A validity and reliability study of the Subjective Happiness Scale in Mexico

Öznel Mutluluk Ölçeği'nin Meksika'da geçerlik ve güvenirlik çalışması

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Abstract

Since its creation, the Subjective Happiness Scale (SHS) has been the most frequently used instrument to evaluate subjective happiness. Although the original version has been translated and validated into several languages around the world, including Spanish, there are not enough studies in Latin American countries that evaluate its psychometric properties. The purpose of this study was to evaluate the psychometric properties of the Mexican version of the SHS. The SHS was administered along with the Perceived Stress Scale (PSS) to the general population. A large sample of 849 participants was used for this study. For statistical analysis, the sample was divided into four groups according to age (range 16 to 64 years old). The reliability and unidimensional structure of the SHS were tested and also a multigroup confirmatory factor analysis was conducted. Results indicate an adequate reliability for the scale ($\alpha = .77$), supporting its unidimensional structure regardless of sex and age ranges. Also, the SHS was negatively correlated with the PSS, showing its discriminant validity. We can conclude that the Mexican version of the SHS is an adequate instrument to use in the Mexican population, both in young people and in adults. It would be advisable to confirm these results in other larger samples; however, in the absence of other studies in the country, this data can be taken, provisionally, as normative data.

Keywords: Subjective happiness scale, happiness, confirmatory factor analysis, validity, Mexico

Özet

Öznel Mutluluk Ölçeği (ÖMÖ) geliştirildiği zamandan beri, mutluluğun ölçümünde en yaygın olarak kullanılan gereç olmuştur. Her ne kadar orijinal versiyonu İspanyolca da dahil olmak üzere bir çok dile çevrilerek geçerlilik uyarlaması yapılmış olsa da, Güney Amerika ülkelerinde ölçeğin psikometrik özelliklerini değerlendiren yeteri kadar çalışma yapılmamıştır. Bu çalışmanın amacı ÖMÖ'nün Meksika versiyonunun psikometrik özelliklerini incelemektir. ÖMÖ, Algılanan Stres Ölçeği (ASÖ) ile birlikte genel nüfusa uygulandı. Bu çalışma 849 katılımcı ile birlikte geniş bir örneklemde gerçekleştirildi. İstatistiksel analiz için, örneklem (16 ila 64 yaş arasında) değişen dört gruba ayrıldı. ÖMÖ'nün geçerliliği ve tek boyutlu yapısı test edildi ve çok gruplu doğrulayıcı faktör analizi yapıldı. Sonuçlar, cinsiyet ve yaş çeşitliliği arasında fark gözetmeksizin, tek boyutlu ve güvenilir ($\alpha = .77$) bir yapı ortaya çıkardı. Ayrıca ÖMÖ ile ASÖ arasında negatif korelasyon tespit edildi. ÖMÖ'nün Meksika versiyonunun, Meksika toplumunda hem genç hem de yetişkinlerde kullanım için yeterli bir gereç olduğu sonucuna varılabilir. Bu sonuçları daha büyük örneklem üzerinde doğrulamak etmek önerilebilir; fakat ülkede farklı çalışmaların yokluğunda bu veriler provizyonel normatif veri olarak kullanılabilir.

Anahtar Kelimeler: Öznel Mutluluk Ölçeği, mutluluk, doğrulayıcı faktör analizi, geçerlik, Meksika

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Introduction

Human beings have as a common goal to achieve wellbeing and happiness (Buss, 2000); it even seems to be a definitive goal for most societies (Diener, Oishi, & Lucas, 2003). In the last decade there has been great interest in research about happiness or subjective wellbeing (Luhmann, Hofmann, Eid, & Lucas, 2012), and that interest extends from management areas to mental health (Steel, Schmidt & Shultz, 2008). According to the World Happiness Record (Helliwell, Layard, & Sachs, 2015), one of the reasons to assess subjective wellbeing in societies is the acknowledgment that economic indicators are not enough to explain human progress.

Mexico is one of the 20 happiest countries in the world, in 14th place, above countries like the United States, England, and Germany; it is also the second happiest country in Latin America after Costa Rica (Helliwell et al., 2015). In this regard, according to the national survey "Ranking of Happiness in Mexico", carried out in 2012, it was found that health, family relations, and income were the most important subjects according to Mexicans to reach happiness or subjective wellbeing (Imagina Mexico, 2013). This information has been controversial because of the problematic context of the country (unemployment, poverty, insecurity, and corruption, among others (Ordorica & Prud'homme, 2012); however, happiness or subjective wellbeing is a construct that involves several aspects, which are crucial to achieve an understanding.

According to Diener, Suh, Lucas and Smith (1999), happiness or subjective wellbeing is a combination of two components: affective (low frequent cases of negative affect and frequent cases of positive affect) and cognitive (high level of satisfaction with life). The affective component is an evaluation guided by feelings and emotions, while the cognitive component is information based on evaluating one's life, in which people tend to judge the degree with which their lives fulfil their expectations and resembles their ideal. In this regard, subjective happiness is defined as affective and cognitive evaluations of the experiences in someone's life (Diener, 2000).

Several studies have found that subjective happiness is associated with self-perception of wellbeing and satisfaction with life (Diener, 2000; Strack, Argyle, & Schwarts, 1991; Suh, Diener, Oishi, & Triandis, 1998), and individuals who are subjectively happier have more satisfying relationships and inform more positive feelings than individuals who are less happy (Diener & Seligman, 2002).

According to Lyubomirsky, King and Diener (2005), happy people are successful in several areas of their lives, including marriage, friendship, income, job performance, and health. People who perceive themselves as happy respond in a more adaptive way to daily experiences, to decision-making, to perception and interpretation of social situations, and to recovery from negative events, like failure (Abbe, Tkach, & Lyubomirsky, 2003; Lyubomirsky et al., 2005; Lyubomirsky, Sheldon, & Schkade, 2005; Lyubomirsky & Tucker, 1998).

Currently there are several validated instruments to measure subjective happiness. In this respect, we find self-reports, like the Affect Balance Scale (Bradburn, 1969) and the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Grifin, 1985), however these types of instruments have been criticized due to evaluating different components of happiness (e.g. affective and cognitive states). On the other hand, there are scales with just one item, such as the Delighted-Terrible Scale (Andrews & Withey, 1976), the Self-Anchoring Scale (Cantrill, 1965), the Gurin Scale (Gurin, Veroff & Feld, 1960), and the Global Happiness Scale (Bradburn, 1969), which have the limitation of not being able to prove their psychometric properties.

To address the limitations of these scales, Lyubomirsky and Lepper (1999) developed an instrument to globally evaluate if a person is happy or unhappy. The Subjective Happiness Scale

(SHS) represents a wider classification of wellbeing, measured through global self-assessments. The SHS has 4 items and a 7-point Likert scale as its response format. The scale measures global subjective happiness by means of statements with which participants either self-rate themselves or compare themselves to others. Two items ask the participants to describe themselves using an absolute assessment of their lives (item 1) and an assessment of their relationship with others (item 2). The other two items present brief descriptions of happy and unhappy people and the participants indicate the degree to which these statements are true for them (items 3 and 4). Even though the scale is relatively short, the SHS meets the minimal psychometric criteria for measuring accuracy, based on data from fourteen separate samples of the United States and Russia (Lyubomirsky & Lepper, 1999).

Since its development, the SHS has been the most used instrument to measure subjective happiness, and its original version in English and Russian has been translated and validated into several languages around the world – Japanese (Shimai, Otake, Utsuki, Ikemi, & Lyubomirsky, 2004), Malaysian (Swami, 2008), German and Tagalog (Swami et al., 2009), Spanish (Extramera & Fernandez-Berrocal, 2014; Vera-Villarroel, Celis-Atenas, & Cordova-Rubio, 2011), French and Arabic (Salama-Younes, 2010; Moghnie & Kazarian, 2012), Portuguese (Pais-Ribeiro, 2012; Spagnoli, Caetano & Silva, 2012), Turkish (Doğan & Totan 2013), and Italian (Iani, Lauriola, Layous, & Sirigatti, 2014) – supporting its unidimensional structure through these versions.

Despite available research at the present time about the validation of the SHS in Spanish-speaking countries, the evidence about validation in Latin American countries is scant Chilean (Vera-Villarroel et al., 2011) and Argentine population [Ortiz, Gancedo, & Reyna, 2013]).

The importance of validating the SHS in Spanish-speaking countries and Latin America is due to its use as a tool for cross-cultural research about subjective happiness. Specifically in Mexico, the validation of the SHS would provide supplementary information about levels of subjective happiness in this country compared to others. Thus, the purpose of this study is to present the psychometric properties of the Mexican version of the Subjective Happiness Scale by (1) evaluating its reliability and construct validity through age groups and sex, and (2) evaluating its criterion validity through the association of perceived stress and subjective happiness.

Method

Participants

The sample consisted in the general population. Data collection was carried out through purposive sampling in public places of the city of Monterrey (e.g. shopping centres, parks), schools, and private residences. People were invited to participate voluntarily if they had the basic reading and writing skills to answer self-assessment questionnaires. Confidentiality and anonymity of data were guaranteed to participants.

The initial sample comprised 1188 participants with ages ranging from 16 to 89. When dividing the cases in groups according to age, the sample sizes were unequal; for this reason the participants with ages 65 and upwards were excluded from the sample. Additionally, random sampling was carried out to reduce the sample size for those participants who were 25 years old or younger, to ensure that the sample size and the male-female proportions were similar for all age groups.

The final sample consisted of 849 participants (43.1% men and 56.9% women) with an average age of 33.14 (SD = 12.16). The participants were divided into four groups depending on their age: 16 to 24 years old, 25 to 34 years old, 35 to 44 years old, and 45 to 64 years old. Table 1 displays information about each age group.

Measures

Subjective Happiness Scale (SHS): This 4-item Likert-type scale, developed by Lyubomirsky and Lepper (1999), measures global subjective happiness by means of statements with which participants either self-rate themselves or compare themselves to others. Item 1 evaluates the degree in which the individual thinks they are happy (from 1 = *not a very happy person* to 7 = *a very happy person*). Item 2 evaluates how happy a person feels compared to others (from 1 = *less happy* to 7 = *happier*). Items 3 and 4 measure the degree in which the individual is usually very happy or not very happy, respectively (from 1 = *not at all* to 7 = *a great deal*). The translation process of the scale was carried out through a back-translation procedure. Specifically, the English version of the SHS was translated into Spanish by a bilingual translator and then another bilingual translator (a native English speaker) independently translated the SHS back into English. The text format for item 4 was changed by emphasizing the negative adverb in bold-type font, in order to highlight the negative form of the statement. The final Spanish translation is reported in the Appendix.

Perceived Stress Scale (PSS): The 14-item version of the PSS was used (Cohen, Kamarak, & Merlmelstein, 1983), which was culturally adapted for Mexico by González and Landero (2007). The PSS has 14 items with a score ranging from 0 = *never* to 4 = *very often*; there are 7 items that need to be reversed due to being in negative form (items 4, 5, 6, 7, 9, 10 and 13). The score ranges from 0 to 56 points, where a higher score corresponds to higher levels of stress. The scale showed an adequate level of internal consistency by Cronbach's alpha coefficient = .83; and the Confirmatory Factor Analysis (CFA) indicated that the goodness of fit was adequate for the two-factor solution. Cronbach's alpha coefficient was .77 for the sample of the present study.

Data analysis

The normal distribution was contrasted with the Kolmogorov-Smirnov test, indicating that the study variables were not normally distributed ($p < .05$). To determine the dimensional structure of the SHS, half of the sample was used to carry out the Exploratory Factor Analysis (EFA) by means of principal component analysis. These analyses were performed with SPSS version 20. With the other half of the sample a Confirmatory Factor Analysis (CFA) and a multigroup CFA (MCFA) were carried out according to sex and age groups, to test the model that assumes only one latent variable and four empirical indicators. These were performed with SPSS Amos 18. The criterion validity of the SHS was examined through correlation analysis (Spearman's Rho) with the measure of PSS, using SPSS version 20.

Results

Descriptive Statistics and Internal Consistency

The mean score of the SHS for the total sample was 5.68 (SD = 1.04). The Mann Whitney U-test indicated no significant differences according to sex in the total score of the SHS (Z = -.237, p = .812). Additionally, although younger participants reported the highest mean score (see Table 1), there were no significant differences in subjective happiness among age groups ($X^2_{(3)}$ = 5.49, p = .139).

The SHS showed an adequate internal consistency (α = .77). Cronbach's alpha for men and women, as well as for the different age groups, was adequate (see Table 1). The item-total correlation ranged from .43 to .70.

Table 1. *Groups descriptives and Cronbach's alphas for SHS*

				SHS		
	N	Age range	Male and Female (%)	*M*	*SD*	Alpha
Men	366	16 – 63		5.67	1.03	.75
Women	483	16 – 64		5.68	1.04	.79
Age Group						
1) 16 – 24	277	16 – 24	40.8 – 59.2	5.82	.89	.81
2) 25 – 34	201	25 – 34	56.7 – 43.3	5.60	1.05	.80
3) 35 – 44	181	35 – 44	39.2 – 60.8	5.66	1.09	.75
4) 45 – 64	190	45 – 64	35.8 – 64.2	5.64	1.14	.75
Total	849	16 – 64	43.1 – 56.9	5.68	1.04	.77

Exploratory Factor Analysis

First, the sample was randomly divided (N = 409, 54.3% women and 45.7% men) to perform the principal component analysis. The measure of sampling adequacy Kaiser-Meyer-Olkin (KMO = .76), as well as the Bartlett's test of sphericity ($x^2_{(6)}$ = 496.33, $p < .01$), showed that the correlation matrix was adequate to perform the analysis (Cerny & Kaiser, 1977). The principal component analysis indicated a unifactorial structure with an eigenvalue of 2.44, explaining 61.07% of the variance. The factor loading for each of the 4 items were: .86, .85, .66, and .74, respectively.

Likewise, the results of the analyses carried out in relation to sex and age groups revealed a unifactorial structure for the scale. This information is displayed in Table 2.

Table 2. *Exploratory factor analysis by gender and age groups*

Group	KMO	Bartlett's Test of Sphericity	Eigen values	% of Variance	Factor loadings of items [a]
Gender					
Men	.72	165.45[*]	2.20	55.06	.85, .81, .52, 75
Women	.78	361.81[*]	2.67	66.69	.89, .88, .75, .74
Age Group					
1) 16 – 24	.81	221.65[*]	2.76	69.07	.87, .88, .73, .85
2) 25 – 34	.76	154.70[*]	2.58	64.55	.90, .88, .65, .77
3) 35 – 44	.73	67.97[*]	2.20	55.00	.82, .76, .68, .70
4) 45 – 64	.69	100.47[*]	2.26	56.61	.86, .87, .57, .67

[*] $(p < .01)$ [a] Items 1 – 4 respectively.

Confirmatory Factor Analysis

Using the other half of the participants (N = 440, 59.3% women and 40.7% men), we performed the CFA and the multigroup analysis in relation to sex and age groups. To test the model fit, we followed the threshold levels recommended by Hooper, Coughlan and Mullen (2008) with the following performance measures: for chi-square divided by degrees of freedom ($\chi2/df$), values < 3; for goodness

of fit index (GFI), adjusted goodness of fit index (AGFI), normed-fit index (NFI) and comparative fit index (CFI), values ≥ .95; and for root mean square error of approximation (RMSEA), values < .07. The goodness of fit indices obtained for each of these estimations are displayed in Table 3.

For all the estimated models, the parameters were significant (p < .05). Similarly, the goodness of fit indices were adequate for all models, except for the model performed with the second age group. The goodness of fit indices for this second age group showed that the model could be improved (X^2/df = 3.60, p = .02, GFI = .96, AGFI = .82, RMSEA = .16, NFI = .94, CFI = .95), for this reason we included covariances between the errors of items 3 and 4 to increase the adjustment of the model. Once covariances were included, the goodness of fit indices were adequate for the second age group (see Table 3). The resulting models for the total sample, for the sample divided by sex, and for the sample divided by age groups, are shown in Figures 1, 2 and 3 respectively.

Table 3. *Goodness of fit indices for unifactorial model of SHS*

Model	Absolute Fit Index					Incremental Fit Index	
	X^2/df	P	GFI	AGFI	RMSEA	NFI	CFI
Total sample (*n* = 440)	1.50	.22	.99	.98	.034	.99	.99
Gender							
Men (*n* = 179)	.45	.63	.99	.98	.000	.99	1.00
Women (n = 261)	.86	.42	.99	.98	.000	.99	1.00
Age Group							
1) 16 – 24 (*n* = 149)	.90	.40	.99	.96	.000	.98	1.00
2) 25 – 34 (*n* = 102)	.38	.53	.99	.98	.000	.99	1.00
3) 35 – 44 (*n* = 94)	.95	.38	.99	.95	.000	.98	1.00
4) 45 – 64 (*n* = 95)	1.18	.30	.98	.93	.044	.97	.99
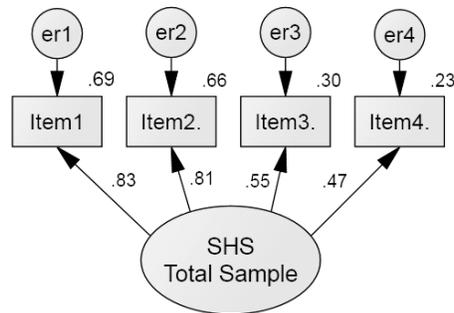
Figure 1. *Confirmatory factor analysis model for the total sample.*
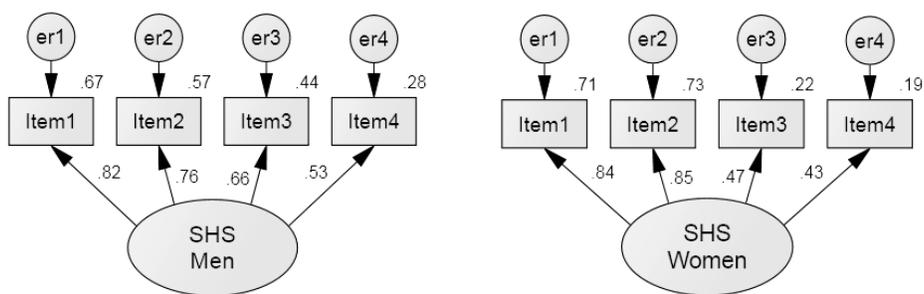
Figure 2. *Confirmatory factor analysis model by sex*

Discriminant Criterion Validity of the SHS

For evidence of criterion validity, the scores of the SHS were correlated with scores of the PSS ($M =$ 1.46, $SD = .51$) in the total sample ($N = 849$). Results indicated a significant and moderate negative correlation between scores ($r_s = -.37$, $p < .01$).

Discussion

A large sample of the Mexican population was considered to evaluate the reliability, structure, and criterion validity of the Subjective Happiness Scale. The results of this study suggest that the SHS can be a valid measurement instrument for the Mexican population.

According to the World Happiness Report (Helliwell et al., 2015), Mexico is in 14th place in the ranking of happiness 2012-2014, and is located above other countries where the SHS has been administered. This information coincides with our results. The mean score obtained for the total sample was 5.68, which to our knowledge is higher than scores reported in other studies around the world, such as Malaysia ($M = 4.42$) (Swami, 2008), Russia ($M = 4.02$) (Lyubomirsky & Lepper, 1999), Spain ($M = 5.09$) (Extremera & Fernandéz-Berrocal, 2014), England ($M = 5.22$) (Swami et al., 2009); and close, but still higher than those reported in the Americas: United States ($M = 5.62$), Argentina $(M=5.2)$ (Ortiz et al., 2013), and Chile ($M = 5.04$) (Vera-Villarroel et al., 2011). Spanish speaking countries such as Argentina, Chile and Spain had scores similar to those found in our study.

In correspondence with other versions of the SHS, the results of this study showed no sex differences (e.g., Jovanovic & Zuljevic, 2013; Swami, 2008; Vera-Villarroel et al., 2011). Likewise, even though the mean score for the youngest age group (16 to 24 years old) was higher than for the rest of the groups, there were no significant differences between them (e.g., Spagnoli et al., 2012). It should be noted that the second age group (25 to 34 years old) obtained the lowest score on the SHS, which could support the fact that wellbeing does not decrease with age, but more likely changes throughout life (Diener et al., 1999). A possible interpretation for this situation can be the difficulties and changes that young adults experience at this age (for example, job seeking, unemployment, and child rearing).

We propose a value range within one standard deviation for each age group as reference values for the SHS in Mexico. It would be advisable to confirm these values in other larger samples; however, in the absence of other studies in the country, the data displayed on Table 1 can be taken as normative data.

Cultural and language differences seem to have no effect on the validity and reliability of the

scale. A coefficient of .77 was found in our study; other studies worldwide have shown similar Cronbach's alpha values. For example, in Argentina the alpha was .72 (Ortiz et al., 2013), in Austria it was .82 (Swami et al., 2009), in Chile .78 (Vera-Villarroel et al., 2011), and in Spain .81 (Extremera & Fernández-Berrocal, 2014) to name a few.

The present study confirmed the unidimensional structure of the SHS shown in other versions from different countries and languages, this was through the EFA for men and women, as well as for the proposed age groups (Iani et al., 2014). The first CFA revealed a unidimensional model with adequate goodness of fit. Afterwards, the multigroup analyses were carried out separately for sex and age groups. The results of the MCFA in relation to sex and age did not show differences in the factorial structure of the scale. It is important to mention that for the second age group (25 to 34 years old), items 3 and 4 of the SHS shared variance in their measurement errors, contemplating this in the model contributed to a better goodness of fit. The results indicate that our translation of the SHS has a consistent factorial structure through age groups and sex, and it is considered adequate for its use in young and adult Mexican populations.

On the other hand, although moderate, the SHS showed a negative correlation with the measure of perceived stress (PSS). This result is consistent with previous studies that report criterion validity between the SHS and measures related to psychological distress (Iani et al., 2014; Lyubomirsky & Lepper, 1999).

Although the results of this study indicate that the Mexican version obtained adequate psychometric properties, it is worth pointing out several limitations. The sample size is large, but the selection of participants was not random, it excluded people younger than 16 and older than 64, and corresponds only to a northern Mexican state. It would be ideal to seek the collaboration of organizations dedicated to population assessments, to achieve representative sampling that includes other states in Mexico. Also, we did not consider other happiness indicators (e.g., affect, self-esteem, orientation and life satisfaction) that could have provided convergent validity of the SHS. We recommend for future studies to include validated instruments for evaluation (e.g., the Positive-Negative Affect Scale [PANAS], the Rosenberg Self-Esteem Scale [RSES], the Life Orientation Test [LOT] and the Satisfaction with Life Scale [SWLS]). Similarly, we recommend including a depression instrument (e.g., Beck Depression Inventory [BDI]) to evaluate divergent validity.

Despite the limitations, the results of this study provide evidence that the Mexican version of the SHS has adequate reliability, a stable factorial structure, and can be used to measure global subjective happiness in different age groups of the Mexican population.

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Appendix

Mexican Version of Subjective Happiness Scale

Versión Mexicana de la Escala de Felicidad Subjetiva

Instrucciones para los participantes: Por favor, para cada una de las siguientes afirmaciones y/o preguntas, marca con un círculo el punto en la escala que sientas que mejor te describe:

1. En general, me considero:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Una persona no
muy feliz

Una persona
muy feliz

2. Comparado con la mayoría de mis amigos(as):

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Menos feliz

Más feliz

3. Algunas personas generalmente son muy felices. Disfrutan sin importar lo que está pasando y sacan el máximo provecho de todo. ¿En qué medida te consideras una persona así?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Para nada

Bastante

4. Algunas personas generalmente **no** son muy felices. Aunque no están deprimidas, no parecen tan felices como ellas quisieran. ¿En qué medida te consideras una persona así?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Para nada

Bastante