Evidencias de validez factorial de la Escala de Desesperanza de Beck en Español con muestras clínicas y no clínicas

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Resumen

El propósito del presente estudio fue evaluar la estructura interna de la adaptación al español de Escala de Desesperanza de Beck et al. (1974), dada su utilidad y relevancia en la predicción de conductas suicidas. Para esto, se analizaron las respuestas a la escala de 1260 estudiantes universitarios (M = 4.79; DT = 4.29) y de una muestra clínica en la que participaron 150 jóvenes con intento de suicidio de alta letalidad (M = 8.51; DT = 2.38). Se examinó la estructura interna por medio del Análisis factorial confirmatorio (AFC) en tres fases: en la primera, se comparó el modelo original con cuatro modelos encontrados en las diferentes adaptaciones al español; en la segunda, se tomaron en cuenta modelos que analizan la aquiescencia; y en la tercera, se hizo una validación cruzada de esos modelos con población clínica. Los resultados señalan que la escala es unidimensional tanto en el caso de las muestras clínicas (χ^2 = 154.84, gl = 135, p < 0.001, CFI = 0.99, TLI = 0.99, RMSEA = 0.03) como en la población universitaria; sin embargo, a esta última se le añadió un factor de método para el tratamiento de la aquiescencia (χ^2 = 252.14, gl = 134, p < 0.001, CFI = 0.95, TLI = 0.94, RMSEA = 0.03). Los resultados muestran la importancia de utilizar análisis y modelos que consideren la naturaleza de los datos y las características de la muestra para aportar evidencias más sólidas para la validez de constructo.
Palabras clave: adaptación, desesperanza, validez, riesgo de suicidio, aquiescencia.

Evidence for the Factorial Validity of the Beck Hopelessness Scale in Spanish with Clinical and non-Clinical Samples

Abstract

The purpose of the present study is to evaluate the internal structure of the Spanish adaptation of the Beck Hopelessness Scale (Beck et al., 1974) given its usefulness and relevance in the prediction of suicidal behaviors. The responses to the scale of 1260 university students (M = 4.79, SD = 4.29) and of a clinical sample in which 150 young people with suicide attempt of high lethality (M = 8.51, SD = 2.38) participated were analyzed. The internal structure of the scale is examined by confirmatory factor analysis (CFA) in three phases. In the first pahse, the original model is compared with four models found

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in the different adaptations to Spanish; in the second phase, models that analyze acquiescence are taken into account, and in the third phase, a cross-validation of those models with a clinical population is made. The results indicate that the scale is one-dimensional both in the case of clinical samples ($\chi2$ = 154.84, gl = 135, p <0.001, CFI = 0.99, TLI = 0.99, RMSEA = 0.03), as well as in the general population. However, for the latter, a method factor was added for the treatment of acquiescence ($\chi2$ = 252.14, gl = 134, *p* <0.001, CFI = 0.95, TLI = 0.94, RMSEA = 0.03). The results show the importance of using analyzes and models that consider the nature of the data and the characteristics of the sample to provide more solid evidence for construct validity.

Keywords: adaptation, hopelessness, validity, suicidal risk, acquiescence

Introduction

In 1967 Aaron Beck, the American psychiatrist, proposed that hopelessness is one of the elements of the cognitive triad of depression and depressive symptoms (Beck, Weissman, Lester & Trexler, 1974). Recent studies point out that hopelessness is a determinant factor in the study of the causes of depression (González, et al., 2018; Vives & Dueñas, 2018; Waszczuk, et al., 2016) and a powerful indicator of suicidal ideation and intent in clinical samples (Beck et al., 1974; Gheihman et al., 2016; Klonsky, et al., 2012; Nissim et al., 2010; Steer, Kumar & Beck, 1993; Troister, D'Agata & Holden, 2015; Wang, et al., 2015) and non-clinical samples (Aliaga, et al., 2006; Horwitz, et al., 2016; Mikulic, et al., 2009; Mitchell, et al., 2016; Ribeiro, et al., 2015; Suárez-Colorado, et al., 2019).

Beck et al. (1974) pointed out that despair is not a diffuse emotional state, vague and difficult to quantify in scientific studies; on the contrary, it is a construct that refers to an organized system of negative expectations about one's future and one's own person. From this they developed the Despair Scale (BHS), with the purpose of providing the scientific and clinical community with a reliable, sensitive and easy to use tool to assess the state of hopelessness.

The BHS is a dichotomous scale that has demonstrated adequate psychometric properties in several countries (Hanna et al., 2011; Madeira, et al., 2011; Mystakidou et al., 2008). In the case of the Spanish language version, several translations and adaptations have been made in Spanish-American countries such as Spain, Peru, Colombia, Argentina and Mexico, in which its usefulness as one of the most used techniques in the clinical field has been confirmed for the screening of depression and suicide risk (Aliaga et al., 2006; Bobes, et al., 2002; Córdova & Rosales, 2011; González, 2009; Mikulic et al., 2009). However, these works have not been able to replicate the original factorial structure or the one recently proposed for adaptation to other countries (Innamorati et al., 2014; Kocalevent et al., 2017; Steer, Beck & Brown, 1997).

It has been observed that the different factorial structures found vary according to the type of sample of the studies (i.e. whether they are clinical or non-clinical samples), as well as to the procedure used for the factorial analysis (Beck & Steer, 1993; Boduszek & Dhingra, 2016; Steer et al, 1997). For example, in the original study, Beck et al. (1974) applied a scale to the psychiatric population hospitalized because of a suicide attempt. For construct validity, the authors made an exploratory factor analysis (EFA) utilizing main components as a method of extraction of factors and varimax rotation. The results identified three factors: the first factor was called *Feelings About the Future*; the second factor was called *Loss of Motivation;* and the third factor was called *Future Expectations*.

In the case of adaptations to the Spanish language, Mikulic et al. (2009) applied the scale adapted to 377 individuals of the general population in Argentina, obtaining a reliability of 0.78 and three factors that are grouped differently from the original study.

In Peru, Aliaga et al. (2006) conducted a study with non-clinical, clinical and medical samples that belonged to one of seven groups, namely: individuals who attempted suicide, people who suffered depression, hypertension, individuals who could suffer from asthma or tuberculosis, schizophrenia, cocaine users and general population. This study obtained a moderate alpha (0.80) and in the factor analysis six factors were identified; in addition to that, the scale showed to be sensitive identifying people with depression and suicidal ideation.

In Colombia, González (2009) utilized the Spanish translation of the basic Bank of Instruments for their clinical practice (Bobes et al., 2002) and it was applied to 543 participants, mainly students of psychology; the analysis of the psychometric properties showed a moderate reliability (0.83) and the factor analysis yielded five dimensions.

In Mexico, the scale has been applied to suicidal psychiatric hospital patients (Almeida-Montes et al., 2000; Ibarra, et al., 2000; Quintanilla, et al., 2003), to hospitalized patients suffering from some illness or psychiatric condition (Jaime, Blum & Romero, 2009), to individuals who sought external

Hermosillo-De la Torre, A.E., Méndez-Sánchez, C., & González-Betanzos, F.

161

medical appointments (Borges, et al., 2000; Mondragón, et al., 1998; Satorres et al., 2018), and to students (Córdova et al., 2011; Lazarevich, Delgadillo & Rodríguez, 2009). The factorial analysis performed in the research carried out by Córdova et al. (2011) showed three dimensions where there is only coincidence in the factor of feelings about the future proposed by Beck et al. (1974), but not in the other two factors.

Up until now, the studies of the BHS in the Spanish versions have used exploratory factor analysis with main components as a method of extracting factors, even though this method is considered unwise for dichotomous scales (Choi, Peters & Mueller, 2010; Freiberg, et al., 2013). At the same time, the internal structure has not been tested by confirmatory factor analysis and no comparisons have been made to determine whether the factorial structure of the scale is the same in the non-clinical population and in people who have had a suicide attempt to determine whether there is equivalence in the scale structure between these two conditions.

Currently, other countries are debating whether the BHS is a one-dimensional or multidimensional scale (Innamorati et al., 2014; Pompili, et al., 2007; Steer, Beck & Brown, 1997). Recently, the discussion has focused on the concern of whether there is a bi-factorial structure of optimism/ pessimism, where optimism is assessed with the items that were built with a positive view (i.e. "I see the future with hope and enthusiasm"), and pessimism with those built with a negative view (i.e. "The future seems vague and uncertain"). While the one-dimensional view is conceived with both phases truly as a measure of a single substantive construct of psychopathology: hopelessness.

On the other hand, it must be taken into account that construct validity for balanced scales is particularly difficult, such as the case of BHS, since these scales are designed to avoid acquiescence having the same number or approximately the same number of direct and inverse items. In these cases, the items tend to group according to their semantic contents (Vautier & Pohl, 2009; Vautier, et al., 2004). In fact, in the exploratory factor analysis of balanced scales, factors arised that are not based on the theoretical dimension but on the polarity of the item, which is known as a method factor (Savalei & Falk, 2014), meaning that the two-factor structure of the BHS could be the cause of the method used (Innamorati et al., 2014).

Since the questionnaire is widely used to measure hopelessness in suicide risk situations, these aspects have important clinical implications. Therefore, the objective of this study is to analyze the internal structure of the Beck's Hopelessness Scale, in a sample of university students and

another one of young people with suicide attempts of high lethality, comparing the models proposed in the adaptations to Spanish and the original model, as well as alternative models that take into account the nature of the scale and the samples studied.

The analysis of the internal structure is done using confirmatory factor analysis through structural equation models with a robust estimator for dichotomous items with abnormal distribution, which is appropriate in this type of scales. This research performed three analyses. In the first one, the adjustment of all the proposed models of the different translations into Spanish is compared with the original structure proposed by Beck et al. (1974) in a sample of university students. In a second one, the models that have been suggested for the analysis of acquiescence are analyzed, —in this case compared to a model that contains a factor method with two basic models, the model of a general factor (hopelessness) and the model of two correlated factors (optimism/pessimism) —; in a third one, these models are applied to a sample of people who have had suicide attempts, to observe the adjustment in this particular sample.

Method

Participants

The total sample consisted of 1410 participants from two samples. Sample "A" was composed of 781 undergraduate students at the *Universidad Autónoma de Aguascalientes* [Autonomous University of Aguascalientes] (721 women and 539 men) chosen through a non-probabilistic sampling of eight out of the ten academic centers, with an age range between 17 and 30 years ($M = 19.84$, $SD = 1.94$). Sample "B" corresponded to 150 participants (63 women and 87 men) ranging in age between 14 and 37 years ($M = 23.1$, $SD = 6.2$) who were reported and assisted for suicide attempt of high lethality in the emergency service 911 of the state of Aguascalientes.

Design

A non-experimental cross-sectional design (a single measurement) was used for a multivariate correlation analysis necessary for factor analyzes and group comparisons.

Instruments

Beck Hopelessness Scale- BHS (Beck et al., 1974)

It is a 20-item scale that evaluates negative attitudes about the future; in eleven items the person has to respond

to pessimistic statements and in nine to optimistic statements about the future, with false/true response options. Scores range from 0 to 20 where a higher score indicates greater hopelessness.

The reliability indices of the instrument in Spanish, measured through the Cronbach's alpha have shown some variations ($\alpha = 0.78$, Mikulic et al., 2009, $\alpha = 0.80$, Aliaga et al., 2006, $\alpha = 0.83$, González, 2009).

The adaptation to the Spanish language used in this study was done according to the standard procedures of inverse translation (Eremenco, Cella & Arnold, 2005; Van de Vijver & Tanzer, 1997). For the adaptation of the instrument the original version in English of the BHS by Beck et al., (1974) was used and the translation was done first from the English language to the Spanish language by four bilingual professionals and from the Spanish language to the English language by an expert translator. The original version and the translated version were compared until there were no relevant differences found. After that, a cultural adaptation was done in which expert judges had to analyze the clarity of the instructions and the reactives to eliminate problems of cultural linguistic uses. This scale is known as BHS-UAA.

Procedure

The 1260 university students were chosen through a non-probabilistic sampling from a total of 25 undergraduate educational programs. First of all, the appropriate authorities were contacted for the evaluation, including the professor, to obtain the informed consent from each of the academic centers, as well as the expressed authorization of the professors to utilize their space and time in class during the evaluation. Subsequently, the students were contacted at their classrooms during their class schedule agreed upon by their professor; they were told about the objectives of the study, as well as the form in which the collected information would be used. After obtaining the informed consent of the students, the instrument in question was applied.

The clinical sample was chosen in a non-probabilistic manner and consisted of 150 young people, of whom 42.7% were men ($n = 64$) and 57.3% women ($n = 86$) between 14 and 35 years old with an average age of 23.07 ($SD = 6.19$). They were treated for high-risk suicide attempt and accepted to be followed up by the state's health system. The calls were received by the 911 emergency telephone service of the State Telecommunications Center C4. The sample was chosen from the database of people who participated in the study called Diagnostic Model for the Prevention of Suicide in Adolescents and Youth of the State of Aguascalientes (UAA PIPS 14-3N).

Data analysis

Confirmatory Factor Analyses (CFA) were carried out for the different models proposed in the adaptations to the Spanish language (see Table 1).

The Weighted Least Squares Mean and Variance Adjusted estimator (WLSMV) was used for the analysis, which does not assume that the variables are normally distributed, making it more appropriate for CFAs with dichotomous data (Muthén & Muthén, 2006). In all cases where the items

Table 1.

Reliability indexes and factor composition of the original BHS version and of its adaptations to Spanish

	Beck et al. (1974)	Mikulic et al. (2009)	Aliaga et al. (2006)	González (2009)	Córdoba & Rosales (2011)
Cronbach's Alpha	0.93	0.78	0.8	0.83	0.78
Number of factors extracted	3	3	6	5	3
Items by factor					
Factor 1:	1, 5, 6, 13, 15, 19	3, 4, 6, 13, 19	6, 7, 9, 12, 16, 17 y 20	1, 3, 8, 10, 13, 15 y 19	1, 6, 13, 15 y 19
Factor 2	2, 3, 9, 11, 12, 16, 17, 20	2, 7, 9, 11, 12, 14, 16, 17 y 20	5, 10, 14 y 15	11, 12, 13, 14, 16, 1 y 8	2, 3, 9, 11, 12, 16, 17 y 20
Factor 3	4, 7, 8, 14, 10, 18	1, 5, 8, 10, 15 y 18	13 y 19	2, 4, 9 y 14	4, 7, 8, 14 y 18
Factor 4			1, 4 y 18	2, 4, 9 y 14	
Factor 5			3	5 y 6	
Factor 6			8		

Hermosillo-De la Torre, A.E., Méndez-Sánchez, C., & González-Betanzos, F.

163

were the indicators, their dichotomous nature was taken into account by making the factor analysis on the matrix of tetrachoric correlations. The chi-square statistic (χ^2) is shown to examine the adequacy of adjustment in the CFA (Bollen, 1989), given that this indicator is sensitive to the size of the sample. Therefore, some other complementary adjustment indicators were used to evaluate the fit of the models (Hu & Bentler, 1999), specifically the Comparative Adjustment Index (CFI), and the Tucker Lewis Index (TLI), as well as the Root Mean Square Error of Approximation (RMSEA) and the 90% confidence interval for said indicator (90% CI). An acceptable fit of the model is defined by the following criteria: RMSEA < .08 (90% CI), CFI > .90, TLI > .90 (Bentler, 1990; Hu & Bentler, 1999). A good fit is considered if RMSEA < .05, CFI > .95, TLI > .95 (Bentler, 1990; Hu and Bentler, 1999). The analyses were carried out using the MPlus7.1 program (Muthén & Muthén, 2012).

Results

The data that allow the comparison of models are presented in Table 2, which is divided into four sections: in the first three, work was done with sample "A". In the first one, Beck et al. (1974) original model of three factors is adjusted; in the second section the models of adaptations to Spanish are presented, in some cases a viable solution was not reached given that the covariance matrix of the latent variable is not defined in a positive way, in these models an asterisk is placed before its identification. In the third section the following models are presented: the one-dimensional model that has been proposed with clinical samples (Mystakidou et al., 2008), the model of two correlated factors of optimism / pessimism (Nissim et al., 2010) and a model of one dimension with a general factor for acquiescence (Savalei et al., 2014). This model attempts to capture the individual tendencies to use the response categories consistently across the items but in an idiosyncratic way between individuals (Abad, Sorrel, Garcia, & Aluja, 2016). In the last section, the fourth, a cross-validation of the models of the third section is made with the data of the sample "B" which is a clinical sample.

Adjustment indices indicate that the original model has an acceptable fit (χ^2 = 373,713, gl = 167, p <0.001, CFI = 0.92, TLI = 0.91, RMSEA = 0.04) which is better than the models of the previous Spanish adaptations to the proposal in this investigation. However, in the "A" sample of university students the best model is a one-dimensional model in which a method factor is proposed for the treatment of acquiescence (χ^2 = 252.14, gl = 134, p <0.001, CFI = 0.95, TLI = 0.94, RMSEA = 0.03).

The adjustment indices obtained for the analyzed models are shown in Table 2. In the sample "A" of university students the best model is a one-dimensional model in which a method factor is proposed for the treatment of acquiescence (χ^2 = 252.14, gl = 134, p <0.001, CFI = 0.95,

Table 2.
Model fit indices for the BHS

Models	χ^2	*gl*	p	CFI	TLI	RMSEA (90 % CI)
1. Original model. Sample "A".						
Beck et al. (1974).	373.713	167	< 0.001	0.92	0.91	0.04 (.034, .045)
2. Adaptations to Spanish. Sample "A".						
Mikulic et al. (2009).	396.92	167	< 0.001	0.91	0.9	0.04 (.037, .047)
*Aliaga et al. (2006). *Gonzalez (2009).	The covariance matrix of the latent variable is not defined positively.					
Córdoba y Rosales (2011).	656.95	169	< 0.001	0.819	0.797	0.06 (.056, .066)
3. Models for the treatment of aquiescence. Sample "A".						
One factor.	303.81	135		0.925	0.915	0.04 (.034, .046)
Two correlated factors.	261	134		0.94	0.93	0.04 (.029, .041)
One dimension-one method.	252.14	134	< 0.001	0.95	0.94	0.03 (.027, .040)
4. Models for the treatment of aquiescence. Sample "B".						
One factor.	154.84	135	> 0.05	0.99	0.99	0.03 (.001, .005)
*Two correlated factors. *One dimension-one method.	The covariance matrix of the latent variable is not defined positively.					

Note. Indices; χ^2 = chi-square; df = degree of freedom; p = probability; χ^2 /gl; chi-square divided by degrees of freedom; CFI = comparative adjustment index; TLI = Tucker Lewis Index; RMSEA = Root Mean Square Error of Approximation, IC = confidence interval. In these models items 5 and 11 are not considered.

TLI = 0.94, RMSEA = 0.03). Finally, these same models applied to sample "B" of people with attempted suicide show that the instrument is one-dimensional; in this case, the two-factor models and the model for the treatment of acquiescence showed linear dependence between the factors and, therefore, the solution is inadmissible. An excellent fit is observed in the one-dimensional model for sample B (χ^2 = 154.84, gl = 135, p> 0.05, CFI = 0.99, TLI = 0.99, RMSEA = 0.03).

Finally, these same models applied to sample "B" of people with attempted suicide show that the instrument is one-dimensional, the two-factor models and the model for the treatment of acquiescence show linear dependence between the factors and therefore, that the solution is in-admissible. In this case an excellent fit is observed in the one-dimensional model for sample B (χ^2 = 154.84, gl = 135, p> 0.05, CFI = 0.99, TLI = 0.99, RMSEA = 0.03).

It is important to note that both item 5 "I have enough time to achieve the things I most want to do", and item 11 "Everything I can see in the future is more disagreeable than pleasant", presented non-significant factorial weights (p > 0.05) in all the models, for which it was decided to eliminate them.

Table 3 shows the factorial weights (λ) obtained on the general factor we call "Hopelessness". The items were orga-nized from higher to lower factorial weight in sample "B", which is where this model presents the greatest adjustment. In the case of sample "B", item 4 had a low factorial weight

(λ = 0.24). However, this same item for sample "A" had an acceptable factorial weight (λ = 0.48). All those items whose factorial weights are negative (6, 1, 15, 13, 19, 8, 10 and 3) measure in the case of the two-dimensional model, the dimension called optimism, the reliability analysis using the Kuder - Richarson statistics showed good reliability (KR-20 = .916), while items with a negative view (2, 12, 7, 20, 9, 16, 18, 17, 14 and 4) measure pessimism with a good level of reliability (KR-20 = .926). In the case of the one-dimensional model, the total reliability of the scale was high (KR-20 = .948).

Figure 1 shows the models with the highest adjustment in each of the samples. Figure 1a. corresponds to the general population sample made up with university students. The factor weights in the factor method are 0.21 for the positive items and -0.21 for the negative items. The standardized factor weights in the figure are those presented in Table 3 for the corresponding samples. Figure 1b represents the one-dimensional model for the clinical sample.

Discussion

The Beck Hopelessness Scale is one of the most widely used instruments in the clinical field due to its relevance in the study and treatment of depression and the prediction of suicide ideation and attempt. As it has been explained, this is one of the reasons why this instrument has been adapted
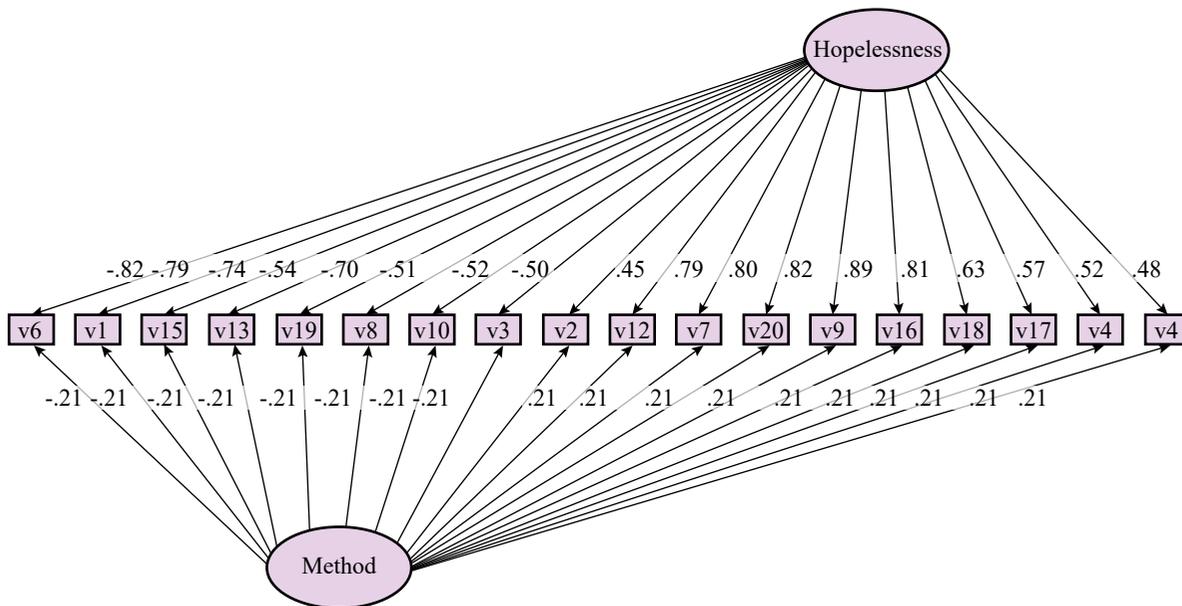

Figure 1a. Diagram of the model with the highest adjustment in the sample of university students
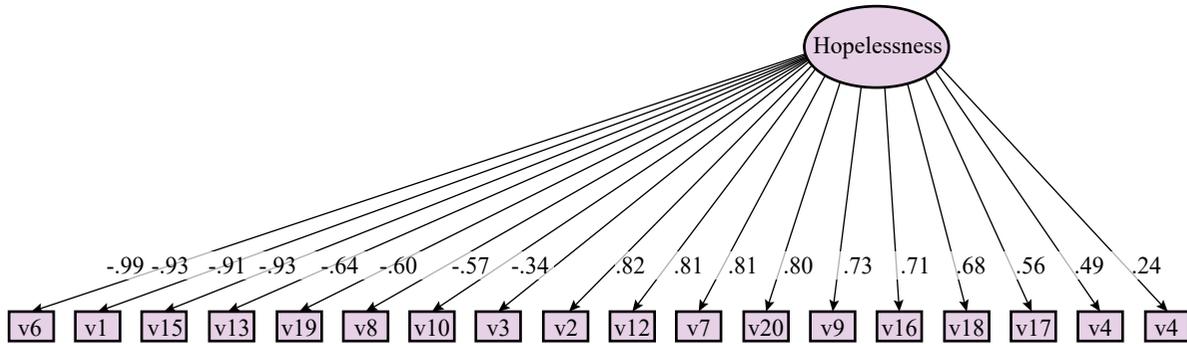
Hermosillo-De la Torre, A.E., Méndez-Sánchez, C., & González-Betanzos, F.

165

Figure 1b. Diagram of the model with the greatest adjustment in the clinical sample

Table 3.
Weighted Least Square Mean Variance (WLSMV)

Item		Sample "A"			Sample "B"		
		λ	SE	R^2	λ	SE	R^2
6	En el futuro espero triunfar en las cosas que más me interesan.	−0.82	0.073	0.736	−0.99	0.025	0.992
1	Veo el futuro con esperanza y entusiasmo.	−0.79	0.046	0.690	−0.93	0.031	0.857
15	Tengo fe en el futuro.	−0.74	0.040	0.620	−0.91	0.040	0.821
13	Cuando veo hacia el futuro tengo la esperanza de ser más feliz que ahora.	−0.54	0.060	0.337	−0.83	0.060	0.693
19	Puedo esperar más tiempos buenos que malos.	−0.70	0.048	0.549	−0.64	0.091	0.410
8	Espero recibir más cosas buenas de la vida que la mayoría de las personas.	−0.51	0.051	0.320	−0.60	0.081	0.361
10	Mis experiencias me han preparado para el futuro.	−0.52	0.066	0.330	−0.57	0.094	0.320
3	Cuando las cosas van mal pienso que no pueden quedarse así siempre.	−0.50	0.060	0.304	−0.34	0.112	0.115
2	Podría darme por vencido porque no puedo hacer que las cosas sean mejores para mí.	0.45	0.065	0.239	0.82	0.05	0.671
12	No espero obtener lo que realmente quiero.	0.79	0.039	0.653	0.81	0.059	0.653
7	Mi futuro me parece muy oscuro.	0.80	0.056	0.666	0.81	0.056	0.649
20	Es inútil tratar de conseguir algo porque no lo conseguiría.	0.82	0.05	0.696	0.80	0.054	0.636
9	No tengo suerte ni razón para creer que la tendré en el futuro.	0.83	0.046	0.721	0.73	0.066	0.535
16	No deseo algo porque nunca consigo lo que quiero.	0.81	0.048	0.681	0.71	0.068	0.497
18	El futuro me parece vago e incierto.	0.63	0.040	0.440	0.68	0.074	0.460
17	Es muy poco probable que el futuro tenga una satisfacción real.	0.57	0.059	0.353	0.56	0.088	0.311
14	Las cosas no funcionan como me gustaría.	0.52	0.051	0.303	0.49	0.089	0.243
4	No puedo imaginar mi vida dentro de 10 años.	0.48	0.052	0.259	0.24	0.105	0.055

Note: λ = standardized factor loading, SE = standard error, R^2= *size effect*. The content of the items is presented in Spanish as used in the present study.

in a great variety of countries (Hanna et al., 2011; Madeira et al., 2011; Mystakidou et al., 2008), not to mention, of course, the adaptations that have been made for the Spanish-speaking population, including the Mexican population (Aliaga et al., 2006; Bobes et al., 2004; Córdova et al., 2010; González, 2009; Mikulic et al., 2009).

The purpose of analyzing the factorial validity of the Beck Hopelessness Scale (BHS-UAA) and to compare it

with clinical and non-clinical samples, has responded to the intention of obtaining more data about its sensitivity, reliability and validity, comparing the different measurement models proposed up to now in the adaptations to the Spanish language, in relation to the model proposed by Beck et al. (1974), as well as carrying out tests with models that take into account the acquiescence. The main concern is to minimize the measurement error and the error of analysis

of consistency and construct validity in order to have an instrument with large psychometric and reliable scopes in a population that is at risk of suicide.

In the present study the BHS-UAA showed a high internal consistency in the two populations studied, it also proved to be sensitive and discriminant in a population with high lethality suicide attempt, so it turns out to be a very useful instrument in the detection of hopelessness. These data are consistent with those reported in the adaptations made in various countries of the world and together offer a strong empirical support on the adequate psychometric functioning of the scale. However, the reported evidence also shows the existence of multiple factor conformations of the scale, susceptible to the study population.

It is known that the classical factor analysis methods that start from the Pearson correlation matrix tend to oversize the number of factors when the data are dichotomous, especially when there are few items by factor or when the factorial weights are small (Fava & Velicer, 1992; Garrido, Abad & Ponsoda, 2011). In the present analysis, these considerations were taken into account and tetrachoric correlations were worked on. In this phase the results indicate that the versions of three factors are better than those that propose more than three factors, even an adjustment of the versions with five and six factors was not achieved since the covariance matrix of the latent variables is not defined positively. A deeper analysis shows correlations greater than one between two factors, which are considered estimates outside the admissible ranges and is a sign that the model is incorrect, the best fit was obtained with the structure factorial proposal proposed by Beck et al., (1974).

However, in the analysis of the different factors that have been reported on the hopelessness scale is important to highlight two elements, the first of which considers that the BHS-UAA is an adaptation made in strict adherence to the back-translation method, where the scale developed by Beck et al. (1974) has been taken as a main source. In this sense, it is a version that adheres faithfully to the principles of the original scale, taking full account of the meaning and content of the original items in the cultural adaptation, thus solving the problems observed in the other adaptations to Spanish. The second element to highlight refers to the type and organization of the items and to the response of the instrument. The BHS-UAA, like the BHS of Beck et al. (1974), is a balanced scale with direct and inverse items, which is very good because it decreases and controls the possible response tendency in those subjects who respond affirmatively to the items regardless of their content, that is, it controls the invalidating factor that acquiescence implies. However, this characteristic makes construct validity analysis more difficult, since the results reflect more the polarity of the items than the theoretical dimension of the construct, in this case the one of despair (Innamorati et al., 2014; Vautier, 2004).

In this context, the results with university data show that a one-dimensional model in which acquiescence is taken into account is the one that obtains the best adjustment indicators. On the contrary, in the sample of people with attempted suicide who received the instrument through an interview, they have a better adjustment in the one-dimensional model; in fact, the two models in which acquiescence is considered cannot be estimated. This is consistent with the theory, since it is known that the problem of acquiescence is observed especially in samples of normal population where these response tendencies are more likely to be shown, while when the application is done by a professional this tendency disappears.

Taking the above into account it can be said that the method used to analyze the internal structure of the BHS-UAA is adequate since it considers the use of robust estimators of structural equations for dichotomous items that are not distributed normally. On the other hand, having undergone an adjustment comparison with the factors reported in the different adaptations made to the Spanish language and with the proposal by Beck et al. (1974), the comparison with the models that emerged for the analysis of acquiescence, and the model of the people who have or have not tried to commit suicide, makes the structure of the BHS-UAA so far more robust.

The results of this study have at least two practical implications, the first is that evidence is provided in relation to the one-dimensionality of the scale, therefore the calculation of three scores on different factors does not make much sense. The second refers to the fact that the application in clinical contexts made by professionals minimizes the probability of errors due to acquiescence (Meisenberg & Williams, 2008). Finally, it must be pointed out that the present study does not consider clinical samples in which there are low levels of motivation to be evaluated, for example, in the psychiatric population, elderly population (Tovar, Favela, y Sánchez, 2019), people with diverse sexual orientation (Avendaño-Prieto, Betancort; Bernal-Aguirre, González-Martínez, Gómez-Sánchez, & Villalobos-Sánchez, 2019), the chronically ill or in people who use drugs.

Hermosillo-De la Torre, A.E., Méndez-Sánchez, C., & González-Betanzos, F.

167

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168

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169

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