Short Communication

Factor structure of mental well-being: Contributions of exploratory structural equation modeling

Mohsen Joshanloo [a],*, Magdalena Bobowik [b], Nekane Basabe [b]

[a] Department of Psychology, Keimyung University, South Korea
[b] Department of Social Psychology and Methodology of Behaviour Sciences, University of the Basque Country, Spain

ARTICLE INFO

ABSTRACT

The tripartite model of well-being views mental well-being as encompassing three distinct but related components of hedonic, psychological, and social well-being. The latter two components are posited to constitute eudaimonic well-being. The present study uses confirmatory factor analysis (CFA) and exploratory structural equation modeling (ESEM) to investigate the tripartite model in a sample of 1250 immigrants in Spain (mean age = 33.22, SD = 9.44). The results indicate that the model is consistent with the data. We also find that ESEM yields better fit and considerably smaller factor correlations than CFA, supporting the notion that the hedonic and eudaimonic components are empirically distinguishable. These results suggest that the correlations between hedonic and eudaimonic well-being have been substantially overestimated in prior CFA studies, and that ESEM is a more appropriate method for examining the factor structure of well-being scales.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Many lines of theorizing and empirical research have emphasized that for a comprehensive assessment of mental well-being, its hedonic and eudaimonic dimensions should be both taken into account (e.g., Delle Fave, Brdar, Freire, Vella-Brodrick, & Wissing, 2011). Hedonic (also known as emotional or subjective) well-being involves a predominance of positive over negative affect, global life satisfaction, and satisfaction with important life domains (Diener, Suh, Lucas, & Smith, 1999). The eudaimonic approach, on the other hand, views well-being as acting in accordance with virtue, rather than merely experiencing pleasant states of mind. Advocates of the eudaimonic view emphasize skills and abilities that are required for optimal functioning (e.g., Keyes, 2006; Ryff, 1989). Keyes' (2006) tripartite model of well-being is the most widely used formulation of the hedonic and eudaimonic components in an integrated framework. In this model, the eudaimonic dimension is posited to consist of both psychological and social aspects. Whereas psychological well-being captures the presence of largely individual and private positive qualities, social well-being captures how well an individual functions in one's social life as a member of a larger society (Keyes, 1998).

The distinction between hedonic and eudaimonic aspects of well-being has recently been the subject of considerable debate (for a review see Joshanloo, in press). Some researchers have criticized the hedonic/eudaimonic distinction, mainly because the correlation between hedonic and eudaimonic well-being has been found to be very high (e.g., >0.85) in confirmatory factor analysis (CFA) studies (e.g., Disabato, Goodman, Kashdan, Short & Jarden, 2016). Drawing upon such findings, some researchers have concluded that hedonic and eudaimonic well-being are not empirically distinguishable, and the posited distinction is arbitrary (e.g., Kashdan, Biswas-Diener, & King, 2008).

However, Joshanloo (in press) argues that the high correlations between hedonic and eudaimonic dimensions can be in part a side effect of using CFA, which tends to overestimate factor correlations (Morin, Marsh, & Nagengast, 2013). It has increasingly become evident that the structure of many psychological scales cannot be represented adequately with simple structure CFA models (Marsh, Morin, Parker, & Kaur, 2014). In practice, nontrivial cross-loadings in psychological measures are far from rare. Yet, the secondary loadings are routinely specified to be zero in CFA, due to the highly restrictive assumption that each item loads on only one factor. This results in a degradation of model fit and overestimation of factor correlations (Marsh et al., 2014). Exploratory structural equation modeling (ESEM) has recently been suggested as a substitute for CFA (Asparouhov & Muthen, 2009). In ESEM all variables are free to load on all factors. This strategy tends to produce better fit and more realistically estimated factor correlations (Marsh et al., 2014; Morin et al., 2013).

In one study, Joshanloo (in press) used ESEM to study the tripartite model of well-being in a nationally representative American sample. As expected, he found that ESEM yielded better fit and less inflated factors correlations. Research with brief scales of well-being (e.g., the 14-item Mental Health Continuum-Short Form) has also shown that ESEM produces better fit and less elevated factors correlations (e.g.,

---

* Corresponding author at: Department of Psychology, Keimyung University, 2800 Dalgubeol Boulevard, Dalseo-Gu, Daegu 704-701, South Korea.
E-mail addresses: mjoshanloo@hotmail.com (M. Joshanloo), magdalena.bobowik@ehu.eus (M. Bobowik), nekane.basabe@ehu.eus (N. Basabe).

Joshanloo, 2016; Joshanloo & Lamers, 2016). However, research on the tripartite model of well-being in non-Western and less developed regions of the world is virtually nonexistent. Moreover, with the exception of Iran, ESEM has never been used in non-Western samples to examine the tripartite model of well-being. The present study used both CFA and ESEM to examine the tripartite model of mental well-being in an international sample of immigrants living in Spain. This study thus enables a comparison of the performances of ESEM and CFA in capturing the factor structure of well-being in a non-Western sample.

2. Methods

2.1. Participants

We used a sample of immigrants who had lived for at least six months in the Basque Country autonomous region of Spain. The data were collected between 2009 and 2010 among immigrants from largely low-SES countries (i.e., Bolivia, Colombia, Morocco, Romania, and Sub-Saharan African countries), and were obtained using a probability sampling procedure (for detailed information about the sample and sampling procedures see Bobowik, Basabe, & Páez, 2015). The sample consists of 1250 individuals (44.3% females), with a mean age of 33.22 years ($SD = 9.44$).

2.2. Measures

2.2.1. Hedonic well-being

Four scales were used to measure important aspects of hedonic well-being, including positive affect ($\alpha = 0.77$), negative affect ($\alpha = 0.77$), general life satisfaction, and life domain satisfaction ($\alpha = 0.72$). The scales had six, seven, one, and five items, respectively. The affect items were drawn from the Spanish version (Echevarria & Páez, 1989) of the Bradburn Affect Balance Scale (Bradburn, 1969). The domain satisfaction scale measured satisfaction with five domains of family, money and income, friends, job, and oneself as a person. Single-item measures of general life satisfaction have demonstrated a substantial degree of criterion validity with multiple-item measures of life satisfaction (e.g., Cheung & Lucas, 2014).

2.2.2. Eudaimonic well-being

To measure psychological well-being, 18 items from Ryff's (1989) 6-dimensional psychological well-being scale were used. Positive relations ($\alpha = 0.84$), environmental mastery ($\alpha = 0.70$), and personal growth ($\alpha = 0.69$) were each measured by five items. The other three domains of psychological well-being (self-acceptance, autonomy, and purpose in life) were each measured using a single item. We averaged the three items to form a parcel, and used this variable as an indicator of psychological well-being ($\alpha = 0.70$). To measure social well-being, 14 items from Keyes' (1998) 5-dimensional social well-being scale were used. Social integration ($\alpha = 0.70$), social contribution ($\alpha = 0.76$), social actualization ($\alpha = 0.83$), and social acceptance ($\alpha = 0.63$) were each measured using three items, whereas social coherence ($\alpha = 0.70$) was measured using two items. Internal consistencies for the eudaimonic scales are comparable to those reported in previous research in various nations (e.g., Disabato et al., 2016; Joshanloo, in press). The items of all the study scales and their response anchors are presented in the Supplementary material.

2.3. Statistical analysis

Model fit was assessed in Mplus 7.4 with maximum likelihood estimation. In ESEM, we used an oblique geomin rotation with an ε value of 0.5 (Joshanloo & Lamers, 2016). The CFA and ESEM models are shown in Fig. 1. Missing data were handled using full information maximum likelihood (FIML). A minimum cutoff of 0.95 for CFI (Comparative Fit Index), a maximum cutoff of 0.08 for RMSEA (Root Mean Square Error of Approximation), and a maximum cutoff of 0.08 for SRMR (Standardized Root Mean Square Residual) were considered as indicative of acceptable fit (Browne & Cudeck, 1993; Weston & Gore, 2006). Models with smaller values of AIC (Akaike information criterion) and BIC (Bayesian information criterion) are preferred to those with higher AIC and BIC values.

3. Results

The fit indices for the CFA and ESEM models are presented in Table 1. Whereas the fit of the CFA model was not acceptable, the ESEM model yielded good fit. As can be seen, three ESEM factors emerged that clearly correspond to the three intended dimensions of the tripartite model. Factor loadings are presented in Table 2. Loadings >0.30 are generally considered salient, and are used in defining constructs (e.g., Joshanloo
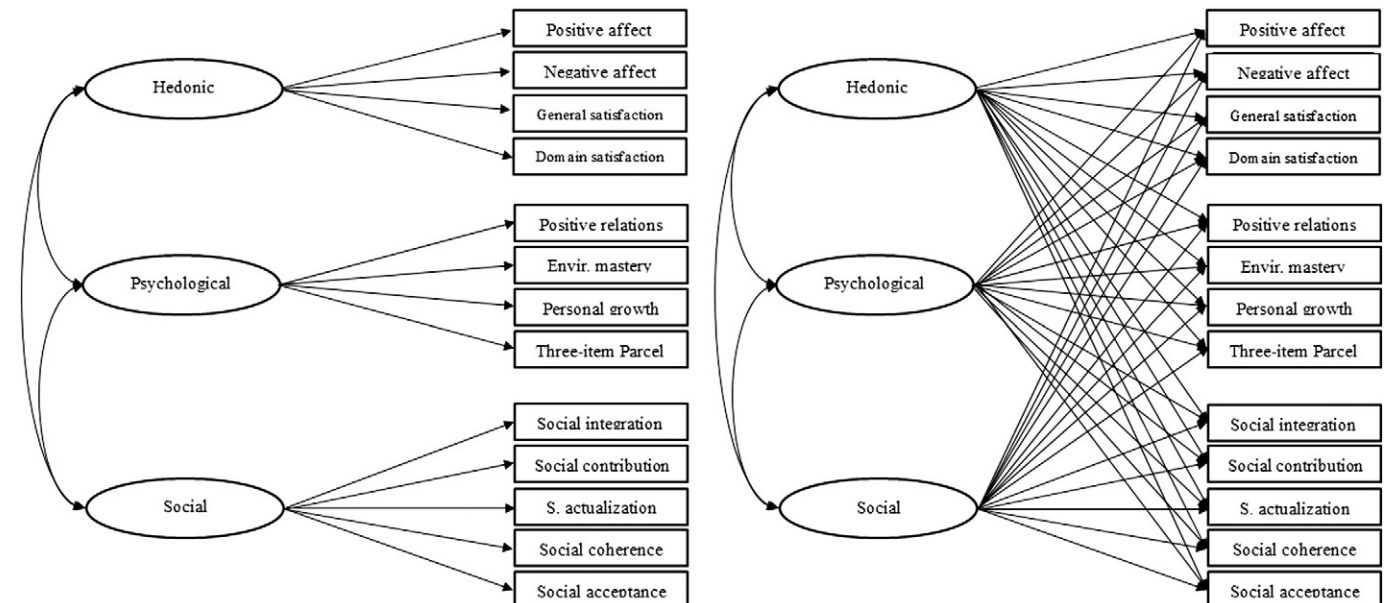

Fig. 1. CFA (left) and ESEM (right) models.