), followed by the United Kingdom (k = 37), while the remaining of the studies originated from various countries in Europe, Asia, Australia or unknown. Most of the research was conducted in field samples, which incorporated convenience-sampling techniques.

To examine the relationship between personality and SWB, we calculated the weighted correlation for each facet of SWB with each dimension of personality. The number of independent samples included in each analysis ranged from 1 to 72. Statistical significance is reached only when the 95% confidence interval does not include zero. However, the results are deemed practically significant when the 95% credibility range does not include zero. As expected, many of the relationships were both statistically and practically significant.

To determine whether we should display state and trait affect measures separately, we ran a stepwise WLS multivariate regression. In the first step, we entered variables pertaining to the type of measure (e.g., NEO versus EPQ) and type of affect (i.e., positive versus negative). For the second step, we entered whether it was a state or a trait. The second step added no incremental variance ( $F(1, 655) = 0.126, n.s.$ ), and consequently the relationship of affect to personality appears to be functionally uniform at both a state and trait level.<sup>1</sup>

Analyses specific to the NEO inventories are reported in Table 1. The findings suggest that Agreeableness, Extraversion, Conscientiousness, and Neuroticism are significantly related to all SWB facets. Openness to Experience was significantly related to job satisfaction, happiness, positive affect and quality of life, but was not significantly related to life satisfaction, negative affect and overall affect. Neuroticism is clearly the strongest predictor of SWB, particularly for negative affect ( $\rho = .64, k = 72$ ), happiness ( $\rho = -.51, k = 6$ ), overall affect ( $\rho = -.59, k = 14$ ), and quality of life ( $\rho = -.72, k = 5$ ). Similarly, Extraversion is a strong predictor of positive affect ( $\rho = .53, k = 53$ ), happiness ( $\rho = .57, k = 6$ ), overall affect ( $\rho = .44, k = 10$ ), and quality of life ( $\rho = .54, k = 4$ ). Conscientiousness is a strong predictor of quality of life ( $\rho = .51, k = 4$ ).

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<sup>1</sup> State versus trait is a continuous dimension, where state can reflect how one feels right now or over the last week or several months. Though state measures were not significantly related to the results obtained here, we expect that state measures that *exclusively* focus on very recent feelings (e.g., “how do you feel today?” instead of “this week” or “month”) should show a diminished correlation with personality traits, as per Steyer, Ferring and Schmitt (1992).

Analyses specific to the EPQ are reported in Table 2. Neuroticism and Extraversion are significantly related to all SWB measures. Psychoticism is also related to all SWB measures except job satisfaction and quality of life. Defensiveness is significantly related to happiness and life satisfaction, but not positive affect, negative affect, overall affect, and job satisfaction. There was only one study investigating the relationship between Defensiveness and quality of life precluding any meta-analytic significance testing (i.e., a single study cannot be meta-analyzed). Consistent with the findings from the NEO inventories, Neuroticism is the best predictor evident by numerous strong relationships including negative affect ( $\rho = .66$ ,  $k = 32$ ), overall affect ( $\rho = -.63$ ,  $k = 12$ ), quality of life ( $\rho = -.66$ ,  $k = 9$ ), and happiness ( $\rho = -.52$ ,  $k = 30$ ). SWB measures that are best predicted by Extraversion include happiness ( $\rho = .47$ ,  $k = 34$ ), positive affect ( $\rho = .44$ ,  $k = 38$ ), overall affect ( $\rho = .45$ ,  $k = 7$ ), and quality of life ( $\rho = .40$ ,  $k = 4$ ).

Analyses specific to the EPI are reported in Table 3. Extraversion and Neuroticism are significantly related to all SWB measures. However, meta-analytic significance testing of the relationship between Neuroticism and quality of life was not possible because there was only one study reporting this relationship. Neuroticism best predicts negative affect ( $\rho = .54$ ,  $k = 24$ ), life satisfaction ( $\rho = -.42$ ,  $k = 12$ ), overall affect ( $\rho = -.51$ ,  $k = 6$ ), and happiness ( $\rho = -.40$ ,  $k = 5$ ). Extraversion best predicts positive affect ( $\rho = .31$ ,  $k = 24$ ) and life satisfaction ( $\rho = .29$ ,  $k = 7$ ).

The inter-correlations between the personality dimensions are reported in Tables 4-6. Correlations corrected/uncorrected for reliability are reported above/below the diagonal, respectively. Consistent with Saucier's (2002) research, these findings suggest that the dimensions are not completely orthogonal for the NEO, EPQ or EPI inventories.

Independent sample t-tests were conducted to compare the findings of the present investigation with previous meta-analytic findings. Undoubtedly, some of the samples included

in our analysis were also included in the previous meta-analyses; however, independent sample tests were conducted for two reasons. First, most of the samples did not overlap between analyses. Second, using independent rather than dependent samples t-tests result in findings that are more conservative. Where possible, correlations uncorrected for reliability were compared. Specifically, the life satisfaction, happiness, positive affect, and negative affect uncorrected correlations were compared to those produced by DeNeve and Cooper (1998). The direct Big Five measures reported by Judge et al. (2002) were compared to the findings of this investigation. However, these comparisons used corrected correlations because uncorrected correlations were not reported. All comparative analyses are reported in Table 7. In short, 27 out of the possible 36 comparisons to DeNeve and Cooper's (1998) findings were significantly greater in magnitude, 3 were smaller, and 6 were essentially equivalent. Compared to Judge et al.'s (2002) job satisfaction findings, our correlations were significantly smaller for 6 of 9 possible comparisons, and only 1 correlation was significantly greater in magnitude.

Multivariate analyses using LISREL 8.54 were conducted to determine the combined and incremental contribution the personality traits contributed to the prediction of the SWB. Tables 8, 9, and 10 provide the results of the multiple regression analysis for the NEO, the EPQ, and the EPI, respectively. Beta weights for each personality dimensions are reported as well as total variance accounted, both attenuated (i.e.,  $R^2$ ) and unattenuated (i.e.,  $\rho^2$ ). As can be seen, there are several issues pertaining to commensurability.

First, the amount of variance that the personality dimensions accounts for varies among the SWB constructs. As expected, job satisfaction consistently has the least variance accounted for, ranging from a  $R^2$  of .03 (for the EPI) to a  $R^2$  of .13 (for the EPQ). On the other hand, quality of life consistently has the most variance accounted for, ranging from a  $R^2$  of .21 (for the EPI) to

a  $R^2$  of .41 (for the EPQ). Also, the relative amount of variance that personality traits can account for is quite reliable among all the measures, with the average correlation between measures being approximately .84 (i.e., the EPQ, the NEO, and the EPI scores are all related).

Second, the amount of variance accounted for differs according to which personality scale is used. The EPI, on average, predicts about 13% of the variance while either the NEO or the EPQ predicts about double that or 26%. It is clear that the choice of which scale is used will substantively affect the overall results. Still, there are consistencies. Neuroticism always presents the largest beta weights except for positive affect, where Extraversion is the largest.

#### *Moderator Analysis*

Exploratory moderator searches were conducted to determine the generalizability of the results between personality and SWB conceptualizations. Does the observed residual variance (i.e., the variance after taking into account sampling error) among the meta-analytic correlations depend on methodological or demographic differences among the studies? To this end, the following variables were available for analysis: age, sex, self versus other personality reports, and population type (i.e., employee, student, mentally ill or general population). To ensure adequate sample size and enough statistical power, analyses were conducted across all personality scales. Consequently, moderator searches focused on Extraversion and Neuroticism, which were common across all scales and these traits represented the two strongest correlates. All analyses were weighted by sample size and the NEO and EPQ personality scales was included as a control variable. The moderators' specific to each SWB conceptualization are reported next. As will be discussed, different SWB constructs appear to be susceptible to different moderator effects.

To begin with, age appears to affect the relationship between satisfaction and Extraversion. Specifically, the relationship between Extraversion and job satisfaction as well as life satisfaction is greater for older individuals (respectively,  $\Delta R^2 = .22, p < .05$ ;  $\Delta R^2 = .23, p < .01$ ). Ostensibly, as we grow older, social relationships become more important for a cognitive assessment of well-being. Also, slightly stronger correlations may exist between Neuroticism and positive affect when participants are younger in age ( $\Delta R^2 = .05, p < .05$ ).

Similar to age, sex also affected job and life satisfactions. Specially, the relationship between Extraversion and job satisfaction is greater for males ( $\Delta R^2 = .25, p < .01$ ). However, for life satisfaction, the relationship increased for females relative to males, for both Extraversion ( $\Delta R^2 = .09, p < .05$ ) and Neuroticism ( $\Delta R^2 = .07, p < .05$ ). Also, the findings suggest that stronger correlations between Neuroticism and negative affect are reported for males compared to females ( $\Delta R^2 = .05, p = .01$ ).

There is a greater possibility of a common method bias affecting self-reports, so it is not surprising to find that it does sporadically increase observed correlations. Self-report measures of personality result in correlations of a greater magnitude between Extraversion and happiness relative to other report formats ( $\Delta R^2 = .05, p < .05$ ). Also, self-report measures of personality produce correlations that are of a greater magnitude between Extraversion and overall affect compared ( $\Delta R^2 = .18, p < .05$ ). Finally, the relationship between Neuroticism and negative affect increased if self-reports were used ( $\Delta R^2 = .06, p = .01$ ).

The final moderator that we could explore was population type. Does the general population relationships apply equally well to employee, student, or mentally ill groups? There are several findings. Population type was found to moderate the relationships between both Extraversion ( $\Delta R^2 = .18, p < .01$ ) and Neuroticism ( $\Delta R^2 = .17, p < .01$ ) as predictors of life



satisfaction. Examining the population samples suggests that using employees or the general population as participants results in attenuated correlations between Neuroticism and life satisfaction. Population type also moderated the relationship between Neuroticism and happiness ( $\Delta R^2 = .13, p = .05$ ). Specifically, stronger correlations result when using a mentally ill sample and weaker correlations result when using an employee sample. Continuing, population type moderates the prediction of positive affect for both Extraversion ( $\Delta R^2 = .08, p < .05$ ) and Neuroticism ( $\Delta R^2 = .07, p < .05$ ). Interestingly, Extraversion correlations are inflated when examining students or mentally ill participants, and Neuroticism correlations are attenuated when examining the general population. Finally, population type also moderates the relationship between Extraversion and overall affect ( $\Delta R^2 = .27, p < .05$ ), though this effect cannot be relegated to a specific population group.

### Discussion

The results of the present investigation indicate that personality traits play a much greater role in determining an individual's general level of SWB than previously thought. Almost every comparable analysis produced correlations of a greater magnitude relative to previous meta-analytic findings. The size of the difference is clearly evident when examining Extraversion and Neuroticism where the observed relationships often doubled, tripled and even quadrupled. For example, DeNeve and Cooper's (1998) meta-analysis indicated that Extraversion accounted for approximately 4% of the variance for positive affect while this analysis indicates it is as high as 19% (i.e., with the NEO), or 28% unattenuated. Similarly, the NEO Neuroticism scale accounted for 29% of the variance in negative affect, or 41% unattenuated, while previous findings suggested 5%. Furthermore, we have also considered the combined relationship of personality to SWB using multivariate meta-analytic regression. For this analysis, findings reached as high as

41% of variance or 55% unattenuated, between the EPQ and quality of life measures.

The primary reason for the difference in findings appears to be commensurability. Though there is a wide assortment of potential moderator effects, from demographics to research design, consistently one of the largest factors is scale differences. In other words, scales or measures that nominally appear identical may actually possess quite different properties. This appears to be especially true for personality. As shown here, the SWB relationships for the EPI and the EPQ, despite both being developed by Eysenck and the latter being based on the former, are substantially different. Unfortunately, though these findings indicate that aggregating various personality measures considerably reduces precision, testing the equivalence of scales is very sporadic (Cortina, 2003; Doty & Glick, 1998). Still, such “clumping” may be necessary for any early investigation as there simply may not be enough studies to properly pursue the matter. As previously mentioned, DeNeve and Cooper’s (1998) groundbreaking meta-analysis contained only 5 SWB studies examining Psychoticism, a fraction of what is presently available. Similarly, Lucas and Fujita (2000) found 17 samples to examine the relationship that the NEO Extraversion scale has with positive/pleasant affect, compared to the 52 samples in the present meta-analysis.

It is important to note that issues of commensurability can drive findings either up or down. Though our findings for SWB were typically higher than DeNeve and Cooper’s (1998) meta-analysis, the pattern of correlations for job satisfaction was generally lower than those observed by Judge et al. (2002). For example, our analysis produced a corrected correlation for Conscientiousness and job satisfaction of .11 while the same relationship reported in the Judge et al. (2002) analysis was .26. This difference could easily be due to Judge et al. including personality scales that specifically reference the work situation. Studies incorporating the “at work” frame-of-reference into personality inventories have demonstrated that these measures are

valid predictors of job performance incremental to standard personality testing conditions (e.g., Hunthausen, Truxillo, Bauer, & Hammer, 2003). Consequently, if the Judge et al. meta-analysis contained a substantial quantity of studies that incorporated a work related frame-of-reference in the personality measures, it is likely that the meta-analytic correlations would be higher than the results obtained in the present investigation.

By focusing our meta-analysis on single scales and thus controlling for commensurability, we were able to generate findings that are much more consistent with expectations. As mentioned, twin studies indicate that up to 80% should be due to stable individual differences, likely traits. Though it is unlikely that all this variance can be accounted for (e.g., most attempts to assess long-term SWB are contaminated with mood effects), we would still expect that good personality measures should predict a substantial portion. Also, theory indicates that job satisfaction, rather than life satisfaction, should demonstrate lower correlations with personality traits. Our findings are consistent with this notion, indicating that job satisfaction is indeed influenced by situational factors more strongly than other areas of SWB. For example, it is not as easy to select the types of situations that one would like to be involved in the work environment as in the home environment.

Future research should endeavor to further refine the estimates made here. Though the amount of variance attributed to personality has greatly increased, we expect it could easily be larger. Specifically, it has long been suggested that Extraversion and Neuroticism has an interactive effect upon SWB, such that being both introverted and neurotic decreases one's happiness (Hotard, McFatter, McWhirter, & Stegall, 1989; Pavot, Diener, & Fujita, 1990). More recently, Yik and Russell (2001) indicate that this interaction incrementally explains approximately 3% of the variance while Lynn and Steel (2006) found it to be as high as 14% to

19%, though using national level data. As our research base expands, we should seek to meta-analytically summarize and incorporate this effect in our estimates.

Also, as our research base expands, we should attempt to control and test for scale differences whenever possible. Even in this study, where commensurability was a focal issue, we collapsed scales into SWB categories using theoretically based dimensions. Due to the sheer number of scales used to measure SWB, and that none have dominated the literature, we cannot use the same highly focused strategy that was employed for personality. For this reason, we used many categories of SWB to keep the constructs as precise as possible while also keeping the sample size sufficient to obtain meaningful results. Moreover, careful judgments were used to both include and exclude particular measures. For example, certain measures (e.g., General Health Questionnaire, Goldberg scales) were excluded because they tap more into the clinical depression construct than to facets of SWB. The relationship between personality and depression or anxiety is interesting, but beyond the scope of this investigation.

This indicates that there is still much to be done in determining if there are more significant differences for SWB and other personality and attitudinal measures (e.g., self-esteem, optimism, and anxiety), though some work has already been conducted. If we consider SWB specifically, Lucas and Fujita (2000) found, consistent with our results, that EPI Extraversion produces lower correlations with pleasant affect than the NEO or EPQ scales. Thoresen et al. (2003) found that using Extraversion and Neuroticism as proxies for positive and negative affect generated significantly different results. Similarly, Connolly and Viswesvaran (2000) observed a significant difference among the job satisfaction measures, specifically for the Job Descriptive Index and the Minnesota Satisfaction Questionnaire. Also, Judge et al. (2002) located several significant differences among the gamut of job satisfaction measures included in their analysis.

Finally, the relationship of job facet scales to global job satisfaction is tenuous, even if all of the facets are used in the estimation (Ironson, Smith, Brannick, Gibson, & Paul, 2002; Jackson & Corr, 2002; Weiss, 2002).

In summary, the results of this review not only indicate that personality is substantially related to SWB, but also that the relationship is typically much stronger than previously thought. Furthermore, these findings suggest that commensurability is indeed a potential problem that researchers need to acknowledge. Clearly, careful decisions need to be made with respect to the aggregation of measures to ensure meta-analysis does not degrade into Eysenck's "mega-silliness" criticism.

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Table 1  
*Meta-Analytic Subjective Well-Being Results for the NEO*

Construct	K	n	$\bar{r}$	$\bar{r}$ - 95% Interval			$\rho$	$\rho$ - 95% Interval		
				Confidence	Credibility	Q Statistic		Confidence	Credibility	Q Statistic
<b>Agreeableness</b>										
Job Satisfaction	11	10703	.06	.03 to .09	.00 to .12	$p=.0193$	.08	.05 to .12	.00 to .16	$p=.0236$
Happiness	4	441	.30	.22 to .38	.31 to .31	$p=.2736$	.36	.26 to .47	.36 to .36	$p=.2737$
Life Satisfaction	20	7127	.14	.11 to .17	.06 to .23	$p=.0179$	.19	.15 to .23	.10 to .28	$p=.0683$
Positive Affect	23	5933	.12	.09 to .15	.02 to .22	$p=.0131$	.15	.11 to .19	.02 to .28	$p=.0094$
Negative Affect	27	7199	-.19	-.16 to -.23	-.05 to -.34	$p<.0001$	-.25	-.20 to -.29	-.10 to -.40	$p=.0004$
Overall Affect	6	1035	.14	.09 to .19	.14 to .14	$p=.5818$	.20	.13 to .26	.20 to .20	$p=.5632$
Quality of Life	4	767	.23	.15 to .30	.17 to .29	$p=.1908$	.31	.21 to .40	.22 to .39	$p=.1873$
<b>Conscientiousness</b>										
Job Satisfaction	15	11910	.08	.05 to .12	-.04 to .21	$p<.0001$	.11	.06 to .15	-.06 to .27	$p<.0001$
Happiness	4	441	.25	.17 to .33	.25 to .25	$p=.3804$	.27	.19 to .36	.28 to .28	$p=.3804$
Life Satisfaction	22	6208	.22	.18 to .25	.10 to .34	$p=.0006$	.28	.23 to .32	.13 to .42	$p=.0012$
Positive Affect	25	6007	.26	.22 to .31	.07 to .46	$p<.0001$	.31	.26 to .37	.09 to .54	$p<.0001$
Negative Affect	29	7871	-.21	-.17 to -.25	-.05 to -.37	$p<.0001$	-.26	-.21 to -.30	-.08 to -.44	$p<.0001$
Overall Affect	5	829	.22	.12 to .32	.04 to .39	$p=.014$	.29	.15 to .42	-.06 to .52	$p=.0139$
Quality of Life	4	767	.40	.33 to .46	.37 to .42	$p=.2482$	.51	.43 to .59	.48 to .54	$p=.2468$
<b>Extraversion</b>										
Job Satisfaction	16	12439	.15	.12 to .18	.07 to .23	$p=.001$	.19	.15 to .22	.08 to .29	$p=.0007$
Happiness	6	829	.49	.40 to .58	.31 to .67	$p=.0041$	.57	.47 to .68	.37 to .78	$p=.0048$
Life Satisfaction	32	9901	.28	.24 to .32	.11 to .44	$p<.0001$	.35	.31 to .39	.14 to .56	$p<.0001$
Positive Affect	52	12491	.44	.41 to .47	.24 to .64	$p<.0001$	.53	.50 to .57	.28 to .79	$p<.0001$
Negative Affect	49	11462	-.18	-.15 to -.21	-.03 to -.33	$p<.0001$	-.22	-.19 to -.26	-.05 to -.40	$p<.0001$
Overall Affect	10	2042	.33	.26 to .40	.14 to .52	$p=.0001$	.44	.34 to .54	.18 to .70	$p<.0001$
Quality of Life	4	767	.40	.35 to .45	.40 to .40	$p=.3834$	.54	.47 to .61	.54 to .54	$p=.5175$

Table 1

*Continued*

Construct	<i>K</i>	<i>n</i>	$\bar{r}$	$\bar{r}$ – 95% Interval			$\rho$	$\rho$ – 95% Interval		
				Confidence	Credibility	<i>Q</i> Statistic		Confidence	Credibility	<i>Q</i> Statistic
<b>Neuroticism</b>										
Job Satisfaction	21	14311	-.22	-.19 to -.25	-.11 to -.33	$p < .0001$	-.28	-.24 to -.31	-.15 to -.41	$p < .0001$
Happiness	6	621	-.46	-.40 to -.51	-.46 to -.46	$p = .4145$	-.51	-.44 to -.57	-.51 to -.51	$p = .4029$
Life Satisfaction	33	9350	-.37	-.34 to -.40	-.20 to -.54	$p < .0001$	-.44	-.40 to -.48	-.24 to -.64	$p < .0001$
Positive Affect	57	11681	-.29	-.26 to -.32	-.12 to -.47	$p < .0001$	-.35	-.31 to -.38	-.15 to -.54	$p < .0001$
Negative Affect	72	16526	.54	.51 to .57	.31 to .77	$p < .0001$	.64	.60 to .67	.36 to .91	$p < .0001$
Overall Affect	14	3711	-.51	-.46 to -.55	-.38 to -.64	$p < .0001$	-.59	-.55 to -.65	-.38 to -.81	$p < .0001$
Quality of Life	5	967	-.53	-.49 to -.56	-.53 to -.53	$p = .4634$	-.72	-.67 to -.77	-.61 to -.82	$p = .1033$
<b>Openness to Experience</b>										
Job Satisfaction	13	11731	.04	.03 to .05	.04 to .04	$p = .9486$	.05	.04 to .07	.05 to .05	$p = .9717$
Happiness	5	779	.13	.03 to .23	-.04 to .29	$p = .0267$	.14	.03 to .26	-.05 to .33	$p = .0258$
Life Satisfaction	23	8448	.04	.01 to .06	-.03 to .11	$p = .0518$	.05	.01 to .08	-.03 to .13	$p = .0674$
Positive Affect	26	7422	.20	.16 to .24	.04 to .36	$p < .0001$	.26	.21 to .31	.06 to .47	$p < .0001$
Negative Affect	26	7559	-.03	-.07 to .01	-.18 to .12	$p < .0001$	-.04	-.09 to .01	-.23 to .15	$p < .0001$
Overall Affect	7	1373	.04	-.10 to .18	-.08 to .18	$p = .0257$	.07	-.05 to .16	-.13 to .26	$p = .0370$
Quality of Life	6	1305	.16	.07 to .25	-.02 to .34	$p = .0027$	.23	.09 to .35	.03 to .43	$p = .0178$



Table 2  
*Meta-Analytic Subjective Well-Being Results for the EPQ*

Construct	K	n	$\bar{r}$	$\bar{r}$ - 95% Interval			$\rho$	$\rho$ - 95% Interval		
				Confidence	Credibility	Q Statistic		Confidence	Credibility	Q Statistic
<b>Extraversion</b>										
Job Satisfaction	7	989	.19	.14 to .24	.19 to .19	$p=.6519$	.22	.17 to .27	.22 to .22	$p=.6684$
Happiness	34	8316	.41	.38 to .43	.29 to .52	$p<.0001$	.47	.44 to .50	.33 to .60	$p<.0001$
Life Satisfaction	23	5776	.21	.17 to .24	.11 to .30	$p=.0168$	.25	.21 to .29	.14 to .36	$p=.0288$
Positive Affect	38	7446	.35	.32 to .39	.18 to .52	$p<.0001$	.44	.39 to .48	.25 to .63	$p<.0001$
Negative Affect	33	6676	-.15	-.11 to -.18	-.02 to -.27	$p=.0008$	-.18	-.14 to -.22	-.02 to -.33	$p=.001$
Overall Affect	7	894	.32	.26 to .39	.24 to .41	$p=.0903$	.45	.36 to .55	.28 to .63	$p=.1732$
Quality of Life	4	813	.36	.30 to .41	.36 to .36	$p=.4069$	.40	.34 to .45	.40 to .40	$p=.058$
<b>Neuroticism</b>										
Job Satisfaction	11	1808	-.34	-.25 to -.43	-.07 to -.61	$p<.0001$	-.39	-.29 to -.50	-.07 to -.72	$p<.0001$
Happiness	30	7342	-.44	-.41 to -.47	-.31 to -.57	$p<.0001$	-.52	-.48 to -.56	-.35 to -.68	$p<.0001$
Life Satisfaction	33	8650	-.38	-.35 to -.41	-.21 to -.55	$p<.0001$	-.45	-.41 to -.49	-.25 to -.65	$p<.0001$
Positive Affect	32	6634	-.26	-.23 to -.29	-.13 to -.39	$p=.0003$	-.32	-.28 to -.36	-.16 to -.48	$p=.0003$
Negative Affect	31	6213	.53	.50 to .57	.36 to .70	$p<.0001$	.66	.61 to .70	.48 to .83	$p<.0001$
Overall Affect	12	2198	-.50	-.46 to -.53	-.46 to -.53	$p=.1519$	-.63	-.58 to -.68	-.63 to -.63	$p=.4536$
Quality of Life	9	4259	-.56	-.51 to -.61	-.42 to -.69	$p<.0001$	-.66	-.60 to -.71	-.50 to -.82	$p<.0001$
<b>Psychoticism</b>										
Job Satisfaction	3	280	.05	-.15 to .24	-.22 to .32	$p=.0104$	.07	-.22 to .36	-.33 to .47	$p=.0140$
Happiness	20	4418	-.08	-.03 to -.12	.07 to -.22	$p=.0009$	-.11	-.05 to -.17	.10 to -.31	$p=.0009$
Life Satisfaction	12	1964	-.24	-.18 to -.29	-.10 to -.37	$p=.0237$	-.35	-.26 to -.44	-.15 to -.55	$p=.0244$
Positive Affect	10	1444	-.07	-.02 to -.11	-.07 to -.07	$p=.5015$	-.10	-.03 to -.17	-.10 to -.10	$p=.4895$
Negative Affect	9	1382	.08	.01 to .15	-.07 to .22	$p=.0327$	.12	.01 to .22	-.09 to .33	$p=.0368$
Overall Affect	4	408	-.11	-.07 to -.15	-.11 to -.11	$p=.8538$	-.20	-.12 to -.26	-.20 to -.20	$p=.9223$
Quality of Life	2	400	-.08	.21 to -.37	.30 to -.46	$p<.0001$	-.12	-.31 to -.55	.45 to -.69	$p<.0001$

Table 2

*Continued*

Construct	K	n	$\bar{r}$	$\bar{r} - 95\% \text{ Interval}$			$\rho$	$\rho - 95\% \text{ Interval}$		
				Confidence	Credibility	Q Statistic		Confidence	Credibility	Q Statistic
<b>Defensiveness</b>										
Job Satisfaction	4	440	.05	-.05 to .14	.05 to .05	$p=.2813$	.05	-.06 to .17	.05 to .05	$p=.2739$
Happiness	18	4422	.12	.08 to .16	.00 to .23	$p=.008$	.15	.10 to .20	.00 to .29	$p=.0093$
Life Satisfaction	11	1080	.12	.09 to .16	.12 to .12	$p=.9596$	.16	.11 to .20	.16 to .16	$p=.9592$
Positive Affect	7	1081	-.04	.01 to -.10	-.04 to -.04	$p=.4604$	-.07	.02 to -.16	-.07 to -.07	$p=.4513$
Negative Affect	7	1438	-.05	.02 to -.12	.08 to -.18	$p=.0376$	-.09	.03 to -.20	.13 to -.30	$p=.1497$
Overall Affect	4	408	.07	-.03 to .17	.07 to .07	$p=.9718$	.11	-.05 to .27	.11 to .11	$p=.9877$
Quality of Life	1	130	-.15	-	-	-	-.17	-	-	-

Table 3

*Meta-Analytic Subjective Well-Being Results for the EPI*

Construct	K	n	$\bar{r}$	$\bar{r}$ – 95% Interval			$\rho$	$\rho$ – 95% Interval		
				Confidence	Credibility	Q Statistic		Confidence	Credibility	Q Statistic
<b>Extraversion</b>										
Job Satisfaction	6	2645	.11	.07 to .15	.07 to .16	$p=.1995$	.15	.09 to .20	.10 to .19	$p=.2342$
Happiness	4	1242	.18	.06 to .30	-.04 to .39	$p=.0001$	.21	.07 to .36	-.04 to .47	$p=.0001$
Life Satisfaction	7	2545	.20	.16 to .23	.20 to .20	$p=.4826$	.29	.24 to .34	.29 to .29	$p=.4602$
Positive Affect	24	5014	.25	.20 to .30	.05 to .46	$p<.0001$	.31	.25 to .37	.08 to .54	$p<.0001$
Negative Affect	20	4576	-.09	-.05 to -.13	.03 to -.22	$p=.0031$	-.11	-.06 to -.16	.04 to -.27	$p=.003$
Overall Affect	6	1864	.17	.11 to .24	.05 to .29	$p=.021$	.20	.12 to .28	.06 to .34	$p=.0214$
Quality of Life	2	364	.21	.11 to .31	.20 to .22	$p=.1559$	.32	.16 to .46	.32 to .32	$p=.2128$
<b>Neuroticism</b>										
Job Satisfaction	4	720	-.14	-.05 to -.23	-.03 to -.25	$p=.1002$	-.17	-.06 to -.28	-.04 to -.31	$p=.0979$
Happiness	5	1157	-.34	-.26 to -.43	-.20 to -.49	$p=.0095$	-.40	-.30 to -.49	-.24 to -.56	$p=.0111$
Life Satisfaction	12	2414	-.33	-.27 to -.39	-.17 to -.50	$p=.0003$	-.42	-.35 to -.50	-.22 to -.63	$p=.0005$
Positive Affect	22	4332	-.15	-.10 to -.19	-.01 to -.29	$p=.001$	-.19	-.13 to -.23	-.03 to -.34	$p=.007$
Negative Affect	23	4686	.46	.40 to .48	.28 to .61	$p<.0001$	.54	.49 to .59	.37 to .71	$p<.0001$
Overall Affect	7	1176	-.44	-.33 to -.55	-.18 to -.70	$p<.0001$	-.51	-.38 to -.63	-.21 to -.80	$p<.0001$
Quality of Life	1	246	-.26	-	-	-	-.40	-	-	-

Table 4

*Correlations Between NEO Personality Dimensions.*

	Extraversion	Neuroticism	Openness	Agreeableness	Conscientiousness
Extraversion	$\alpha = .78$	-.41 (53)	-.13 (33)	-.31 (33)	-.40 (36)
Neuroticism	-.33	$\alpha = .83$	.31 (27)	.34 (27)	.35 (29)
Openness	.23	-.10	$\alpha = .72$	.14 (27)	.01 (27)
Agreeableness	.25	-.24	.10	$\alpha = .71$	.27 (27)
Conscientiousness	.28	-.33	.01	.20	$\alpha = .80$

*Note.* The number of studies used in the analyses is reported in the brackets. Correlations corrected/uncorrected for reliability are reported above/below the diagonal, respectively.

Table 5

*Correlations Between EPQ Personality Dimensions.*

	Extraversion	Neuroticism	Psychoticism	Defensiveness
Extraversion	$\alpha = .85$	-.29 (38)	.00 (18)	-.11 (11)
Neuroticism	-.24	$\alpha = .82$	.08 (17)	-.12 (12)
Psychoticism	.00	.06	$\alpha = .67$	-.31 (11)
Defensiveness	-.08	-.09	-.21	$\alpha = .70$

*Note.* The number of studies used in the analyses is reported in the brackets. Correlations corrected/uncorrected for reliability are reported above/below the diagonal, respectively.

Table 6

*Correlations Between EPI Personality Dimensions.*

	Extraversion	Neuroticism
Extraversion	$\alpha = .79$	-.17 (16)
Neuroticism	-.14	$\alpha = .84$

*Note.* The number of studies used in the analyses is reported in the brackets. Correlations corrected/uncorrected for reliability are reported above/below the diagonal, respectively.

Table 7

*Significance testing of our findings in comparison to previous meta-analyses*

		<u>Job Satisfaction</u>		<u>Happiness</u>		<u>Life satisfaction</u>		<u>Positive Affect</u>		<u>Negative Affect</u>	
		<i>z</i>	<i>p</i>	<i>z</i>	<i>p</i>	<i>z</i>	<i>p</i>	<i>z</i>	<i>p</i>	<i>z</i>	<i>p</i>
NEO	Agreeableness	5.91 <sub>b</sub>	0.00	-2.33 <sub>a</sub>	0.02	1.40	0.16	2.79 <sub>b</sub>	0.01	3.25 <sub>a</sub>	0.00
	Conscientiousness	7.06 <sub>b</sub>	0.00	-1.87	0.06	0.00	1.00	-7.07 <sub>a</sub>	0.00	6.17 <sub>a</sub>	0.00
	Extraversion	7.38 <sub>b</sub>	0.00	-6.82 <sub>a</sub>	0.00	-8.99 <sub>a</sub>	0.00	-20.83 <sub>a</sub>	0.00	7.96 <sub>a</sub>	0.00
	Neuroticism	-4.50 <sub>b</sub>	0.00	5.68 <sub>a</sub>	0.00	10.50 <sub>a</sub>	0.00	11.80 <sub>a</sub>	0.00	-28.07 <sub>a</sub>	0.00
	Openness	-1.53	0.13	-1.81	0.07	6.40 <sub>b</sub>	0.00	-2.90 <sub>a</sub>	0.00	3.50 <sub>a</sub>	0.00
EPQ	Extraversion	1.16	0.24	-8.42 <sub>a</sub>	0.00	-2.69 <sub>a</sub>	0.01	-10.86 <sub>a</sub>	0.00	3.03 <sub>a</sub>	0.00
	Neuroticism	2.32 <sub>a</sub>	0.02	11.90 <sub>a</sub>	0.00	11.11 <sub>a</sub>	0.00	8.02 <sub>a</sub>	0.00	-21.49 <sub>a</sub>	0.00
EPI	Extraversion	4.88 <sub>b</sub>	0.00	2.94 <sub>b</sub>	0.00	-1.45 <sub>a</sub>	0.15	-3.09 <sub>a</sub>	0.00	1.11	0.27
	Neuroticism	-2.57 <sub>b</sub>	0.01	3.03 <sub>a</sub>	0.00	4.41 <sub>a</sub>	0.00	0.57	0.57	-14.56 <sub>a</sub>	0.00

Note: <sub>a</sub> = our correlation is significantly greater in magnitude, <sub>b</sub> = our correlation is significantly lower in magnitude.

Table 8

*Results of the Multiple Regression Analysis with the NEO Personality Dimensions*

NEO Variables	Beta Weights						
	Job Satisfaction	Happiness	Life Sat.	Positive Affect	Negative Affect	Overall Affect	Quality of Life
Neuroticism	-0.19*	-0.30*	-0.29*	-0.13*	0.52*	-0.45*	-0.38*
Extraversion	0.09*	0.35*	0.17*	0.34*	0.01	0.19*	0.22*
Openness	0.00	0.01	-0.03*	0.11*	0.03*	-0.05*	0.07*
Agreeableness	-0.01	0.13*	0.02	-0.03*	-0.06*	-0.02	0.04
Conscientiousness	-0.01	0.03	0.08*	0.13*	-0.03*	0.02	0.21*
Error Variance	0.94*	0.64*	0.83*	0.76*	0.70*	0.71*	0.62*
	$R^2 = 0.06^*$	$R^2 = 0.36^*$	$R^2 = 0.17^*$	$R^2 = 0.24^*$	$R^2 = 0.30^*$	$R^2 = 0.29^*$	$R^2 = 0.38^*$
	$\rho^2 = 0.09^*$	$\rho^2 = 0.43^*$	$\rho^2 = 0.24^*$	$\rho^2 = 0.33^*$	$\rho^2 = 0.42^*$	$\rho^2 = 0.40^*$	$\rho^2 = 0.63^*$

Note: \* =  $p < .05$

Table 9

*Results of the Multiple Regression Analysis with the EPQ Personality Dimensions*

NEO Variables	Beta Weights						
	Job Satisfaction	Happiness	Life Sat.	Positive Affect	Negative Affect	Overall Affect	Quality of Life
Neuroticism	-0.31*	-0.35*	-0.33*	-0.19*	0.52*	-0.44*	-0.52*
Extraversion	0.12*	0.34*	0.14*	0.30*	-0.02	0.20*	0.22*
Psychoticism	0.08*	-0.04*	-0.21*	-0.07*	0.05*	-0.08*	-0.09*
Defensiveness	0.05	0.11*	0.06*	-0.05*	0.00	0.03	-0.20*
Error Variance	0.87*	0.69*	0.79*	0.84*	0.72*	0.70*	0.59*
	$R^2 = 0.13^*$	$R^2 = 0.31^*$	$R^2 = 0.21^*$	$R^2 = 0.16^*$	$R^2 = 0.28^*$	$R^2 = 0.30^*$	$R^2 = 0.41^*$
	$\rho^2 = 0.18^*$	$\rho^2 = 0.40^*$	$\rho^2 = 0.32^*$	$\rho^2 = 0.25^*$	$\rho^2 = 0.44^*$	$\rho^2 = 0.50^*$	$\rho^2 = 0.55^*$

Note: \* =  $p < .05$

Table 10

*Results of the Multiple Regression Analysis with the EPI Personality Dimensions*

NEO Variables	Beta Weights						
	Job Satisfaction	Happiness	Life Sat.	Positive Affect	Negative Affect	Overall Affect	Quality of Life
Neuroticism	-0.13*	-0.32*	-0.31*	-0.12*	0.46*	-0.42*	-0.24*
Extraversion	0.09*	0.14*	0.16*	0.23*	-0.03*	0.11*	0.18*
Error Variance	0.97*	0.87*	0.87*	0.92*	0.79*	0.79*	0.90*
	$R^2 = 0.03$	$R^2 = 0.13^*$	$R^2 = 0.13^*$	$R^2 = 0.08^*$	$R^2 = 0.21^*$	$R^2 = 0.21^*$	$R^2 = 0.10^*$
	$\rho^2 = 0.04$	$\rho^2 = 0.18^*$	$\rho^2 = 0.23^*$	$\rho^2 = 0.12^*$	$\rho^2 = 0.29^*$	$\rho^2 = 0.27^*$	$\rho^2 = 0.23^*$

Note: \* =  $p < .05$