Well-Being At Work Scale: Exploratory and Confirmatory Validation in the United States Comprising Affective and Cognitive Components

Autoria: Gisela Demo, Tatiane Paschoal

ABSTRACT
Given the lack of instruments comprising both affective and cognitive elements of Well-Being at Work (WBW), the objective of this study is to develop and validate a comprehensive scale to measure employees’ perceptions regarding their well-being. Two studies were conducted for the development and validation of the scale. Construct validity was provided through convergent, discriminant and nomological validity, assessed through the correlation between well-being at work and human resources management practices in a structural equation model. The results showed a three-factor measure with reliability, construct validity and theoretical consistency so managers can work in order to improve employee’s well-being.
1. INTRODUCTION

The results and the market value of the organizations have been directly linked to human resources (Guest & Conway, 2001; Legge, 2006). In an attempt to attract and retain talent, managers have been keen to offer workers conditions necessary for its proper performance, well-being and personal fulfillment. There is consensus that, in the context of organizations, people experience emotions and seek personal fulfillment and happiness (Warr, 2007). Therefore, well-being or happiness at work is pointed out as an essential phenomenon for appropriate and competitive organizational functioning (Rodriguez-Carvajal, Moreno-Jiménez, Rivas-Hermosilla, Alvarez-Bejarano, & Vergel, 2010).

Properly diagnose the perceptions of well-being at work and identify its major antecedents consist of relevant issues from both managerial and academic standpoints. It is known that the advancement of knowledge about a phenomenon depends on valid and reliable measuring instruments. Although well-being has received consistent attention from social and organizational researchers (Warr, 2007), the main theoretical proposals and measures focus on general well-being and do not include the well-being in specific contexts, such as at work (Diener, Emmons, Griffin, & Larsen, 1985; Waterman et al., 2010; Watson, Clark, & Tellegen, 1988). When investigated in the work context, well-being tend to be assessed by the absence of negative experiences (Luthans, 2002). Moreover, the existence of two main perspectives in the study of well-being, hedonic (affective) and perceptions of fulfillment and personal accomplishment (cognitive), favors the dichotomy between such experiences (Fave, Brdar, Freire, Vella-Brodrick & Wissing, 2011). Studies and measures tend to focus on one or another element of well-being, failing to include important dimensions to its understanding.

Given the strategic relevance of Human Resource Management (HRM) in organizations and the lack of comprehensive instruments comprising both positive affective and positive cognitive elements of well-being at work, this study aimed to validate in the US the Well-Being at Work Scale (WBWS), developed and validated first in Brazil by Paschoal and Tamayo (2008). First, a literature review about well-being at work, its definition and dimensions is presented. After, the study conducted by Paschoal and Tamayo (2008) concerning the procedures for the development and validation of the WBWS in Brazil are summarized, since it is the basis for the present study. The method used is then described, detailing the review of the items to make the scale suitable for application in the US, as well as the procedures applied in the two studies conducted to validate the scale in America. Finally, the results are presented and discussed and final remarks are made, pointing the research limitations and its practical implications as well as highlighting directions for future research.

2. THEORETICAL BACKGROUND

The idea that organizations face stiff competition and the market requires adaptability and flexibility to overcome the competitive challenges is quite widespread and accepted among managers and organizational researchers (Demo, Neiva, Nunes, & Rozzett, 2012). Strive for excellence in results, especially considering the recent global financial crisis, affects current practice and paradigms in organizations as well as the well-being and health of their workers.

According to Rodriguez-Carvajal et al. (2010), in order to meet the challenges of the market and achieve excellence, organizations can choose two different strategies. The first
and most traditional is focused on solving problems or deficits of the organization and its members. The second strategy, in turn, rests in a positive direction and seeks mainly to enable and facilitate the development of both organizational and individual potential.

The field of organizational behavior, which underlies many practices of managers, has especially emphasized questions regarding what are and how to solve the problems and deficits in the workplace (Luthans, 2002). According to Luthans (2002), most research has been done to understand negative psychological experiences of the worker and dysfunctional behaviors or outcomes. Since the 90s decade, however, a movement to complete this literature comprising studies regarding essentially positive phenomena associated with individuals and groups began to gain momentum in academic circles (Luthans & Youssef, 2007).

Studies on organizational behavior with positive guidance aimed to investigate and understand the potential of employees and enable the development of forces and capabilities of each one (Luthans, 2002). This approach is not intended to replace the research about negative impacts of work conditions on the individual or studies that critically evaluate the relationship between organization and employee, but complement knowledge with data concerning phenomena less investigated so far. The healthy and effective functioning of organizations and their workers can not be achieved solely through remedial actions to prevent undesirable states and results (Marujo, Neto, Caetano, & Rivero, 2007).

In this context, there is consensus on the importance of well-being for the individual and the organization but not on its definition. Among the variety of conceptual definitions, there has been a tendency in the scientific literature to approximate the terms well-being and happiness (Warr, 2007; Waterman, Schwartz, & Conti, 2008). According to Warr (2007), such approach indicates a clearly positive connotation of the phenomenon.

In the field of general well-being, two large perspectives can be highlighted: the subjective well-being and the psychological well-being. The first comprises the well-being from the experiences of pleasure, while the second focuses on the human potential and fulfillment. Thus, subjective well-being is considered primarily as the prevalence of positive emotions and moods and the individual's satisfaction with life as well (Diener, 1984). The psychological well-being, on the other hand, comprises a larger number of dimensions and usually involves concepts of self-acceptance, positive social relationships, autonomy, environmental control and personal growth (Ryff, 1989).

As a result of the general well-being studies, the organizational literature has started to define and operationalize the well-being at work in either affective and cognitive end fulfillment terms. Authors who adopt an affective approach dealing with the well-being as a cumulative experience of affect at work, defining the phenomenon in terms of emotions and moods of the worker (Daniels, 2000). The well-being is higher the more frequent and intense are the positive emotions and the more they prevail over the negative affect of the worker. Affect at work refers to the moods and discrete emotions experienced by the worker (Brief & Weiss, 2002).

A more cognitive approach of well-being, in turn, emphasizes the experiences of fulfillment and expression of individual potential (Ryan & Deci, 2001; Waterman, 1993). In the same vein, Van Horn, Taris, and Schaufelli Scheurs (2004) argue that well-being at work extrapolates the affective dimension. According to Van Horn et al. (2004), well-being at work is the positive evaluation of various job characteristics comprising emotional, motivational, behavioral, cognitive and psychosomatic aspects. The authors proposed five dimensions for
the construct’s structure: affective dimension, professional well-being, social well-being, cognitive fatigue and psychosomatic dimension. These dimensions would be composed of elements such as job satisfaction, emotional exhaustion, organizational commitment, autonomy, positive social relationships, among others.

According to Daniels (2000), researchers who adopt the approach of psychological well-being tend to operationalize the well-being by mixing its subjective experience with its possible cognitive antecedents. Positive relationships at work and autonomy, for instance, could be considered antecedents of the experiences of well-being. According to the author, the focus on affect is a way to ease this problem.

The dichotomy between these two perspectives on well-being is not beneficial to the understanding of a broad and complex phenomenon such as well-being (Fave et al., 2011). The affective experience, characterized by positive and negative emotions at work, has proved an essential element of well-being at work, even in studies conducted by psychologists who adopt a multidimensional view of the phenomenon (Van Horn et al., 2004). At the same time, the experiences of fulfillment and personal expression are gaining momentum among leading theorists in this area (Warr, 2007; Waterman et al., 2008). Waterman (1993) and Waterman et al. (2008) show that different situations lead to experiences of well-being both distinct and pleasurable emotions and perception of fulfillment and expression are fundamental to happiness.

According to Warr (2007), there are two different types of happiness or well-being. The first corresponds to the cognitive happiness and comprises positive and negative affect. Emotions of pleasure, excitement and comfort are the representatives of positive affect and indicate high well-being, while emotions of displeasure, anxiety and depression represent negative affect and indicate low well-being. The second type of happiness refers to what has been called self-validation and relates to cognitive happiness. Self-validation, according to Warr (2007), comprises elements such as the development of personal attributes, potential exploration, fulfillment and self-expression. This form of happiness may or may not be accompanied by experiences of pleasure.

Well-being at work conceptualization, therefore, includes clearly positive experiences. When there is well-being, positive affect at work prevails over negative affect, and in addition, there are experiences of development of individual potential and personal fulfillment (Paschoal & Tamayo, 2008). This is the perspective for well-being at work, comprising both affective (emotions and moods) and cognitive (perceived fulfillment) aspects and covers points of the cognitive and the cognitive approach, adopted in this study.

There are some well-known instruments available to assess well-being, depending on the conceptual framework adopted. For instance, in order to measure the experience of positive and negative emotions there is the PANAS or Positive Affect/Negative Affect Scale developed and validated by Watson et al. (1988). Regarding the subjective well-being, comprising both affect and satisfaction with life, besides the scale validated by Watson et al. (1988) for affect, it could be used the Satisfaction with Life Scale validated by Diener et al. (1985) to measure one’s global, cognitive assessment of one’s life as a whole. However, these measures are not linked specifically to the work context. Often, for studies of well-being at work, researchers have adopted measures of affect at work (Daniels, 2000; Katwyk, Fox, Spector, & Kelloway, 2000) or measures that address various dimensions related to wider constructs as mental satisfaction and health (Van Horn et al., 2004).
Based on Warr (2007) approach for well-being at work and considering the gap in the literature of comprehensive measures regarding both positive affective and positive cognitive aspects of well-being at workplace specifically, Paschoal and Tamayo (2008) developed and validated a measure with good psychometric parameters detailed in the next subsection. According to the authors, in operational terms, the well-being at work can be organized around three factors: positive affect, negative affect and personal fulfillment at work.

Finally, regarding well-being at work antecedents, the literature shows overall that organizational and labor variables are the main predictors of well-being at work. Variables as use of professional skills (Wilson, DeJoy, Vandenberg, Richardson, & McGrath, 2004), social relationships and social support (Totterdell, Wall, Holman, Diamond, & Epitropaki, 2004), organizational justice perception (Weiss, Suckow, & Cropanzano, 1999) and organizational and social support (Paschoal, Torres & Porto, 2010) have been empirically linked to some indicator of well-being. Importantly, the literature on antecedents of well-being at work is composed mainly of studies addressing the emotions and moods at work, involving the dimension of cognitive well-being only (Totterdell et al., 2004; Weiss et al., 1999) highlighting the gap in the literature and the subsequent opportunity of relational studies comprising the cognitive aspects of well-being.

Regarding the development and validation of the Well-Being at Work Scale in Brazil, Paschoal and Tamayo (2008) developed and validated an instrument to evaluate work well-being perception in Brazil. The basic assumption was that work well-being includes emotions and humor at work, as well as the perception of expressiveness and fulfillment at work. Thus, the scale was composed by items of both affect and fulfillment at work. The items of affect – positive and negative emotions and humors at work - were derived from the scale of Subjective Well-being validated in Brazil by Albuquerque and Tróccoli (2004) for the general well-being, based on the PANAS (Watson et al., 1988) and Satisfaction with Life Scale (Diener et al., 1985). Thirty-eight items were proposed for positive and negative affect, which were submitted to judges who should assess the appropriateness of the items to the construct in the work context. After judges’ analysis, the scale was composed by nine items regarding positive emotions and humors and thirteen items concerning negative emotions and humors at work.

Nine items of fulfillment - individual's perception regarding the development of their skills and potential at work and the advancement in achieving their life goals - were developed from the literature, especially the study of Waterman (1993), and from interviews with various employees about happiness and fulfillment at work.

A three-factor solution was expected. Respondents were 317 workers of Brazilian public and private organizations. Data were analyzed by factor analyses with oblique rotation. The three hypothetic factors were found: positive affect - nine items, negative affect - 12 items, and fulfillment - nine items. This solution accounted for 57.30% of variance of the construct. The reliability coefficients ranged from 0.88 to 0.93, indicating that the instrument has good psychometric parameters, and can be useful both in scientific research and organizational diagnostic.

3. METHODS
Two different American samples were collected online using MTurk in order to ensure the presence of a broad variety of industries located in the United States. This diversification
indicates sampling variability and representativeness.

Data from study 1 (n=409) were used to select items based on EFA. Then, CFA was used on data obtained in study 2 (n=400) to examine factor structure, as well as to provide construct validity through convergent and discriminant validity and a structural model including the variable Human Resource Management Policies and Practice (HRMPP) was used to test for nomological validity. Scale reliability was assessed by Cronbach’s alpha and Jöreskog’s rho. In the two studies, data were examined (searched for incorrect values, missing data and outliers) and the assumptions for multivariate analysis were checked, following the procedures recommended by Tabachnick and Fidell (2007) and Hair, Black, Babin, Anderson, and Tatham (2009).

In order to make the WBWS suitable for application in the US, the 30 items of its Brazilian version were translated to English by a specialist in translation and retranslated to Portuguese by one of the authors of the scale. Then, an English Professor from a university in California checked out the translation to English. Following the item generation steps proposed by Kerlinger and Lee (2008), two faculty members and one PhD student from the Management and Organization area of a Business School of a university in California served as judges to evaluate the content/validity of the items. As a result, the 30 items remained for the application in the US.

3.1. STUDY 1: EXPLORATORY FACTOR ANALYSIS

Data were collected from 409 employees of various organizations. Of the employees, 67% were male, 46% were Asian, Asian-American or Pacific Islander, 80% were under the age of 36, 53% had a Bachelor degree, and 55% had been at the company for fewer than 5 years. Hair et al. (2009) say that for an adequate sample size, it is necessary to have between 5 and 10 individuals for each item of the instrument. Tabachnick and Fidell (2007) and Comrey and Lee (1992) class 300 as a good sample size. The sample size with 409 subjects attended, therefore, all the criteria cited.

To perform the EFA, the correlation matrix, the matrix determinant and the results of the Kaiser-Meyer-Olkin (KMO) sampling adequacy test were analyzed regarding factorability. For factor extraction, Principal Components Analysis (PCA) was used. Once the matrix was considered factorable, the eigenvalues, percentage of explained variance of each factor, scree plot graphic and parallel analysis were then examined in order to determine the quantity of factors to be extracted. After defining the quantity of factors, a Principal Axis Factoring (PAF) analysis was run using Promax rotation - since correlation among factors was expected. Cronbach’s alpha was used to check reliability or internal consistency of each factor.

3.2. STUDY 2: CONFIRMATORY FACTOR ANALYSIS AND CONSTRUCT VALIDITY

Data were collected from 400 employees of several companies. Of the employees, 58% were male, 45% were Asian, Asian-American or Pacific Islander, 85% were under the age of 40, 55% had a Bachelor degree, and 48% had been at the company for fewer than 5 years. Byrne (2009) and Kline (2011) state that for a CFA, an adequate sample size would be 10 subjects for variable. On the other hand, the authors state that a minimum of 200
individuals is always required. The sample size with 400 subjects attended, therefore, the criteria.

In this study, two measurement models were tested and compared: the one-factor model and the three-factor model. To determine which structure adjusts better to WBWS, its fit was evaluated by using AMOS through the following indexes: NC (normalized chi-square or chi-square value divided by the model’s degrees of freedom = CMIN/DF), CFI (Comparative Fit Index) and RMSEA (Root Mean Square Error of Approximation), as recommended by Kline (2011). The internal consistency was measured through composite reliability, also known as Dillon-Goldstein’s rho or Jöreskog’s rho, as proposed by Chin (1998). Dillon-Goldstein’s rho is a better reliability measure than Cronbach’s alpha in Structural Equation Modeling, since it is based on the loadings rather than the correlations observed between the observed variables.

Finally, construct validity was examined in this study through convergent, discriminant, and nomological validity. To assess nomological validity, we ran a structural model in order to assess the correlation between HRM policies and well-being at work. For this purpose, we used as measure for the perceptions of well-being at work the three-factor WBWS validated in the EFA (study 1) and confirmed trough the CFA (study 2). Also, the measure used to assess employees perceptions regarding HRM policies and practices was the six-factor Human Resource Management Policies and Practices Scale (HRMPPS) developed and validated by Demo et al. (2012). The HRMPPS presented good psychometric parameters and addresses the most widely studied HRM policies and practices. This instrument comprises 40 items divided into six factors: recruitment and selection; involvement; training, development & education; work conditions; competency-based performance appraisal; and compensation and rewards. All Cronbach’s alphas range from .81 to .93.

4. RESULTS
4.1. EXPLORATORY FACTOR ANALYSIS

The analyses’ results confirmed the matrix high factorability to perform the exploratory factor analysis. KMO was 0.952, classified by Kaiser (1974) as marvelous. The determinant of the matrix was extremely close to zero indicating that the number of factors is lower than the number of items. Through Principal Components Analysis, it was possible to decide how many factors would be extracted. All the criteria adopted (eigenvalues higher than 1.0, explained variance percentage of each factor above 3%, scree plot graphic visual analysis and parallel analysis) pointed to the existence of 3 factors.

Thus WBWS, after 4 iterations, resulted in a multifactorial instrument with 29 items, distributed in 3 factors (subscales). The factors are compatible with the theoretical review done, explaining 63% of the construct’s total variance and meeting Hair et al.’s (2009) criterion that says a scale needs to have enough factors in order to explain about 60% of the construct variance.

As to the validity or quality of the items, the minimum acceptable load was .40 (Tabachnick & Fidell, 2007). Comrey and Lee (1992) classified items with loadings higher or equal .71 as excellent; higher or equal .63 as very good; higher or equal .55 as good; higher or equal .45 as reasonable; and higher or equal .32 as poor. Thus, as to the items’ quality, 100% of them were classified as excellent, very good and good.
Concerning the reliability, internal consistency or precision of the factors, values above .80 indicate good reliability (Field, 2009; Nunnally & Bernstein, 1994). All 3 factors showed high reliability, with alpha coefficients higher than .90. Table 1 synthesizes the results obtained on the exploratory factor analysis.

Table 1. Results of exploratory factor analysis

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1: Positive Affect</th>
<th>Factor 2: Negative Affect</th>
<th>Factor 3: Fulfillment</th>
</tr>
</thead>
<tbody>
<tr>
<td>WB13: Over the past six months, my work made me feel happy.</td>
<td>.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB17: Over the past six months, my work made me feel excited.</td>
<td>.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB1: Over the past six months, my work made me feel cheerful.</td>
<td>.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB11: Over the past six months, my work made me feel enthusiastic.</td>
<td>.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB19: Over the past six months, my work made me feel proud.</td>
<td>.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB4: Over the past six months, my work made me feel content.</td>
<td>.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB3: Over the past six months, my work made me feel willing.</td>
<td>.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB21: Over the past six months, my work made me feel calm.</td>
<td>.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB8: Over the past six months, my work made me feel active.</td>
<td>.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WB15: Over the past six months, my work made me feel distressed.</td>
<td></td>
<td>.85</td>
<td></td>
</tr>
<tr>
<td>WB9: Over the past six months, my work made me feel upset.</td>
<td></td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>WB6: Over the past six months, my work made me feel depressed.</td>
<td></td>
<td>.81</td>
<td></td>
</tr>
<tr>
<td>WB16: Over the past six months, my work made me feel jittery.</td>
<td></td>
<td>.81</td>
<td></td>
</tr>
<tr>
<td>WB20: Over the past six months, my work made me feel angry.</td>
<td></td>
<td>.81</td>
<td></td>
</tr>
<tr>
<td>WB18: Over the past six months, my work made me feel nervous.</td>
<td></td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>WB14: Over the past six months, my work made me feel frustrated.</td>
<td></td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>WB10: Over the past six months, my work made me feel impatient.</td>
<td></td>
<td>.77</td>
<td></td>
</tr>
<tr>
<td>WB5: Over the past six months, my work made me feel annoyed.</td>
<td></td>
<td>.72</td>
<td></td>
</tr>
<tr>
<td>WB2: Over the past six months, my work made me feel worried.</td>
<td></td>
<td>.70</td>
<td></td>
</tr>
<tr>
<td>WB12: Over the past six months, my work made me feel anxious.</td>
<td></td>
<td>.67</td>
<td></td>
</tr>
<tr>
<td>WB7: Over the past six months, my work made me feel bored.</td>
<td></td>
<td>.61</td>
<td></td>
</tr>
<tr>
<td>WB23: In my work, I achieve my potential.</td>
<td></td>
<td></td>
<td>.88</td>
</tr>
<tr>
<td>WB24: In my work, I develop abilities that I consider important.</td>
<td></td>
<td></td>
<td>.78</td>
</tr>
<tr>
<td>WB26: In my work, I engage in activities that express my skills.</td>
<td></td>
<td></td>
<td>.77</td>
</tr>
<tr>
<td>WB27: In my work, I overcome challenges.</td>
<td></td>
<td></td>
<td>.73</td>
</tr>
<tr>
<td>WB28: In my work, I achieve results that I regard as valuable.</td>
<td></td>
<td></td>
<td>.68</td>
</tr>
</tbody>
</table>
WB30: In my work, I advance in the goals I set for my life. .67
WB22: In my work, I do what I really like doing. .58
WB29: In my work, I express what is best in me. .51

| Eigenvalue | 11.1 | 5.98 | 1.77 |
| Percentage of variance (%) | 37.0 | 19.92 | 6.04 |
| Number of items | 9 | 12 | 8 |
| Cronbach Alpha (α) | .92 | .94 | .92 |

Note: total variance explained = 63%; total of items = 29 items divided in 3 factors.

4.2. CONFIRMATORY FACTOR ANALYSIS AND CONSTRUCT VALIDITY

As to dimensionality assessment, two measurement models were tested and compared (Byrne, 2009): a one-factor model and a three-factor model structure obtained in the EFA. Two CFAs were run and the maximum likelihood method was used to estimate both models. According to Kline (2011), values which indicate satisfactory adjust for a model are: for NC (CMIN/DF), values 2.0 or 3.0 or, at most, up to 5.0; for CFI, values higher than .90 and for RMSEA, values lower than .05 or up to .08. The one-factor model showed 88 parameters, with $\chi^2_{(377)} = 3101.18$, $p<0.001$ or NC=8.22; CFI =.62; RMSEA=.13 (confidence interval from .13 to .14). Therefore, the one-factor model has provided unsatisfying levels of fit. On the other hand, the hypothesized six-factor model was tested and confirmed, providing a good fit in all indexes (Figure 1).

Figure 1. Three-factor model for well-being at work.
Latent variables: positive affect (PA); negative affect (NA); fulfillment (F).
The model showed 93 parameters, with $\chi^2(374) = 985.99$, $p<0.001$ or NC=2.63; CFI = .92; RMSEA =.06 (confidence interval from .06 to .07). The factor loadings of the items in this confirmatory validation were between .51 and .85, showing a good quality of items, according to Comrey and Lee (1992). So we may conclude that, taken together, the three-factor model was found to outperform the one-factor model on all measures.

The result of these analyses suggested that well-being at work in United States organizations are a multi-dimensional construct that consists of three dimensions. It is important to emphasize that, in the confirmatory analysis, the same multifactorial structure of 29 items distributed in 3 factors were kept, in agreement with the reviewed literature and with the exploratory validation, such that the interpretation of the factors is the same displayed in Table 1. To assess the reliabilities of the three subscales of Well-Being at Work, Jöreskog’s rho was computed for each factor. Chin (1998) recommends that acceptable scores for the Jöreskog’s rho should be higher than 0.7. The results were very satisfactory, ranging from .91 through .93 for all three factors. Specifically: positive affect ($\varrho=.92$), negative affect ($\varrho=.93$) and fulfillment ($\varrho=.91$).

In this study, construct validity of the WBW scale was examined by assessing convergent, discriminant, and nomological validity. Convergent validity refers to the degree of agreement in two or more measures of the same construct. According to Hair et al. (2009), there are several indicators of convergent validity, for example, examining factor loadings, the reliability of the factors and the variance extracted. As we have seen, the reliability of all three factors were above $\varrho=.70$, indicating appropriate convergence (Hair et al., 2009). In addition, all items of the Well-Being at Work measure loaded significantly positive on their specified factor (see Figure 2). Moreover, all 29 items had loadings over .5 (Hair et al., 2009) on the factors to which they were assigned, which is indeed a test of convergent validity of the scale. Finally, according to Hair et al. (2009), variances extracted over .5 (or 50%) are a good rule suggesting appropriate convergence. We may thus state that the scales for the three dimensions of well-being at work possessed convergent validity.

Discriminant validity indicates the degree to which measures of conceptually distinct construct differ. To assess it according to Hair et al. (2009) we analyzed the pairwise correlations between factors obtained from the three-factor correlated model and compared them with the variance extracted estimates for the dimensions making up each possible pair. Evidence of discriminant validity occurs when variance extracted estimates exceed the square of the correlation between the factors making up each pair. The relatively high variance extracted for each factor compared to the square of the correlations between factors indicates discriminant validity (Table 2).

Table 2. Discriminant validity

<table>
<thead>
<tr>
<th>Factor</th>
<th>Positive Affect</th>
<th>Negative Affect</th>
<th>Fulfillment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Affect</td>
<td>0.56*</td>
<td>0.08</td>
<td>0.52*</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>0.08</td>
<td>0.52*</td>
<td></td>
</tr>
<tr>
<td>Fulfillment</td>
<td>0.25</td>
<td>0.05</td>
<td>0.56*</td>
</tr>
</tbody>
</table>

Note: *Variance Extracted.
Nomological validity shows the ability of a scale to behave as expected with respect to some other constructs to which it is related. It should be tested examining if correlations between constructs make sense in a theory of measurement (Hair et al., 2009). There are well-grounded theoretical reasons to expect a strong and positive association between Well-Being at Work and Human Resources Management (HRM) Policies and Practices (Baptiste, 2008; Nishii, Lepak, & Schneider, 2008; Rubino, Demo, & Traldi, 2011). Thus, in the current context, nomological validity would be demonstrated if the scores of the measures of HRM policies and practices were positively and significantly correlated with well-being at work. An assessment of the nomological validity of the WBW scale was conducted through the structural equation modeling analyses depicted on Figure 2.

![Figure 2. Nomological validity.](image)

Parameters: $\chi^2_{(26)} = 87.36, p<0.001; \text{NC}=3.36; \text{CFI}=.96; \text{RMSEA}=.09$.

As far as the measurement model is concerned, the data in this study exhibit a satisfactory level of fit: 31 parameters, with $\chi^2_{(26)} = 87.36, p<0.001$ or NC=3.36; CFI =.96; RMSEA =.09 (confidence interval from .07 to .11). Moreover, all 9 items were significant and loaded as predicted on their respective factors. These results provide further evidence to suggest that the proposed scale validated in this study is a reliable operational measure for well-being at work. Also, analyzing our structural model, we verified that our data support the assertion that there is a positive correlation between HRM policies and well-being at work ($r=0.87, p<0.001$). Consequently, there is evidence of nomological validity for the proposed WBW scale.

5. DISCUSSION

This paper reports two studies on the development and validation of a measure of well-being at work (WBW) in US organizations. The WBWS was found to demonstrate a high degree of reliability and construct validity. Nevertheless the numbers resulted from the previous analysis performed being very satisfactory, it is also necessary to analyze WBWS’s theoretical consistency or validity of expression from the revised literature, verifying if the
scale’s items are coherent with the theoretical concepts used to support it (Kerlinger and Lee, 2008). Our results support the purpose to organize the well-being at work around affective (hedonic) and cognitive (fulfilment) components (Warr, 2007). In fact, it is possible to observe a tendency in the literature regarding the development of more integrated frameworks. According to Fave et al. (2011), while the cognitive component of well-being expresses emotions, the other one refers to a long-term process of growth and self-actualization and both experiences must be jointly evaluated.

Concerning the general well-being, Waterman (1993) suggests that experiences of fulfillment and self accomplishment is a sufficient but not necessary condition for the cognitive happiness. When people experience fulfillment, they will feel satisfied with their lives and the prevalence of positive affect on the negatives ones is noticed. On the other hand, experiences of pleasure can be expected in a much larger amount of situations, such as when positive emotions are followed by the satisfaction of physical and social needs. Fulfillment experiences can be experienced in situations such as: intense involvement with an enterprise; feeling of a special fit in carrying out activities that are not part of daily tasks; intense feeling of being alive; feeling of being complete when engaged in certain activities; sensation of having done what is really meant to do (Waterman et al., 2008). Organizations are contexts of either opportunities or restrictions for workers to reach their goals and develop their potential. It is an environment conducive for both expression of emotions and experiences of fulfillment. In this study, these dimensions of affect and fulfillment have contributed to explain the variance in well-being at work.

Regarding the affective dimension of well-being at work, the organization of the items on the two factors - positive affect and negative affect - meets previous studies about the structure of affect at work (Daniels, 2000; Katwyk et al., 2002). Although it is possible to propose structures for circumplex phenomenon and different factors for positive and negative emotions such as anxiety, comfort, pleasure, displeasure, enthusiasm and depression (Warr, 2007), research findings indicate that affect at work is consistently structured around two general dimensions: positive and negative (Daniels, 2000; Katwyk et al., 2002). The two dimensions have already been supported in the initial studies on the PANAS (Watson et al., 1988). The items of the WBWS comprise central dimensions of affect at work and encompass wide range of emotions related to anxiety, comfort, pleasure, displeasure, enthusiasm and depression, for example impatient, calm, cheerful, annoyed, enthusiastic and frustrated.

One of the criticisms of the inclusion of fulfillment components in the measurement of well-being is the possibility of including variables related or antecedents of well-being, such as autonomy and positive social relationships (Daniels, 2000). The WBSW’s items that measure fulfillment ("I express what is best in me", for instance) focused subjective experiences of the worker and not organizational characteristics that could influence these experiences. This task is not easy because we are talking about a complex and wide construct.

According to Waterman et al. (2010), the measurement of the cognitive or cognitive component of well-being should include self-discovery, perceived development of one’s best potentials, a sense of purpose and meaning in life, and intense involvement in activities. The eight items for fulfillment that remained in WBWS such as "I do what I really like doing," "I express what is best in me", "I overcome challenges" and "I Achieve my potential", may not completely cover the phenomenon, but embrace its main elements. We can also highlight the
high factor loadings showed on this factor, an evidence of its relevance to the operationalization of the phenomenon in question.

Thereafter, we might affirm that well-being at work scale’s 29 items indeed have theoretical support, greatly corresponding to the literature reviewed throughout this paper. Moreover, WBWS allows researchers and managers assess both affective and cognitive dimensions of well-being at work context and emphasize positive experiences, which have been neglected in many empirical studies.

The present study makes both academic and practical contributions. First, we explore the different perspectives in studying WBW, provide a clear conceptualization of the construct, and then develop a conceptual model with the two most mentioned components in the literature, affective and cognitive. Second, we provide empirical evidence on the testable scales that are both reliable and valid. This gives a new theoretical insight into how well-being at work can be understand in order to provide higher positive experiences to the employees. Third, it is one of the few attempts to approximate the phenomenon to the specific work context. Fourth, the model was empirically tested and found to have substantial association with HRM policies and practices, indicated by recruitment and selection; involvement; training, development & education; work conditions; competency-based performance appraisal; and compensation and rewards.

As to the managerial implications, considering that well-being at work is pointed as an essential phenomenon for appropriate and competitive organizational functioning (Rodriguez-Carvajal et al., 2010), our scale might be an important evaluation instrument for managers to improve employee’s well-being at work. Besides, regarding well-being at work predictors, the literature shows organizational variables as having positive association with well-being at work. This study now pointed the strong association between well-being and HRM practices, confirming previous studies (Rubino et al., 2011; Nishii et al., 2008; Baptiste, 2008). Considering that the literature on antecedents of well-being at work is composed mainly of studies involving the dimension of affective well-being only (Totterdell et al., 2004; Weiss et al., 1999), the well-being at work scale proposed here filled the gap in the literature offering a measure to be used in academic studies and managerial diagnostic including the cognitive dimension of well-being (fulfillment).

Regarding limitations and directions for future studies, our purpose represents a first attempt to build and test a conceptual framework of well-being at work including both cognitive and affective aspects. Then, a first limitation is that the present findings are therefore indicative rather than conclusive. In spite of the scale’s validation in Brazil, it would be useful to further assess the generalizability of the well-being at work scale to other business environments such as European and Asian countries. Moreover, with more replicative and creative research, a more comprehensive conceptual framework related to well-being at work can be developed in the future.

It is also important to take in consideration the cultural bias that the definition of happiness or well-being at work assumes. The idea of pleasure and fulfillment, for example, is focused on the individual’s concern with himself. This assumption is relevant to many Western cultures, such as American, and also appears to have been adequate in researches conducted in Brazil. Further studies, in turn, must deepen carefully each constituent element of the dimensions of well-being in different cultures. Demographic variables such as age, gender, education, and variables related to occupational roles as well should be considered in
order to better understand the phenomenon and its antecedents.

Another limitation is that because of the cross-sectional nature of the data, questions regarding causality remain unanswered. Thereby, the relationships between HRM practices and well-being at work may not be interpreted as proof of a causal relationship, but rather as lending support for a prior causal scheme. The development of a time-series database and testing of the HRM practices association with well-being at work in a longitudinal framework would provide more insights into probable causation.

Considering the increasing research attention paid to the positive direction organizations should adopt in order to enable and facilitate the development of both organizational and individual potential, the value and originality of this study is to provide a comprehensive operational measure of well-being at work, including its affective and cognitive aspects.

REFERENCES


