



Measuring happiness: The higher order factor structure of subjective and psychological well-being measures

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ABSTRACT

The nature and structure of well-being is a topic that has garnered increasing interest with the emergence of positive psychology. Limited research to date suggests two separate but related factors of subjective well-being and psychological well-being. Subjective well-being comprises an affective component of the balance between positive and negative affect, together with a cognitive component of judgments about one's life satisfaction. Psychological well-being is conceptualised as having six components, including positive relations with others, autonomy, environmental mastery, self-acceptance, purpose in life and personal growth. In the current study, we used exploratory factor analysis and confirmatory factor analysis to examine the higher order factor structure of subjective and psychological well-being in a series of large UK samples. Analyses showed that subjective well-being and psychological well-being loaded separately onto two independent but related factors, consistent with previous research. Further, we demonstrated that these loadings did not vary according to gender, age or ethnicity, providing further support for the robustness of this higher order factor structure. The discussion locates these findings in context and explores future research directions on the associations between subjective and psychological well-being over time.

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1. Introduction

The nature and structure of well-being is a topic that has exercised the minds of moral philosophers for centuries, and which more recently has become a central focus for the discipline of positive psychology, the scientific study of optimal human functioning. Broadly speaking, well-being researchers have clustered into two camps, focusing either on subjective well-being or psychological well-being. Subjective well-being is understood as having an affective (emotional) component, of the balance between positive and negative affect, and a cognitive component, of judgments about one's life satisfaction. Psychological well-being has been defined as "engagement with existential challenges of life" (Keyes, Shmotkin, & Ryff, 2002, p. 1007) and in this vein is arguably best represented by Ryff's (1989) conception of the six factors of positive relations with others, self-acceptance, purpose in life, autonomy, environmental mastery and personal growth.

More broadly, these two research traditions have been linked to hedonic (subjective well-being) and eudaimonic (psychological

well-being) philosophy, an association made particularly prevalent through Ryan and Deci's (2001) influential review article in the *Annual Review of Psychology*. Whether or not the association of subjective well-being with hedonic philosophy, and the association of psychological well-being with eudaimonic philosophy are valid and appropriate linkages remains an open question. For example, Kashdan, Biswas-Diener, and King (2008) challenge eudaimonic conceptions of well-being as lacking any theoretical consistency and bearing no resemblance to Aristotle's seminal conception of eudaimonia, which was ultimately about the judgment of a life well-lived in relation to one's *daimon*. As Waterman (2008) argues, however, there is a fundamental disjunct, in that different interpretations have been made of eudaimonia, and other scholars have been arguably loose in their use of terminology and theoretical bases. Combined with the fact that eudaimonic approaches have only been under investigation for around 20 years, and hedonic approaches have been studied much more widely for more than twice that time, it is not surprising that subjective well-being is better understood and more rigorously defined (Waterman, 2008).

To further confuse this picture, researchers continue to question the most effective way to define psychological well-being (e.g., Samman, 2007). As noted above, Ryff (1989) and Ryff and Keyes (1995) proposed six dimensions of psychological well-being culled

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from an extensive literature review, including self-acceptance, purpose in life, personal growth, environmental mastery, positive relations with others, and autonomy. This classification has, however, been questioned on both psychometric and conceptual grounds (Christopher, 1999; van Dierendonck, 2004), and alternative approaches to the conceptualisation of psychological well-being have been proposed that draw from self-determination theory and include meaning, autonomy, competence and relatedness (Samman, 2007).

Given this plethora of perspectives about how to define subjective well-being and psychological well-being, it is not surprising that different measurement approaches have been put forward in each case. There tends to be more agreement about the measurement of subjective well-being, with the inclusion of the balance between positive and negative affect, and life satisfaction, with affect being measured using positive and negative affect measures specifically developed for the purpose (see e.g., Keyes et al., 2002) or the validated Positive and Negative Affect Scales (Watson, Clark, & Tellegen, 1988; see, e.g., Govindji & Linley, 2007) and life satisfaction being measured by the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; see e.g., Govindji & Linley, 2007) or single life satisfaction items (see Keyes et al., 2002).

In empirical research, a small number of studies have investigated the structure of subjective well-being and psychological well-being, and confirmatory factor analysis suggests that subjective well-being and psychological well-being are two related, but distinct, constructs. For example, using a single item measure of life satisfaction, together with newly-developed measures of positive and negative affect, and the 18-item short form of the Psychological Well-Being Scales, Keyes et al. (2002) found that PWB and SWB correlated at .84, but that their constituent components both loaded on separate and distinct higher order factors, a finding replicated in China by Biao bin, Xue, and Lin (2004).

Given the lack of current empirical agreement on the structure of well-being, the use of non-validated measures in previous studies, and the potential associations between subjective and psychological well-being, the current study set out to examine these issues using two large UK samples and validated well-being measures. Using first exploratory factor analysis, and second confirmatory factor analysis, we sought to explore whether the factor structure of subjective and psychological well-being in a UK population would mirror findings from the United States and China. To ensure a robust operationalisation of the well-being constructs with validated well-being measures, we used the most widely employed measures, namely the Satisfaction with Life Scale (Diener et al., 1985) to measure life satisfaction, the Positive and Negative Affect Scales (Watson et al., 1988) to measure positive and negative affect, and the Scales of Psychological Well-being (Ryff & Keyes, 1995) to measure psychological well-being and the six dimensions of autonomy, environmental mastery, positive relations with others, personal growth, self-acceptance and purpose in life.

2. Method

2.1. Participants

Participants (total $n = 2593$) were drawn from studies previously conducted to examine other research questions, but where those studies included the measures of interest for the current project. All participants were recruited by the second author and participation was voluntary. Participants were not provided with any incentive, monetary or otherwise, for their participation.

Sample 1 ($n = 539$) included 249 males and 290 females, with a mean age of 22.21 years ($SD = 2.79$ years, range = 18–30 years). Participants were primarily of a white ethnic origin (74%) or Indian ethnic origin (14%), and were college students at a major British university.

Sample 2 ($n = 422$) included 183 males and 239 females, with a mean age of 31.12 years ($SD = 9.33$ years, range = 18–63 years). Participants were primarily of a white ethnic origin (72%) or Indian ethnic origin (16%), and were adults recruited from the local community.

Sample 3 ($n = 498$) included 252 males and 246 females, with a mean age of 20.36 years ($SD = 1.71$ years, range = 18–23 years). Participants were primarily of a white ethnic origin (59%), Indian ethnic origin (16%), or Black African ethnic origin (8%), and were college students at a major British university.

Sample 4 ($n = 849$) included 396 males and 453 females, with a mean age of 34.08 years ($SD = 6.73$ years, range = 24–79 years). Participants were primarily of a white ethnic origin (63%), Indian ethnic origin (15%), or Black African ethnic origin (7%) and were adults recruited from the local community.

Sample 5 ($n = 285$) included 130 males and 155 females, with a mean age of 32.19 years ($SD = 8.77$ years, range = 19–63 years). Participants were primarily of a white ethnic origin (65%), Indian ethnic origin (15%), or Black African ethnic origin (8%), and were adults recruited from the local community.

The age intervals of Samples 1 and 3 were short because they were college student samples, as indicated, and the age intervals of Samples 2, 4 and 5 were longer because they were general community samples, and not constrained only to college students. Regrettably, we do not know anything else about the samples that would allow us to compare across them.

2.2. Measures

Satisfaction with Life Scale (SWLS; Diener et al., 1985). Participants rated five items (e.g., “The conditions of my life are excellent”) on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), giving a potential range of 5–35. Higher scores indicate higher levels of life satisfaction. Cronbach’s alpha for the overall sample was $\alpha = .82$.

Positive and Negative Affect Scales (PANAS; Watson et al., 1988). The PANAS is a 20-item scale that measures 10 positive (e.g., “interested”, “excited”) and 10 negative (e.g., “irritable”, “nervous”) affects, using single adjectives that were rated on a 1 (very slightly or not at all) to 5 (extremely) frequency scale for the past week. We opted to use this relatively short time frame given concerns about the accuracy of temporal recall over longer time periods (cf., Schwarz, 1999), and the fact that by opting for a shorter timeframe for a variable that is more transitive, such as affect, we could manage these concerns. The PANAS has excellent psychometric properties, and is one of the most widely used measures of positive and negative affect. Cronbach’s alpha for the overall sample was $\alpha = .81$ for positive affect and $\alpha = .85$ for negative affect.

Scales of Psychological Well-being (Ryff & Keyes, 1995). Eighteen items assess six dimensions of psychological well-being (three items per dimension: autonomy, environmental mastery, positive relations with others, personal growth, purpose in life, and self-acceptance). Participants responded using a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), giving a potential range of 18–108. Six items are reverse scored. Cronbach’s alphas for the overall sample were $\alpha = .73$ for autonomy, $\alpha = .75$ for environmental mastery, $\alpha = .78$ for personal growth, $\alpha = .79$ for positive relations with others, $\alpha = .69$ for purpose in life, and $\alpha = .81$ for self-acceptance, all of which are highly impressive given that these are three-item subscales.

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