

The Checking of the Factorial Structure for Measuring Psychological Well-being Using Exploratory and Confirmatory Factor Analysis

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Abstract:

This study aimed to validate the hexagonal factorial structure of the Psychological Well-being Scale (Massé et al,1998) using a sample of teachers from educational institutions in Djelfa Province, Algeria. The results from the first phase, using exploratory factor analysis (EFA), showed that the scale retained 23 out of 25 items, distributed across five dimensions: self-control and events, happiness, self-esteem, mental balance, and positive relationships with others. These five dimensions were validated in the second phase using confirmatory factor analysis (CFA). The final results indicated that the psychological well-being factorial model exhibited excellent fit indices: RMSEA=0.046, CFI=0.945, and ECVI=1.209 (lower than the saturated model value of 1.243). Consequently, the new factorial model of psychological well-being was accepted.

Keywords: Exploratory Factor Analysis; Confirmatory Factor Analysis; Psychological Well-being; Happiness; Mental Balance; Self-esteem.

Introduction:

Psychological health is no longer seen as merely the absence of negative conditions such as anxiety, depression, and psychological distress but also requires the presence of positive attributes like psychological well-being. Societies increasingly emphasize nurturing well-being amid the rapid changes brought about by globalization, which has triggered psychological and social risks, disrupted interpersonal relationships, and shifted focus in workplaces from humanistic considerations to task-centered performance. Governments and organizations now dedicate more attention to both personal psychological traits and external professional environments, encompassing physical and social aspects.

1.Problem Statement:

The development of tools to measure the concept of well-being at work has emerged as a response to the significant social demand. Accurate assessment of this phenomenon is a fundamental prerequisite for promoting acceptable behaviors. Researchers Biétry and Creusier (2013) highlighted

the limitations of existing well-being scales, emphasizing the necessity to avoid relying on secondary indicators when measuring psychological well-being at work, which often involve the absence of negative aspects. They also noted the importance of distinguishing well-being from closely related concepts. Existing measures often assess job satisfaction, affect, and mental health.

Psychological well-being designs at work are generally based on two primary approaches: the hedonic approach, focusing on pleasure, and the eudaimonic approach, centered on happiness, rationality, or achievement, with both aiming at overall well-being, Biétry and Creusier's (2013) critical analysis underscores the need to build on previous studies by integrating the hedonic principle of pleasure at work with the eudaimonic principle of happiness and virtue. They proposed a model for measuring well-being at work derived from Gilbert and Churchill's (1979) framework, tested on two samples of 313 and 865 employees in France. They also affirmed that the cornerstone of the well-being concept lies in ancient Greek philosophy (Waterman, 1993). According to Denier (1994), well-being is defined as a positive psychological state that eliminates or mitigates negative manifestations of mental health. The researchers validated four dimensions of workplace well-being: coworker relationships and enthusiasm among employees, representing the eudaimonic principle, and satisfaction with time spent at work and the suitability of the physical work environment, representing the hedonic principle (Biétry & Creusier, 2013).

Advocates of positive psychology, or the study of positivity in life, have shown great interest in "virtue-based well-being and the fruitful positive realization of self," aligning with the conceptual meanings of "eudaimonic well-being." Based on this perspective, it is emphasized that "authentic happiness" is realized when individuals achieve their potential according to a noble moral purpose. In this vein, many proponents of humanistic psychology, such as Abraham Maslow and Carl Rogers, emphasized positive concepts in human nature, including free will, the ability to choose and self-direct, and the motivation for self-actualization. These concepts are seen as central to achieving overall life and personal well-being. Similarly, Ryff's (1989) model of psychological well-being highlights six key components: self-acceptance, personal growth, purpose in life, positive relationships with others, environmental mastery, and autonomy. Following this trajectory, Martin Seligman's PERMA model emphasizes that genuine well-being, embodying authentic happiness in its purest form, is a holistic structure comprising positive emotions, engagement in life, meaningful experiences, positive relationships, and accomplishment (Fizza Shah, 2017).

Studies stress the importance of a conceptualization of workplace psychological well-being tailored to the structure of the work environment. For example, Gilbert, Dagenais-Desmarais, and Savoie (2008) found that the psychological well-being framework developed by Massé et al. (1998) and adapted for workplace environments did not fully apply when measured among a sample of workers. This discrepancy suggests conceptual differences between general and workplace-specific well-being constructs. In contrast, Dagenais-Desmarais' (2010) psychological well-being at work model was explicitly designed for workplace settings, incorporating elements from both the hedonic and eudaimonic approaches to better understand workplace well-being (Deci & Ryan, 2001).

According to (Massé et al,1998), psychological well-being at work consists of six dimensions: happiness at work (enjoyment of the job), emotional balance (balancing work and social/family duties), positive relationships with others, self-control over events, self-esteem ("psychological harmony"), and social integration (positive social relationships). This measure uniquely combines emotional and cognitive components, evaluated using 25 items rated on a five-point scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). An individual is considered to have psychological well-being if they score high on this scale.

This study adopts this measure to verify its structure and adapt it to the work environment of educational institution teachers in Algeria Research Question: Is the factorial structure of (Massé et al,1998) psychological well-being scale six-dimensional?

To answer this question, we will apply the scale to a sample of educational institution teachers in Djelfa, Algeria, and verify its factorial structure using exploratory and confirmatory factor analysis.

2. Methodology and Tools:

This section outlines the procedures undertaken to complete this research.

2.1 Study Population and Sample:

The study aims to verify the factorial structure of the psychological well-being scale developed by (Massé et al,1998)among a sample of teachers from educational institutions in Djelfa province. The total population of the study was estimated at 12,676 teachers, distributed across the three educational levels as follows: Primary level: 5,985 teachers, representing 47.21% of the population, Middle school level: 4,105 teachers, representing 32.38% of the population, Secondary level: 2,586 teachers, representing 20.40% of the population, A representative sample was drawn proportional to each stratum, totaling 675 participants. This sample was divided into two groups: A group for conducting exploratory analyses, comprising 230 participants, A group for confirmatory analyses, comprising 445 participants.

2.2 Temporal and Spatial Boundaries:

This study was conducted on a sample of teachers from educational institutions in Djelfa province—a region located in central Algeria, during the second half of January 2024. The selection of institutions was random across the three educational levels (primary, middle, and secondary).

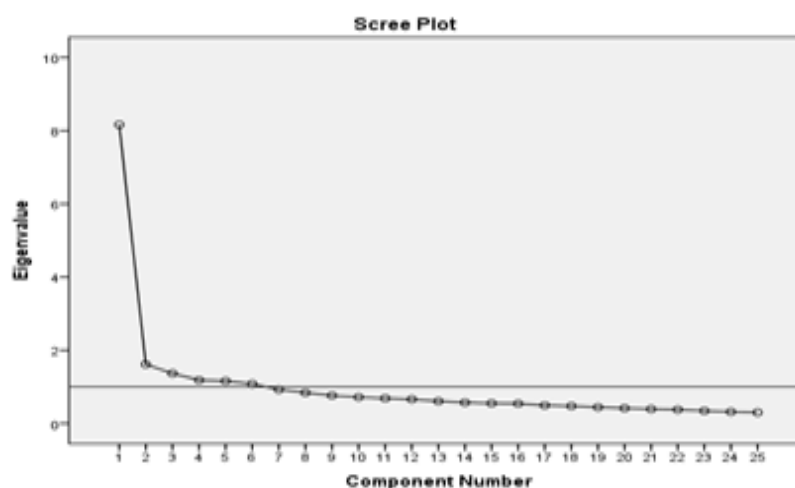
3. Statistical Analysis Tools and Methods:

This refers to the statistical programs used for analysis, To achieve the primary objective of the study, SPSS 20 and AMOS 23 were utilized to test the factorial model of the study through exploratory and confirmatory factor analysis.

4. Results and Discussion:

4.1 Exploratory Factor Analysis (EFA) of the Psychological Well-Being Scale:

The psychological well-being scale consists of 25 items distributed across six factors: Control of Self and Events, Happiness, Self-Esteem, Mental Balance, Sociability, Social. It is worth noting that the sample used for the exploratory factor analysis consisted of 230 participants (N=230). The correlation matrix values calculated between the responses of the sample participants to the scale items indicate the absence of perfect correlations. This was confirmed by the determinant value of the matrix, which was 7.635, exceeding the minimum acceptable value of 0.0001. Additionally, the Kaiser-Meyer-Olkin (KMO) value, which measures the adequacy of the sample size, was 0.992, surpassing the minimum acceptable threshold for conducting factor analysis. The statistical significance was confirmed (P=0.000, df=300). We identified five factors that accounted for 58.280% of the cumulative variance explained. This is further illustrated by the graph representing the eigenvalues of the data on the psychological well-being scale.



Source: SPSS Output

The figure indicates that eigenvalues with significant variance are within the range of 1-6 factors. Remaining values exhibit horizontal decline, thus excluded. Community values exceeded 0.50 indicating extracted factors are adequate and explain sufficient variance.

(Table 01) :Extracted factors from exploratory factor analysis of psychological well-being scale."

| Eigenvalues | 1.904 | 2.499 | 2.600 | 2.901 | 3.293 |
|-------------------------------|--------------------|-----------------------------------|--------------------------|-----------------|-----------------|
| Variance Explained | 7,615 | 9,996 | 10,398 | 11,604 | 13,171 |
| Cumulative Variance Explained | 59,255 | 45,169 | 35,174 | 24,775 | 13,171 |
| Psychological Quality of Life | Mental Homeostasis | Self-Monitoring and Event Control | Empathetic Relationships | Self-Perception | Positive Affect |

| | | | | | |
|-----|-------|-------|-------|-------|-------|
| Q10 | | | | | ,6890 |
| Q7 | | | | | ,6480 |
| Q9 | | | | | ,6390 |
| Q5 | | | | | ,6230 |
| Q8 | | | | | ,6140 |
| Q6 | | | | | ,6030 |
| Q15 | | | | ,7510 | |
| Q14 | | | | ,6910 | |
| Q17 | | | | ,6710 | |
| Q13 | | | | ,5380 | |
| Q16 | | | | ,5130 | |
| Q22 | | | ,7110 | | |
| Q23 | | | ,6420 | | |
| Q24 | | | ,6300 | | |
| Q25 | | | ,6280 | | |
| Q2 | | ,7310 | | | |
| Q1 | | ,6940 | | | |
| Q4 | | ,6380 | | | |
| Q3 | | ,6340 | | | |
| Q19 | ,7920 | | | | |
| Q20 | ,6200 | | | | |
| Q18 | ,5050 | | | | |
| Q21 | ,4680 | | | | |

Source: SPSS Output

The exploratory factor analysis of the psychological well-being scale retained 23 items (see the appendix at the end of the article), divided into six factors: Factor 1: Job satisfaction, with a variance explanation rate of (13.171%), Factor 2: Self-esteem, with a variance explanation rate of (11.604%), Factor 3: Positive relationships with others, with a variance explanation rate of (10.398%), Factor 4: Self-control and control over events, with a variance explanation rate of (9.996%), Factor 5: Mental balance, with a variance explanation rate of (7.615%), Factor six was excluded due to not meeting the required conditions, as it included only two items: "I had lots of 'get up and go'; I took on lots of projects.", "I was curious and interested in all sorts of things." These two items were initially part of the Social Involvement factor, which originally consisted of four items. However, after the exploratory factor analysis, only these two items loaded onto it. The other two items were redistributed to: Happiness factor (I felt like having fun, doing sports, and participating in all my favorite activities and pastimes), The content of this item indeed reflects happiness, as engaging in one's favorite activities outside work typically indicates a degree of self-well-being, Self-esteem factor ("I had goals and ambitions."), as the content of this item also reflects an individual's sense of self-worth, Compatibility with Previous Studies, These factors align with those validated by Bouterfas (2014) and Ntsame Sima M. N. (2012) and are consistent with the five factors proposed by Ryff (1998) ,However, the scale did not retain the

original structure as designed by (Massé et al,1998), although it remains relatively similar to its original framework.

4-2 Confirmatory Factor Analysis (CFA) of the Psychological Well-Being Scale:

After the exploratory factor analysis identified five factors that constitute the structure of the psychological well-being scale, the next step is to verify this five-factor structure using confirmatory factor analysis (CFA) on a sample of N=445.

4-2-1 Model Specification of Psychological Well-Being:

Model specification involves constructing a conceptual model based on established theoretical frameworks and operationalizing it through a diagram. Since the Psychological Well-Being Scale (Massé et al,1998) was used in its original English version, validated by Bouterfas (2014) for its factorial structure in a French context on a sample of social service workers, the theoretical model has already been established, The model includes five latent factors (derived from the exploratory factor analysis in the previous stage) under which a set of measured indicators are grouped. These five factors define the concept of psychological well-being according to Bouterfas (2014).

4-2-2 Model Identification of Psychological Well-Being:

Model identification refers to the sufficiency of the sample data to yield a unique and determined solution for the free parameters in the hypothesized factor model, By calculating the degrees of freedom for the confirmatory factor model of psychological well-being as DF=220 the model is deemed over-identified since the degrees of freedom are positive. This indicates that the model contains sufficient information to allow for hypothesis testing.

4-2-3 Testing the Goodness of Fit for the Psychological Well-Being Model:

The model’s goodness of fit was evaluated to determine how well the hypothesized confirmatory factor model aligns with the observed data.

Table (02) : presents the fit indices for the confirmatory factor analysis (CFA) of the psychological well-being model.

| Index | Acceptable level | The Calculated Value |
|--|--|---|
| Absolute fit indices | | |
| The likelihood ratio Chi-square | Non-Significant Value | 512.975Chi-square = 220df = Statistically significant P = 0,0 00 |
| Normed Chi-square | Between 1 and 3 | 2.332 |
| Root mean square error of approximation RMSEA | The value being between 0.05 and 0.08 indicates a good fit of the model. | 0.055 Lo:0.050/ho:0.063 |
| Persimony correction indices | | |

| | | |
|---|--|--|
| Expected cross-validation index ECVI | The value of the current model should be lower than the values of the saturated and independence models. | 1.408 Saturated model 1.243 Independence model 8.949 |
| Persimony-adjusted CFI PCFI | When the value is equal to or greater than 0.50 | 0.800 |
| Comparative fit indices | | |
| The comparative fit index CFI | When the value is greater than 0.90 | 0.920 |
| Tucker-lewis index TLI | When the value is greater than 0.90 | 0.908 |

Source: AMOS software outputs

Most of the quality indicators for model fit were good, as follows:

- The Chi-square ratio to degrees of freedom indicator (χ^2/df) was less than 3, indicating that the proposed model fits well with the assumed model for the sample data.
- The RMSEA indicator, considered the most important for judging model fit (as studies have shown its superiority over other indicators, Mohammed Tighza, 2012, p255), had a value of 0.055, which suggests excellent model fit.

Regarding other indicators Most of the remaining indicators demonstrate the model's quality and its full fit to the sample. However, the Chi-square value was statistically significant, as this indicator tends to increase substantially when the sample size is large or when the correlation coefficients are high, This is a known statistical phenomenon (i.e., any minor difference becomes statistically significant with a large sample size, between the covariance and variance matrix of the model), Most researchers agree that the Chi-square indicator can be disregarded, especially if the model demonstrates good fit through other quality indicators (Bouksara & Rachid,2015,p43),Model Improvement through Modification Indices, Examining the modification indices allows us to enhance model quality by constraining certain free parameters related to residuals. This is a standard procedure in modeling (Tighza,2012), Linking the residuals of dependent variables (where items are considered dependent variables in the standard model) implies two possibilities A portion of the shared variance between the factors should be explained by one or more independent

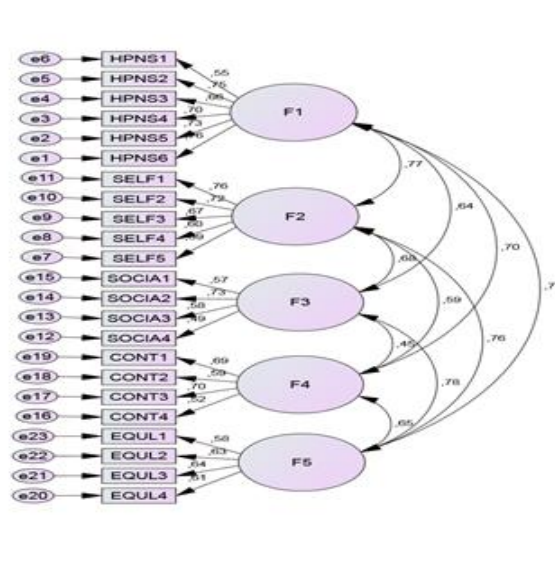
variables that the researcher did not account for, This is the result of an error in the measurement method.

To identify the second issue, several methods can be used, including examining the cumulative explanatory variance of the five factors constituting psychological well-being. This is obtained through exploratory global analysis. If the percentage exceeds 50%, it indicates that the issue caused by the shared variance among dependent variable residuals is due to measurement error rather than the absence of other factors, In the case of the psychological well-being model, the cumulative

explanatory variance was 58.28%, which supports this assumption. This finding aligns with the fact that the scale is considered reliable for measuring psychological well-being at work, as its developers exerted considerable effort in its construction. Furthermore, foreign researchers have translated, adapted, and validated it in several studies (Bouterfas, 2014; Gilbert et al, 2006).

4-2-4 Estimation of the Psychological Well-Being Model Before Modification:

Figure (02): illustrates the estimation of the parameters for the psychological well-being model.



Source: AMOS software outputs

The symbols in the oval shapes refer to the names of the latent factors (dimensions), listed as follows: Happiness(F1), Self-Esteem(F2), Positive Relationships with Others(F3), Self-Control and Events Management(F4), Emotional Balance (F5).

The standardized loadings of the psychological well-being model, with its five dimensions and indicators, are all above 0.30. This indicates that all items are well-saturated around their respective constructs. Each value on the arrows pointing from the latent variables (dimensions) to the measured indicators (items) represents the degree of saturation of the latent variable by that specific indicator, From the previous figure, it is evident that the highest-saturated item is the indicator HPNS4: "I had the impression of really enjoying and living life to the fullest." The standardized loading for this item was estimated at 0.765. Conversely, the least-saturated item is the indicator SOCIA4: "I was able to concentrate on and listen to my friends," with a standardized loading of 0.493. The remaining values fall between these two extremes, and all were statistically significant at the 0.05 level, This is further clarified in the following table, which presents the unstandardized estimates of the model parameters and their significance using the original units.

Significance and residuals are only evident when using the original units. The critical ratio reflects the latent factor's ability to predict its items. All these ratios were statistically significant at the 0.05 level, confirming the saturation of the items with their respective factors.

Table (03): illustrates the unstandardized estimates for the psychological well-being model.

| Estimation | | | Estimation | Residuals | Critical Ratio | Significance |
|------------|------|----|------------|-----------|----------------|--------------|
| HPNS6 | <--- | F1 | 1,000 | | | |
| HPNS5 | <--- | F1 | 1,110 | ,072 | 15,405 | *** |
| HPNS4 | <--- | F1 | 1,084 | ,074 | 14,748 | *** |
| HPNS3 | <--- | F1 | ,978 | ,071 | 13,712 | *** |
| HPNS2 | <--- | F1 | 1,206 | ,076 | 15,930 | *** |
| HPNS1 | <--- | F1 | 1,012 | ,090 | 11,220 | *** |
| SELF5 | <--- | F2 | 1,000 | | | |
| SELF4 | <--- | F2 | ,958 | ,085 | 11,277 | *** |
| SELF3 | <--- | F2 | 1,095 | ,087 | 12,573 | *** |
| SELF2 | <--- | F2 | 1,080 | ,081 | 13,338 | *** |
| SELF1 | <--- | F2 | 1,121 | ,081 | 13,897 | *** |
| SOCIA4 | <--- | F3 | 1,000 | | | |
| SOCIA3 | <--- | F3 | 1,279 | ,159 | 8,020 | *** |
| SOCIA2 | <--- | F3 | 1,357 | ,153 | 8,880 | *** |
| SOCIA1 | <--- | F3 | 1,220 | ,153 | 7,960 | *** |
| CONT4 | <--- | F4 | 1,000 | | | |
| CONT3 | <--- | F4 | 1,266 | ,138 | 9,154 | *** |
| CONT2 | <--- | F4 | ,990 | ,117 | 8,443 | *** |
| CONT1 | <--- | F4 | 1,198 | ,132 | 9,091 | *** |
| EQUL4 | <--- | F5 | 1,000 | | | |
| EQUL3 | <--- | F5 | ,973 | ,093 | 10,406 | *** |
| EQUL2 | <--- | F5 | ,994 | ,096 | 10,341 | *** |
| EQUL1 | <--- | F5 | ,751 | ,077 | 9,745 | *** |

Source: AMOS software outputs

The model also contains the standardized and unstandardized correlation coefficients between the five factors (dimensions), which are as follows:

- The correlation coefficient between the happiness and self-esteem factors is 0.77.
- The correlation coefficient between the happiness and positive relationships with others factors is 0.63.
- The correlation coefficient between the happiness and self-control and events management factors is 0.70.

-The correlation coefficient between the happiness and emotional balance factors is 0.78.
 -The correlation coefficient between the self-esteem and positive relationships with others factors is 0.68.
 -The correlation coefficient between the self-esteem and self-control and events management factors is 0.59.

-The correlation coefficient between the self-esteem and emotional balance factors is 0.75.
 -The correlation coefficient between the positive relationships with others and self-control and events management factors is 0.45.

-The correlation coefficient between the positive relationships with others and emotional balance factors is 0.77.
 -The correlation coefficient between the self-control and events management and emotional balance factors is 0.65.

All the correlations are statistically significant at the 0.05 level, which is evident from the unstandardized estimates of the covariance matrix between the latent factors in the following table.

Table(04): Standardized and unstandardized correlation coefficients between the factors.

| <i>Estimation</i> | | | <i>Estimation</i> | <i>Standard Error</i> | <i>Significance</i> |
|-------------------|------|-----------|-------------------|-----------------------|---------------------|
| <i>F1</i> | <--> | <i>F2</i> | ,340 | ,037 | *** |
| <i>F1</i> | <--> | <i>F3</i> | ,212 | ,031 | *** |
| <i>F1</i> | <--> | <i>F4</i> | ,269 | ,036 | *** |
| <i>F1</i> | <--> | <i>F5</i> | ,372 | ,043 | *** |
| <i>F2</i> | <--> | <i>F3</i> | ,198 | ,029 | *** |
| <i>F2</i> | <--> | <i>F4</i> | ,199 | ,030 | *** |
| <i>F2</i> | <--> | <i>F5</i> | ,316 | ,039 | *** |
| <i>F3</i> | <--> | <i>F5</i> | ,114 | ,023 | *** |
| <i>F3</i> | <--> | <i>F5</i> | ,244 | ,036 | *** |
| <i>F4</i> | <--> | <i>F5</i> | ,236 | ,036 | *** |

Source: AMOS software outputs

After estimating the fitting parameters for the psychological well-being model indicators and then examining the unstandardized estimates for the model parameters, including the item loadings on their factors, it becomes clear that the proposed model fits well with the data obtained from a sample of 445, As a final judgment, most of the results indicate a good fit between the current psychological

well-being scale model and the scale validated by Bouterfas (2014) and Ntsame Sima M. N. (2012). These results are consistent with the five dimensions presented in the Ryff (1998) model, noting that the original version was validated with six dimensions, as mentioned earlier (Massé et al,1998).

4-2-5 Model Modifications:

The residuals and modification indices were examined to identify any weaknesses and areas of the model that may lack sufficient fit, The modification indices suggested a number of adjustments. The strongest indicator for improving the model's fit was to constrain the parameter between the residuals (e4) and (e6), i.e, between the items (HPNS1/HPNS3), with a covariance

value of 30.089, the highest value observed. The relationship between these residuals was estimated at 0.244. However, this adjustment did not improve the model sufficiently,so additional modifications were made by constraining the free parameters of the residuals, as follows: (e7 <--> e16) with a covariance value of 23.002, and the relationship between them was estimated at 0.148, (e22 <--> e6) with a covariance value of 15.708, and the relationship between them was estimated at 0.168, (e21 <--> e20) with a covariance value of 15.478, and the relationship between them was estimated at -0.145, After examining the content of the items, it was found that they measure the same concept, which is not surprising since the factors of the scale all measure the same concept of psychological well-being, and the factors are interrelated, The model fit indices after the modifications are shown in the following table.

Table (05): Fit Indices for the Confirmatory Factor Model of Psychological Well-Being After Modification.

| Index | Acceptable level | The Calculated Value |
|---|---|--|
| Absolute Fit Indices | | |
| Chi-Square P-Value | Not Significant | 416.905Chi-square = 216df = 00 Statistically Significant P = 0,0 |
| Chi-Square Degrees of Freedom Ratio | Between 1 and 3 | 1.930 |
| Root Mean Square Error of Approximation - RMSEA | To be less than 0.05 and 0.08, which indicates good fit | 0.046 Lo:0.039/ho:0.052 |
| Parsimony Index | | |
| Expected Cross-Validation Index - ECVI | The value of the current model is lower than the values of the saturated and independent models | 1.209 1.243:Saturated Model 8.949:Independent Model |
| PCFI - Parsimony Comparative Fit Index | Equal to or greater than 0.50 | 0.807 |
| Comparative Fit Indices - CFIs | | |
| CFI - Comparative Fit Index | Greater than 0.9 | 0.945 |
| TLI - Tucker-Lewis Index | Greater than 0.9 | 0.936 |

Source: AMOS software outputs

The fit indices improved after the modification, especially the expected cross-validation index (ECVI), which was estimated at 1.209, a value lower than that of the saturated model. The probability value of the Chi-square statistic also decreased, reaching 416.905, As a final comment, the model is correct and has obtained excellent fit indices with data from a sample of teachers in educational institutions in the Wilaya of Djelfa, Algeria. Therefore, the factor validity indices have been achieved, and the scale measures what it was intended for. It is worth noting that the scale demonstrates high and acceptable reliability, with a value of $\alpha = 0.912$, Study Limitations: It should be noted that the results of the study are limited to the individuals in the sample on which the scale was applied. Therefore, the obtained five-factor model cannot be theoretically and practically generalized to the Algerian work environment definitively, and further verification is needed with broader samples.

Conclusion:

The general objective of this study was to verify the factor structure of the Psychological Well-being Scale (Massé et al,1998) on a sample of teachers from educational institutions in the Wilaya of Djelfa, Algeria, The study in its exploratory phase, concluded that the scale did not retain its original six-factor structure and instead preserved only five dimensions, which are as follows: the first factor is job satisfaction, the second factor is positive relationships with others, the third factor represents self-control and control over events, the fourth factor represents mental balance, and the fifth factor relates to self-well-being. In the confirmatory phase, the same dimensions identified in the exploratory analysis were validated, and the factor model for psychological well-being achieved acceptable fit indices.

Appendices: Psychological Well-Being Scale:

F1. Control of self and events

I was able to face difficult situations in a positive way .

I was quite calm .

I was able to find answers to my problems without trouble .

I was able to clearly sort things out when faced with complicated situations.

F2. Happiness

I felt healthy and in top shape .

My moral was good .

I had the impression of really enjoying and living life the fullest.

I felt good, at peace with myself .

I found life exciting and I wanted to enjoy every moment of it.

F3.Social involvement

I felt like having fun, doing sports and participating in all my favourite activities and past-times.

I had lots of “get up and go”, I took on lots of projects .

I was curious and interested in all sorts of things .

I had goals and ambitions .

F4. Self-esteem

I had self-confidence .

I felt useful .

I felt that others loved me and appreciated me .

I felt satisfied with what I was able to accomplish,

I felt proud of myself.

F5. Mental balance

I lived at a normal pace, not doing anything –excessively.

I was true to myself, being natural at all times

My life was well-balanced between my family, personal and professional activities.

I felt emotionally balanced .

F6. Sociability

I smiled easily .

I got along well with everyone around me .

I had a good sense of humour, easily making my friends laugh.

I was able to concentrate on and listen to my friends

References:

www.psychologyandeducation.net

- Ahmed Bouzyane Tigza (2012). Exploratory and Confirmatory Factor Analysis: Their Concepts and Methodology Using LISREL and SPSS Software Packages. Dar Al-Sira for Publishing and Distribution, Amman, Jordan.
- Bouterfas, N., & Desrumaux, P. (2014, juillet). Vers un modèle de la santé psychologique au travail des agents du social et de l'insertion : quels inducteurs organisationnels, psychosociaux et personnels sur le bien-être, la détresse et l'épuisement ? Thèse de doctorat, Université de Lille 3.
- Desrumaux, P. (2010, décembre). Le travail, risque psychosocial ou facteur d'épanouissement? De la survie au bien-être. Numéro spécial sur les risques psychosociaux Le Journal des Psychologues., 26-30.
- Diener, E. (1994). Subjective well-being. Psychological Bulletin, 95, 542-575.
- Fizza Shah (2017). Is Positive Wellbeing Possible - <http://www.thepositivepsychologypeople.com/is-positive-wellbeing-possible>.
- Franck BIÉTRY (2013) Proposition d'une échelle de mesure positive du bien-être au travail (EPBET), REVUE DE GESTION DES RESSOURCES HUMAINES. 36
- Gilbert, M.-H. (2009): la santé psychologique au travail: conceptualisation, instrumentation et facteurs organisationnels de développement, thèse de doctorat (ph.d.) en psychologie du travail et des organisations, université de Montréal, Montréal.
- Massé, R., Poulin, C., Dassa, C., Lambert, J., Bélair, S., & Battaglini, A. (1998b). Élaboration et validation d'un outil de mesure du bien-être psychologique: L'ÉMMDEP, Revue Canadienne de Santé Publique, 89(5), 352-357.
- Mansour Bouksara & Rachid Ziad. Psychometric Properties of the Algerian Version of the Self-Efficacy Expectations Scale for High School Students. Journal of Psychological and Educational Sciences, Issue 1, University of Ouargla, pages 24-52.
- Ntsame Sima, M. N., Desrumaux, P., Lemoine, C., & Moundjiegout, T. (2013). Le rôle de l'assertivité dans la détresse et le bien-être psychologiques : une application aux enseignants Français et Gabonais.
- Ryan, R. M., & Deci, E. L. (2001): on happiness and human potentials: a review of research on hedonic and eudemonic well-being, annual review of psychology, 52, 141-166.
- Ryff, C. D., & Keyes, C. L. M. (1995): the structure of psychological well-being revisited, Journal of personality and social psychology, 69(4), 719-727.
- Waterman, A. S. (1993). Two concepts of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. Journal of Personality and Social Psychology, 64, 678-691.