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Ryff's Six-factor Model of Psychological Well-being, A Spanish Exploration

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Abstract This article aims to provide researchers interested in using Ryff's Scales of Psychological Wellbeing with additional information to make an informed decision on the scales and items to use. It builds on the discussion in the literature on the six factor structure of this measure. An alternative shortened version of this wellbeing measure (Van Dierendonck 2004). *Personality and Individual Differences*, 36, 629–643) was analyzed in a combined Spanish language sample from Spain and Columbia. Using confirmatory factor analysis, one-, two-, three- and six-factor models were compared. The results showed that indeed four out the six dimensions overlapped considerably. Nevertheless, the model that fit the data best was the six factor model with one underlying second order well-being factor, hereby confirming Ryff's model in a non-Anglo-Saxon culture.

Keywords Well-being · Measurement

People have always been interested in the answer to the question: What is a good life? Frequently, the good life is directly connected to well-being and a happy life. Already in the age of the old Greeks, Aristotle wrote that the quest for happiness is the most important striving of men. Now-a-days, we see that the attention for the good life increases within the social sciences. Research into the good life has been encouraged by the seminal work of Ryff (1989a, b). She developed an integrated theoretical framework of well-being on the basis of an extensive literature review. The most important perspectives were: life span theories (e.g., Erikson 1959), clinical theories on personal growth (e.g., Maslow 1968; Rogers 1961; Allport 1961) and the criteria of positive mental health formulated by Jahoda (1958). In addition, she incorporated insights from her own research on development during the course of life (Ryff 1995; Ryff and Keyes 1995) and on an elaborate overview

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of philosophical attempts to define the good life (Becker 1992). She argued that all these perspectives contain similar and complementing criteria of positive psychological functioning. An important similarity is that the criteria are all formulated in terms of well-being instead of illness. In fact, this perspective has generated a new model of health based on the conception of health as “not only the absence of illness but the presence of something positive” (WHO 1948; Ryff and Singer 1998).

In her model, Ryff distinguished six core dimensions and also developed an instrument that is now widely used by researchers interested in well-being. The theoretically derived dimensions of positive psychological health included Self-acceptance, Positive relations with others, Autonomy, Environmental mastery, Purpose in life, and Personal growth (Ryff 1989a). Recently this model has come under discussion. Using data from three major surveys, Springer and Hauser (2006) raised serious doubts on the validity of the six-factor model. Their results showed that four of the six dimensions (i.e., personal growth, purpose in life, self-acceptance, and environmental mastery) empirically may be one dimension only.

Our article builds on the recent discussion in the literature (Springer and Hauser 2006; Ryff and Singer 2006; Springer et al. 2006) on the measurement of wellbeing with Ryff's Scales of Psychological Wellbeing. This discussion raised the need for further testing of the six-dimensional nature of the model. A recent study by Abbott et al. (2006), added to this discussion by testing an additional second order dimension underlying the four above mentioned dimensions (inspired by the model suggested by Springer and Hauser 2006). It should be noted, however, that Abbott et al. (2006) kept the six original well-being dimensions in tact. They argued that given the problems with the psychometric quality of this measure, more research is certainly needed to help researchers interested in using Ryff's six-factor model and instrument with additional information to make an informed decision on what to use in future research.

A limitation of all the above mentioned studies and accompanying analysis is that versions of Ryff's measurement instrument were used that have been criticized for their lack of factorial validity or internal consistency. It is very well possible that part of the overlap between the four dimensions is due to problems with the factorial validity of the original measure. In a previous construct validity study of this measure, an alternative short version was suggested that combines reasonable factorial validity with good internal consistency (see Van Dierendonck 2004). More specifically, in the short version that came out of the latter study several of the items, whose content overlapped dimensions, were eliminated. Other studies also emphasized the necessity to remove items with too much content overlap between dimensions (e.g., Abbott et al. 2006; Cheng and Chan 2005). Another limitation refers to the ordinal nature of Ryff's Measure. As argued by Springer and Hauser (2006), nowadays all studies that worked with the measure, analyzed it using continuous-factor statistical procedures that produce biased estimates and inaccurate results if the variables are ordinal or non-normal. Therefore, to accurately analyze the measure, researchers need to take that into consideration.

In the present article, the factorial validity of Ryff's scales of psychological well-being is studied using the alternative shortened wellbeing measure suggested by Van Dierendonck (2004), using a translation into the Spanish language. Using confirmatory factor analysis, one-, two-, three- and six-factor models will be compared. With the two-factor model, the possible effect of clustering of negative and positive formulated items is tested. The three-factor model is the one suggested by Springer and Hauser (2006). Furthermore, the three-factor model is extended with a model that has one underlying well-being dimension. Next, we test three different six factor models: the original six-factor

structure as described by Ryff; another model whereby the second order factor only underlies personal growth, purpose in life, self-acceptance, and environmental mastery, as suggested by Abbot et al. (2006), leaving autonomy and positive relations with others as independent factors; and finally, the six factor model with one underlying second order factor.

1 Methods

1.1 Participants and Procedure

1.1.1 Sample

The sample consisted of 919 individuals, 592 participants from Spain and 327 from Columbia, who filled out this survey in the preliminary phase of a promotion training course in different companies. Their age was between 16 and 74 years, with 525 male (52%) and 417 female participants (48%). Their mean age was 30 years ($SD = 14$). The investigation was presented as a research on personality, beliefs, and attitudes related to work health. Participation was voluntary and anonymous, and no incentives were offered to participants.

1.2 Measures

1.2.1 Scales of Psychological Well-being

This instrument was developed by Ryff (1989a). The original version consists of six dimensions of 20 items each. In this study the shortened version proposed by van Dierendonck (2004) was used. The six scales were 39 items in total. The subscale length varied between six items (Self-acceptance, Positive relations with others, Environmental mastery, Purpose in life), seven items (Personal growth) and eight items (Autonomy). A six-point answering scale was used for all scales, ranging from 1 (*totally disagree*) to 6 (*totally agree*).

2 Results

2.1 Factorial Validity

The factorial validity of the Scales of Psychological Well-being was tested with confirmatory factor analysis using *Mplus* 4.2 (Muthén and Muthén 2006). The items were indicated as categorical following the recommendations of Springer and Hauser (2006). They argued that due to the specific nature of the Ryff variables, the items should be treated as ordinal and not as continuous variables for a more accurate estimation of the models. Estimation was done using the Weighted Least Squares Mean and Variance adjusted (WLSMV) procedure. This provides for asymptotically unbiased, consistent and efficient parameter estimates and correct goodness of fit indices for variables that have a non-normal distribution. The following factor analytic models were specified: (1) one-factor model which assumes that all items load on a general composite well-being factor;

(2) a two-factor model in which all negatively formulated items load on one factor and all positively formulated items load on the second factor; (3) a three-factor model in which Self-acceptance, Environmental mastery, Purpose in Life and Personal Growth load on factor, autonomy on the second factor and personal relations with others on the third factor; (4) The three-factor model as formulated in (3) combined with an underlying second-order latent construct called psychological well-being; (5) the original six-factor structure as described by Ryff; (6) a six-factor structure and a second-order latent construct with Self-acceptance, Environmental mastery, Purpose in Life and Personal Growth; (7) a six-factor structure and a second-order latent construct called psychological well-being.

The goodness-of-fit of the models was evaluated using relative and absolute indices as recommended by Hu and Bentler (1999). The absolute goodness-of-fit indices calculated were the chi-square goodness-of-fit index and the standardized root-mean-square residual (SRMR). A value of .08 or less is considered as indicating a relatively good fit for the SRMR. The relative goodness-of-fit indices computed were the comparative fit index (CFI) and the non-normed fit index (NNFI or TLI). For both indices, values equal or greater than 0.95 are considered to indicate a good fit. It should be noted that the alternative models are nested only within the stability model, not each other.

Table 1 shows that the best fitting model was the six-factor model with a single second order factor. This confirms Ryff's underlying model for this Spanish language sample using this specific shortened version. It is noteworthy that the results suggest one wellbeing dimension underlying all six dimensions, not underlying only four out the six dimensions, as was previously suggested by Abbot et al. (2006). A check of the results showed that the factor loading of one item of the personal growth scale ("I don't want to try new ways of doing things, my life is fine the way it is") was not significant. After removing that item from the model, the resulting fit became even better with relative fit indices off .84 for CFI .94 for TLI and .06 for the RSMR. These scores are very good given the previously noted problems with the factorial validity of this measure. Threshold values were reached for the RSMR, and almost reached for the TLI.

Table 2 shows the estimated correlations for model 7, six latent factors with one underlying second factor. The correlations are high, but not exceptionally high—with a few exceptions—given that with latent factors error variance is controlled for, which makes this an estimate of the true correlations between the concepts and given that the six factors are all indicators of eudaimonic well-being which presupposes mediocre to high

Table 1 Confirmatory factor analyses, scales of psychological well-being, shortened version

	χ^2	df*	CFI	TLI	SRMR
Baseline model	9665.2	66			
1. One factor	3254.4	39	.67	.87	.09
2. Two factors, positive and negative item artefact, with correlated factors	3257.8	40	.67	.87	.09
3. Three factors	4290.7	39	.55	.68	.17
4. Three factors, single second order factor	2190.1	42	.78	.92	.07
5. Six factors	7470.3	39	.20	.24	.25
6. Six factors, single second order factor with 4 factors	4191.1	43	.56	.68	.17
7. Six, factors, single second order factor overall	1898.3	45	.82	.93	.07

All χ^2 : $P < 0.001$

* df = parameters free to be estimated

Table 2 Estimated correlations of latent variables, six factors with single second order factor

	1	2	3	4	5	6
1. Autonomy						
2. Self-acceptance	.58					
3. Positive relations	.38	.59				
4. Environmental mastery	.58	.89	.59			
5. Purpose in Life	.62	.97	.63	.96		
6. Personal growth	.48	.74	.49	.74	.79	
7. Second order factor	.61	.95	.62	.94	1.00	.78

correlations. The exception is Purpose in life, that showed very high intercorrelations with self-acceptance and with environmental mastery. Noteworthy, however, is the relative lower correlations for personal growth with the other three scales (self-acceptance, purpose in life, and environmental mastery) that Springer and Hauser proposed to collapse as one, which could explain why in this Spanish language sample, the six factor model had the best fit indices.

As a final step, the internal consistencies (Cronbach's alpha) of the six well-being dimensions were estimated. The scales all had good reliabilities, that is .71, .79, .78, .68, .82, .71 for Autonomy, Self-acceptance, Positive relations with others, Environmental mastery, Purpose in Life and Personal growth, respectively. Noteworthy is that all item-total correlations were above .30. Furthermore, the internal consistency of Personal growth improved due to removal of item 34 (from .68 to .71).

3 Conclusion

This article described additional tests of the factorial validity of Ryff's six-factor model for eudaimonic well-being in a Spanish language sample. A recently published handbook on positive psychological assessment (Lopez and Snyder 2003) emphasized the importance of valid and reliable instruments for this research field. With the growing interest for studying well-being in cross-cultural settings, it is vital to get more information on the validity of the Ryff measure in different countries and, especially, in different languages. A strong element of this instrument is the theoretical base that underlies its development. The results allow for the following conclusions.

The factorial validity of the shortened version of Ryff's Scales of Psychological Well-being was better than the results reported in Van Dierendonck (2004). The reliability in terms of internal consistency was good. This confirms the previous finding that this version is a good compromise between the importance of factorial validity and good reliability, something that was missing in the original versions of the Scales of Psychological Well-being. One personal growth item was removed due to a non significant factor loading.

The results of the confirmatory factor-analyses in a culturally different (non-Anglo-Saxon) sample also shed more light on the six versus three dimensions discussion. We found no confirmation for Springer and Hauser (2006) position—while following their recommendation with regard to the statistical procedures—that there may be not six, but only three dimensions. In our study, Ryff and Singer's (2006) position was confirmed that there are six dimensions. Furthermore, the results did not replicate Abbot et al.'s (2006) suggestion of a second order factor underlying only four of the six dimensions. Our results

caution researchers for lumping dimensions within this model together because one risks loosing valuable information. Although the dimensions are closely related—as Table 2 shows—they are not necessarily the same. It seems that by deleting the items from the original measure with too much content overlap between dimensions, the very high correlations between latent variables reported by Springer and Hauser (2006) is remedied so that Ryff's six theoretically derived dimensions are confirmed empirically.

The limitations of this study are its cross-sectional nature and that we had to rely on convenience samples. Nevertheless, its most important strong point should not be overlooked, that we tested the model in two different countries with the same language and a non-anglo-saxon culture. Also, we used a shortened version of Ryff's scales that had items with too much overlap between dimensions removed. Of course, factor analysis is only the first step in validating an instrument. As a next step, we suggest studying the extent that the six dimensions differently predict different behaviors. In their review, Ryff and Singer (2006) cited several studies that provided encouraging results in this respect by showing different patterns for development of the dimensions cross-time, and no similar patterns with personality traits across the six dimensions.

In conclusion, it seems that this version may hold across different countries and cultures. Although using different shortened versions, other studies in other countries with languages different from English also pointed toward a confirmation of Ryff's model, for example Chinese (Cheng and Chan 2005) and Swedish (Lindfors et al. 2006). So it seems that especially when using Ryff's scales of psychological well-being in different cultures, it is recommended to keep the six dimensions intact so insight into the full breath of the well-being construct can be gained.

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