

PSYCHOMETRIC PROPERTIES OF THE SPANISH VERSION OF THE MEANING IN LIFE QUESTIONNAIRE (MLQ) IN ADULTS

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Abstract

The most widely used instrument to assess meaning in life is the Meaning in Life Questionnaire (MLQ). To date, no study has analyzed the psychometric characteristics in the Spanish adult population. Our aim is to analyze the psychometric properties of the MLQ in a sample of Spanish participants. The sample consisted of 683 adults, 80.4% women, from Spain. CFA and factorial invariance of the factors obtained as a function of the gender and age of the participants was studied. The data had a good fit to a model with two factors called Presence and Search. The two factors showed a low and positive correlation (.19); however, we cannot assume factorial invariance for gender and age groups. The MLQ showed adequate convergent validity with measures of purpose in life, anxiety, and depression. The present research provides support for the good psychometric properties and reliability of the MLQ in adult Spanish participants to assess meaning in life.

KEYS WORDS: *meaning in life, presence, search, factorial invariance, purpose.*

Resumen

El autoinforme más utilizado para evaluar el sentido en la vida es el "Cuestionario de sentido en la vida" (MLQ). Hasta la fecha, ningún estudio ha analizado las características psicométricas del MLQ en población adulta española. Por tanto, nuestro objetivo fue analizar las propiedades psicométricas del MLQ en una muestra de adultos españoles. Participaron 683 personas, 80,4% mujeres. Se realizó un análisis factorial confirmatorio y un estudio de la invarianza factorial de los factores obtenidos en función del sexo y la edad de los participantes. Los datos ajustaron bien a un modelo con dos factores denominados Presencia y Búsqueda. Los dos factores estuvieron correlacionados de manera baja y positiva (0,19), sin embargo, no podemos asumir invarianza factorial para grupos de sexo y edad. El MLQ mostró una adecuada validez convergente con medidas de propósito en la

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vida, ansiedad y depresión. La presente investigación respalda las buenas propiedades psicométricas y la fiabilidad del MLQ en participantes adultos españoles para evaluar el sentido la vida.

PALABRAS CLAVE: *sentido en la vida, presencia, búsqueda, invariancia factorial, propósito.*

Introduction

The topic of “meaning in life” (MIL) is undoubtedly of great philosophical and psychological interest, and it is generally recognized as a key human concern (Frankl, 1978). The term has received attention in recent years, and it has been further enhanced by the emergence of positive psychology (Heintzleman & King, 2014; George & Park, 2016; Martela & Steger, 2016).

A large number of studies have shown the association between MIL and mental health. The presence of MIL is associated with better psychological adjustment (Park, 2010), and low MIL is negatively associated with greater suicide risk (e.g., Costanza et al., 2019), depressive symptoms (Volkert et al., 2014), clinical anxiety (Marco & Alonso, 2019), eating disorder psychopathology (Marco et al., 2020), and more core symptoms of borderline personality disorder (Marco et al., 2017).

Although there are several self-reports to evaluate meaning in life, such as Purpose in Life (Crumbaugh & Maholick, 1969), the most widely used instrument is the Meaning in Life Questionnaire (MLQ). This questionnaire was originally developed by Steger et al. (2006) to measure the two main dimensions of MIL: Presence and Search for meaning in life. It is a self-report questionnaire consisting of 10 items rated on a 7-point scale ranging from 1 (absolutely false) to 7 (absolutely true). The MLQ is composed of two subscales with five items each. On the one hand, the Presence of meaning subscale is composed of items 1, 4, 5, 6, and 9 (the latter item is inverse). This scale measures the extent to which the person has found genuine and authentic meaning in his/her life. Some representative items on the subscale are: “*I understand my life’s meaning*”; “*My life has a clear sense of purpose*”; and “*I have a good sense of what makes my life meaningful*”. On the other hand, the Search for meaning subscale is composed of items 2, 3, 7, 8, and 10. This subscale measures the extent to which the person is searching for meaning in life. Some representative items are: “*I am looking for something that makes my life feel meaningful*”; “*I am always looking for my life’s purpose*”; and “*I am seeking a purpose or mission for my life.*” The scores range from 5 to 35, and higher scores show higher presence of meaning or greater searching for meaning in life.

To develop the MLQ, 83 items were originally created that collected the concepts and main constructs of the most relevant theories and questionnaires on meaning. Of the 83 items, 44 were initially selected. These 44 items formed a self-report that was administered to a sample of 151 American college students. In a first study, an exploratory factor analysis (EFA) was performed. Two main factors appeared, and the MLQ was reduced to 17 items (9 on the presence subscale and 8 on the search subscale). The former referred to the presence of meaning or purpose in a person's life. The latter referred to the search for meaning.

Subsequently, two Confirmatory Factorial Analyses (CFA) of a 10-item model (5 for presence and 5 for search) were performed in two different samples, identifying two independent factors. CFA indicated that the best model had five items in each factor. The factors of Presence and Search were correlated ($r = -.19$), and internal consistency was good for Presence (.86) and Search (.87). One-month test-retest reliability coefficients were .70 for Presence and .73 for Search. Scores did not differ across gender, race, or year in school. Thus, Steger et al., (2006) suggested that the two factors are relatively independent and can be assessed separately.

The MLQ factorial structure has been analyzed in different non-clinical samples, and the results showed that it is a reliable measure with good internal consistency. The Japanese translation was validated with a sample of Japanese ($N = 982$) and American ($N = 1183$) participants with a mean age = 20.4 years old ($SD = 4.2$) (Steger, Kawabata, et al., 2008). They conducted multigroup CFA and confirmed the original two-factor structure across the two cultures, showing invariance. The association between Presence and Search in the Japanese sample was positive ($r = .21$), and in the American sample, it was negative ($r = -.21$). In Turkey, with a sample of 837 Turkish participants with a mean age of 24.24 ($SD = 3.78$) and Americans with a mean age of 28.34 ($SD = 11.10$), CFA confirmed the two-factor model and the structural invariance of this scale across Turkish and USA samples. The Presence and Search subscales were negatively associated ($r = -.41$) (Boyras et al., 2013). In a South African sample composed of 326 adults (Temane et al., 2014), CFA confirmed the two-factor model for the English version of the MLQ. Presence and Search were negatively associated ($r = -.19$). The authors found that younger people, compared to adults and older people, tend to score higher on Search. In a sample of Hong Kong caregivers of patients with chronic illness ($N = 223$) with a mean age of 54.7 years ($SD = 14.2$), CFA confirmed the original model with the same two-factor structure: Presence and Search. The correlation between Presence and Search was positive and moderate ($r = .47$) (Chan, 2014). In the Brazilian adaptation (Damasio & Koller, 2015), the original factor structure was analyzed in a sample of 3020 adult participants ($M = 33.92$ years, $SD = 15.01$), and CFA provided evidence that the Presence and Search subscales presented better goodness-of-fit indexes when evaluated separately. Moreover, a Multiple group CFA achieved full measurement and structural invariance for gender and age (young people, adults, and the elderly) groups. The results showed that young women presented higher levels of Search than the group of adults, whereas no such differences were found in men. Presence and Search had a low and negative correlation ($r = -.11$). In the Greek version (Pezirkianidis et al., 2016) with adult participants ($N = 6287$) with a mean age of 37.49 ($SD = 13.65$), the two main MLQ factors were found in the EFA. In the Chinese adaptation (Jiang et al., 2016) ($M = 20.95$ years, $SD = 1.41$), CFA was employed, showing goodness of fit for the original model, and the measurement model was invariant across males and females. Presence and Search had a low and positive association ($r = .12$). In India, with Hindi-speaking ($N = 826$) adult participants, CFA confirmed the original two-factor structure, explaining 56.42% of the variance. Presence and Search were negatively associated ($r = -.36$) (Singh et al., 2016). In Nigeria, with 809 internally displaced adults ($M = 33.69$ years, $SD = 13.18$) who spoke Hausa, CFA was conducted, and the original two-factor structure of the MLQ was

validated (Chukwuorji et al., 2019), with a high and positive correlation between Presence and Search ($r = .72$). Regarding age, no significant differences were found between young and older participants, and in the case of gender, the only significant difference was in Presence, with females scoring higher than males. In Italy, Negri et al., (2020), in a study with 464 adults ($M = 39.34$ years, $SD = 10.86$), performed CFA that supported the two-factor structure, and the two subscales were negatively correlated ($r = -.49$). No gender differences were detected, but older participants reported greater presence and lower Search than younger participants. In the Romanian population (Balgiu, 2020), the original factor structure was analyzed in a sample of undergraduate participants with a mean age of 19.29 ($SD = 1.42$), and CFA showed a two-factor model with gender invariance. However, the factor loading of item 9 was low (.38). In these samples, a low and positive association was found between the two scales ($r = .17$). Women participants obtained higher scores than the men. Moreover, the MLQ has been validated with adolescents in Australia in a sample of 135 participants with a mean age of 15.18 years ($SD = 1.42$) (Rose et al., 2017). The original two-factor structure was confirmed with CFA.

Regarding the psychometric characteristics of the MLQ in Spanish-speaking countries, Steger, Frazier et al., 2008, tested the psychometric properties of the Spanish version of the MLQ with a very small convenience sample of 46 Spanish undergraduate students ($M = 22.2$ years; $SD = 3.6$), and CFA supported the two-factor structure. In this study, Presence and Search were not correlated, and invariance across gender and age was not studied. In Argentina (Góngora & Solano, 2011), in a sample of 707 adults with a mean age of 34.12 years ($SD = 12.43$) and 128 adolescents with a mean age of 15.65 years ($SD = 1.58$), CFA showed a better fit of the two-factor model if item 9 on the Presence scale was removed. Presence and Search had a low and negative correlation ($r = -.11$), and in adult participants, no gender differences were detected. However, in adolescents, men showed higher scores on Presence than women. There was no study of invariance between genders or between young and older participants.

In sum, to date, the psychometric characteristics of the MLQ have been analyzed in numerous English-speaking countries and only in one study with Spanish adolescents. However, no studies have analyzed the psychometric characteristics of the MLQ in the Spanish adult population. Therefore, it is necessary to carry out studies that demonstrate the psychometric characteristics of the MLQ in the Spanish adult population.

The present study has the general objective of analyzing the psychometric properties of the MLQ in a sample of Spanish participants. To achieve this objective, we will first study the internal structure of the MLQ using a two-factor confirmatory model and testing its internal consistency. Second, we will analyze the differences in the invariance of the factorial structure of the MLQ depending on the gender and age of the participants. Third, we will analyze whether there are differences in the MLQ factor scores based on age and gender. And fourth, we will study the evidence of convergent and discriminant validity of the scale by relating it to other measures: purpose in life, depression, anxiety, and somatization.

Method

Participants

The sample consisted of 683 Spanish participants, of whom 80.4 % were women. The mean age was 35.05 ($SD= 13.72$), ranging from 18 to 83 years. In addition, 42.0 % were single, 5.9 % separated, 51.1 % married, and 1.0 % widowed. The level of studies in 49.6 % was university graduate; 33.1 % had a university master's degree, 16.3 % had secondary studies, and 1.0 % had primary studies.

Instruments

- a) *Meaning in Life Questionnaire* (MLQ, Steger et al., 2006), the Spanish version was translated by Steger, Frazier et al. (2008). The MLQ is a self-reported questionnaire made up of 10 items, and it was developed to assess the two main dimensions of meaning in life: Presence and Search of meaning in life. The items are rated on a 7-point scale ranging from 1 (absolutely false) to 7 (absolutely true). Both subscales are composed of 5 items. The subscales are calculated with the sum of the items that make up each subscale (Steger et al., 2006). Higher scores indicate greater Presence and Search of meaning, respectively. In previous studies, the two subscales have shown adequate reliability with coefficients $\alpha= .81$ for the Presence subscale and $\alpha= .90$ for the Search subscale (Steger et al., 2008).
- b) *Brief Symptoms Inventory* (BSI-18, Derogatis, 2001), Spanish version by Andreu et al. (2008). The BSI-18 is a self-applied test that consists of 18 items referring to physical, anxious, and depressive symptoms, with responses given on a 4-point Likert scale ranging from 0 (not at all) to 4 (very much). It is made up of three subscales: Depression (6 items), Somatization (7 items), and Anxiety (6 items). The IBS is composed of three subscales: Depression (6 items), Somatization (6 items), and Anxiety (6 items). The score of each subscale is computed with the sum of each of the items that compose it, a higher score indicates greater psychopathology. The three subscales have shown adequate reliability with coefficients $\alpha= .88$ for the Depression subscale, $\alpha= .78$ for Somatization, and $\alpha= .71$ for Anxiety (Andreu et al., 2008).
- c) *Purpose in Life-10* (PIL-10; García-Alandete et al., 2013). The PIL is a 10-item Likert-type scale with seven response categories (1 to 7). It offers a measure of different aspects of meaning in life (e.g., "In life I have many definite goals and longings", "My life is empty and full of despair", "If I died today, it would seem to me that my life has been very valuable", "I consider that my ability to find meaning in life is very great", "I have discovered clear goals and a satisfactory purpose for my life"). The PIL-10 is composed of 2 subscales: Meaning and Satisfaction (5 items), and Vital Goals (5 items). The score of each subscale is computed with the sum of each one of the items that compose it, a higher score

indicates greater Meaning in life and Satisfaction, and greater presence of Life Goals. In previous studies, the two subscales have shown adequate reliability with coefficients $\alpha = .81$ for the Meaning and Satisfaction subscale and $\alpha = .84$ for the Vital Goals subscale ($\alpha = .71$) (García-Alandete et al., 2013).

Procedure

The sample was obtained through the massive distribution of emails in several colleges and universities in Spain (through Facebook, Twitter, LinkedIn, and personal contacts) that contained the description of the study. Once the students had read about its characteristics, they decided whether they wanted to participate. The inclusion criteria were: a) They had to be over 18 years old and speak Spanish perfectly, b) They had to sign the informed consent, and c) The participants could not have any diagnosis of a mental disorder. All the participants provided their consent to participate in the study, and they answered a 20-minute survey using the Google Forms online platform. In this online survey, the following question appeared: "Are you currently diagnosed with a mental disorder?" "Indicate which one". They did not receive any compensation for participating in the study. The study was approved by the ethics committee of the University.

Data analyses

First, the distribution of the main variables contemplated in the study, including the MLQ items, was analyzed using the SPSS V.18. Second, evidence of the internal validity of the MLQ was studied using CFA with the AMOS V.7.0 program (Arbuckle, 2006). The sample consisted of 683 participants for the 10 indicators (10 test items), yielding a ratio of $183/10 \approx 18$ participants per indicator, which far exceeds the recommended minimum of 100 participants and 10 times the number of indicators (Byrne, 2001). The absolute goodness of fit statistics used to measure the fit of the model to the empirical data were: the ratio χ^2/df (Bentler & Bonett, 1980), with values below 3 indicating a good fit; and Goodness of Fit Index (GFI) (Jöreskog & Sörbom, 1993), with values above .95 indicate good fit. The incremental fit indices that compared the resulting model with the null model were: the Normed Fit Index (NFI) (Bentler & Bonett, 1980), values above .95 indicate good fit and that the empirical model is significantly different from the null model. Moreover, the parsimony indices that evaluated the fit of the evaluated model based on the number of estimators were: the Parsimony Goodness of Fit Index (PGFI) (Jöreskog & Sörbom, 1993) and the Parsimony Normed Fit Index (PNFI) (James et al., 1982), with values above .50 indicating a good fit. Third, the internal consistency (Cronbach's alpha) of the factors obtained with the CFA and the internal discrimination of the test (biserial-point correlation) were calculated with the SPSS. Fourth, the factorial invariance of the factors obtained as a function of the age and gender was studied with the AMOS program. In order to see the possible group differences in the two factors of the MLQ, an inter-subject ANOVA was carried out for each factor, using age (23 years old or less and 46 years old or more) and gender as independent factors. Finally, the Pearson correlation was calculated between the MLQ factors and

the rest of the measures included in the study in order to find evidence of convergent and discriminant validity with the SPSS.

Results

Table 1 shows the main descriptive statistics of the 10 items of the MLQ and of the different measures applied in the study. The asymmetry and kurtosis values were adequate for all the measures, according to West et al. (1995) asymmetry below 2 in absolute value, kurtosis below 7 in absolute value.

Table 1
Descriptive statistics, asymmetry, kurtosis and biserial-point correlation for the items of the Meaning in Life Questionnaire (MLQ) and the other used measures

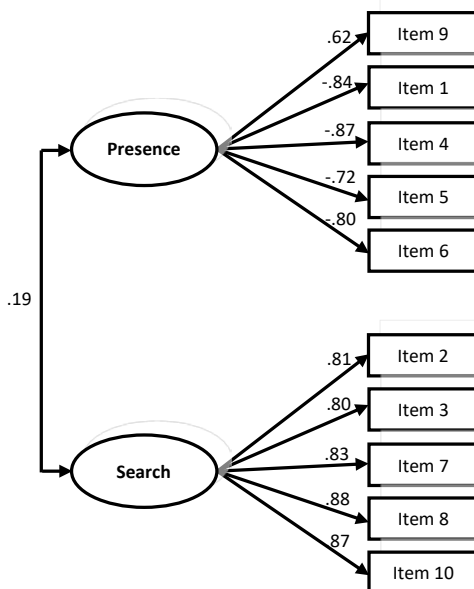
Instruments	<i>M</i>	<i>SD</i>	Asymmetry	Kurtosis	Biserial-point correlation
Meaning in Life Questionnaire (items)					
1. I understand my life's meaning	5.48	1.42	-1.01	0.83	.753
2. I am looking for something that makes my life feel meaningful	3.96	2.00	-0.06	-1.29	.760
3. I am always looking to find my life's purpose	4.28	1.87	-0.31	-1.00	.780
4. My life has a clear sense of purpose	5.06	1.56	-0.67	-0.13	.807
5. I have a good sense of what makes my life meaningful	5.30	1.42	-0.90	0.60	.714
6. I have discovered a satisfying life purpose	5.47	1.38	-1.00	0.87	.759
7. I am always searching for something that makes my life feel significant	4.16	1.88	-0.19	-1.08	.802
8. I am seeking a purpose or mission for my life	4.21	1.87	-0.30	-1.03	.844
9. My life has no clear purpose	2.71	1.83	0.80	-0.58	.527
10. I am searching for meaning in my life	3.78	2.04	0.04	-1.30	.801
Purpose in Life	53.37	10.30	-0.99	1.49	--
Brief Symptoms Inventory (Somatization)	5.72	5.67	0.78	-0.52	--
Brief Symptoms Inventory (Anxiety)	6.90	6.00	0.87	-0.16	--
Brief Symptoms Inventory (Depression)	6.72	5.76	0.86	-0.17	--

Evidence of internal validity

Taking into account that the multivariate kurtosis presented a value of 41.45, we decided to use the Unweighted Least Squares method as an adjustment procedure (Hair et al., 1999). In Figure 1 you can see the contrasted CFA for the

MLQ. The Presence factor explains 38.51% of the total variance, and the Search factor explains 28.44% of the total variance. The two factors were obtained with a low correlation (.19). The goodness of fit indices was quite acceptable: $\chi^2/df=91.59$, GFI= .980, NFI= .970, PGFI= .606, PNF= .733. Therefore, we can consider that the data fits quite well to a factorial model of two independent factors called Presence and Search. The factorial weights for the items that make up each factor are greater than $|\pm .40|$, which reflects that the contribution of the different items to the factor is quite high.

Figure 1
CFA for MLQ in the total sample



Reliability

The internal consistency, measured with Cronbach's alpha, was .870 for Presence, .922 for Search, and .88 for the total scale, which are high values. In addition, the biserial-point correlation of each item with respect to the factor to which it belongs present values $> .20$, which is three minimum recommended (Abad et al., 2011) (see Table 1), specifically they are values between .527 and .844, which indicates that the internal discrimination of the scale is very good.

Factorial invariance

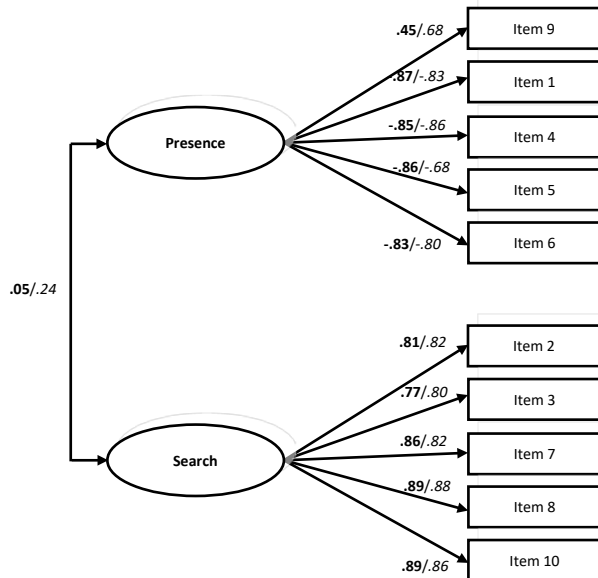
We checked whether the factorial structure differed according to the gender of the participants. Taking into account that they did not present a multivariate normal distribution of the items on the questionnaire, we used the unweighted least

squares estimation procedure. Table 2 shows that the χ^2 results are statistically significant at 5% for the different models compared: A and B, B and C, and C and D. Therefore, we cannot assume factorial invariance for both genders (Cheung & Rensvold, 2002). Figure 2 shows the factorial weights of the model for each gender. The main difference is that for men the correlation between the two latent factors is .05, whereas for women it is .24. Both models present a very good fit to the data, as can be seen in the different goodness of fit indices in Table 2: GFI, NFI, PGFI and PNFI.

Table 2
Goodness of fit indices for in terms of gender

Specific model	χ^2	gl	χ^2/gl	GFI	NFI	PGFI	PNFI
Model A. Unconstrained	1928.79	42	45.92	.980	.970	.606	.733
Model B. Structural weights	2091.45	34	61.51	.978	.967	.676	.817
Model C. Structural covariances	2449.29	31	79.01	.975	.961	.700	.844
Model D. Measurement residuals	2498.67	21	118.98	.974	.961	.788	.950
Comparison of the models	$\Delta\chi^2$	Δgl	<i>p</i>				
Models A and B (metrical invariance)	162.66	8	< .001				
Models B and C (strong metrical invariance)	357.84	3	< .001				
Models C and D (strict metrical invariance)	49.38	10	< .001				

Figure 2
CFA for MLQ for each sex



Note: Bold font for men and cursive font for women.

To test the factorial invariance as a function of age, we decided to divide the sample into two extreme age groups. Age did not present a normal distribution: asymmetry index= 8.34 and kurtosis= -1.27. Therefore, the sample was divided according to the values of $Q_1= 23$ and $Q_3= 45$. Thus, the group of 23 years of age or less consisted of 194 participants, and the group of 46 years of age or more contained 164. In this way, the invariance in two extreme age groups can be tested. Table 3 shows the results for factorial invariance between the two groups on the MLQ. Because there was no multivariate normal distribution in the two age groups on the MLQ, the Unweighted Least Squares estimation procedure was used. As can be seen, there is no factorial invariance when comparing the models based on the χ^2 test. Results are statistically significant at 5%. Therefore, the factorial structure is different for the two age groups. The results appear in Figure 3. For younger individuals, the correlation between the two factors is .20, and for older individuals, it rises to .28. Both models present a very good fit to the data, as can be seen in the goodness of fit indices in Table 3.

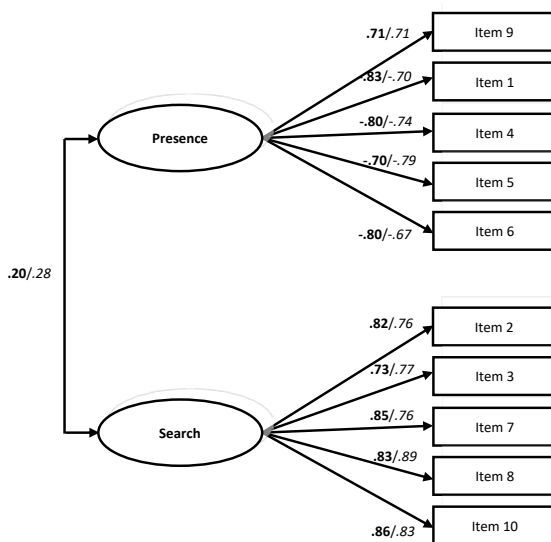
Table 3
Goodness of fit indices for in terms of age

Specific model	χ^2	gl	χ^2/gl	GFI	NFI	PGFI	PNFI
Model A. Unconstrained	1739.08	42	41.41	.967	.948	.598	.716
Model B. Structural weights	1864.12	34	54.83	.965	.944	.667	.797
Model C. Structural covariances	2325.74	31	75.02	.956	.931	.687	.817
Model D. Measurement residuals	2602.57	21	123.93	.951	.922	.770	.912
Comparison of the models	$\Delta\chi^2$	Δgl	<i>p</i>				
Models A and B (metrical invariance)	124.04	8	< .001				
Models B and C (strong metrical invariance)	461.62	3	< .001				
Models C and D (strict metrical invariance)	276.83	10	< .001				

Evidence of differences between groups

In the Search factor, there are no interactions between the two factors, $F_{(2,676)}= 0.345$, $p= .709$, $\eta^2_{\text{partial}}= .001$, $1 - \beta= .954$. There are no statistically significant differences depending on gender, $F_{(1,676)}= 0.012$, $p= .914$, $\eta^2_{\text{partial}}< .001$, $1 - \beta= .051$. However, there are statistically significant differences depending on the age of the sample, $F_{(2,676)}= 7.93$, $p< .001$, $\eta^2_{\text{partial}}= .023$, $1 - \beta= .954$, with a small effect size. The effect size (η^2_{partial}) according to Cohen's (1988) criteria is small at .01, medium at .06, and large at .14. The Bonferroni multiple comparisons test found statistically significant differences between people up to 23 years of age and people over 45 years of age (post hoc *t* test= 3.22, $p= .015$), with a higher search score for the younger age group ($M= 21.87$) compared to the older group ($M= 18.24$). There are also differences between the group from 24 to 45 years old ($M= 21.27$) and the group over 45 years old ($M= 18.24$) (Post hoc *t* test= 3.27, $p= .001$). Descriptive statistics appear in Table 4.

Figure 3
CFA for MLQ for each age



Note: Bold font for ≤ 23 years and cursive font for > 45 years.

Table 4
Descriptive statistics for age and gender in search and presence

Gender	Age (years)	n	Search		Presence	
			M	SD	M	SD
Woman	≤ 23	173	21,97	7,52	24,23	6,30
	24 to 45	205	21,07	8,52	26,81	6,20
	> 45	170	18,18	8,50	29,20	4,89
	Total	548	20,46	8,35	26,74	6,17
Man	≤ 23	21	21,05	8,73	23,86	6,81
	24 to 45	51	22,06	8,95	26,63	6,20
	> 45	62	18,40	8,42	26,50	6,35
	Total	134	20,21	8,78	26,13	6,40
Total	≤ 23	194	21,87	7,64	24,19	6,34
	24 to 45	256	21,27	8,60	26,78	6,19
	> 45	232	18,24	8,46	28,48	5,44
	Total	682	20,41	8,43	26,62	6,21

Table 4 shows descriptive statistics for the Presence factor. There are no statistically significant interactions between age and gender, $F_{(2,676)} = 2.19, p = .113, \eta^2_{\text{partial}} = .006, 1 - \beta = .448$, or between gender, $F_{(1,583)} = 1.31, p = .252, \eta^2_{\text{partial}} = .002, 1 - \beta = .208$. However, there are statistically significant differences depending on the age of the sample, $F_{(2,676)} = 10.82, p < .001, \eta^2_{\text{partial}} = .031, 1 - \beta = .990$, with a small effect size. Post hoc comparisons indicate differences between the group up to 23

years old and the group from 24 to 45 years old (post hoc t test= 2.67, p = .004), and between the group up to 23 years old and the group over 45 years old (post hoc t test= 3.81, p < .001). There was a higher average for participants over 45 years old (M = 28.48), followed by those between 24 and 45 years old (M = 26.78) and those up to 23 years old (M = 24.19).

Evidence of convergent and discriminant validity

Table 5 shows the correlations between the two MLQ factors and the different measures used in the present study. In the case of convergent validity, Presence was highly and positively associated with Purpose in life (r = .683), the two subscales of the PIL (Meaning and Satisfaction and Vital Goals) and moderately and negatively with Depression (r = -.495). Search was moderately and positively correlated with Anxiety (r = .300), Somatization (r =.295), and Depression (r =.335). Regarding the evidence of discriminant validity, Search had a low and negatively association with Purpose in life (r = -.102) and the PIL subscales. Presence was low and negatively related with Anxiety (r = -.282) and Somatization (r = -.246). This would provide evidence of the discriminant validity of each factor of the MLQ.

Table 5

Pearson correlations between the Meaning in Life Questionnaire (MLQ) factors and the other measures and internal consistency (Cronbach's alpha)

Variable (instrument)	1	2	3	4	5	6	7	8
1. Search (MLQ)	--							
2. Presence (MLQ)	-.16*	--						
3. Meaning and Satisfaction (PIL-10)	-.12*	.68*	--					
4. Vital Goals (PIL-10)	-.05	.71*	.76*	--				
5. Total (PIL-10)	-.10*	.73*	.96*	.90*	--			
6. Somatization (BSI-18)	.29*	-.24*	-.39*	-.30*	-.38*	--		
7. Anxiety (BSI-18)	.30*	-.28*	-.42*	-.37*	-.42*	.79*	--	
8. Depression (BSI-18)	.33*	-.49*	-.63*	-.53*	-.63*	.70*	.77*	--
M	20.38	26.61	30.67	22.70	53.37	5.72	6.90	6.72
SD	8.44	6.22	6.73	4.20	10.30	5.67	6.00	5.76
Range scores	5-35	5-35	6-42	4-28	10-70	0-23	0-24	0-23
Cronbach's alpha	.992	.870	.898	.855	.925	.872	.884	.884

Notes: MLQ= Meaning in Life Questionnaire; PIL-10= Purpose in Life-10; BSI-18= Brief Symptoms Inventory. *Correlations are statistically significant at 5%.

Discussion

The present study had the general objective of analyzing the psychometric properties of the MLQ in Spanish participants. Specifically, the first aim was to study the internal structure of the MLQ using a two-factor confirmatory model and its internal consistency. The second aim was to analyze the differences in the invariance of the factorial structure of the MLQ depending on the gender, and age of the participants. The third aim was to analyze whether there were differences in the

MLQ factor scores based on age and gender. Finally, the fourth aim was to study the evidence of the scale's convergent and discriminant validity by relating it to other measures: purpose in life, depression, anxiety, and somatization.

Regarding the first aim, our results showed that the data had a good fit to a factorial model with two independent factors called Presence and Search. This result confirms the original two-factor structure found by Steger et al. (2006) to evaluate the two fundamental dimensions of meaning in life: presence and search for meaning in life, and it also confirms the good psychometric properties of both factors. Moreover, the data from the present study would confirm the results obtained with the MLQ in numerous countries: Japan (Steger, Kawabata et al., 2008), Turkey (Boyras et al., 2013), South Africa (Temane et al., 2014), Hong Kong (Chan, 2014), Brazil (Damasio & Koller, 2015), Greece (Pezirkianidis et al., 2016), China (Jiang et al., 2016), India (Singh et al., 2016), Nigeria (Chukwuorji et al., 2019), Italy (Negri et al., 2020), Romania (Balgiu, 2020), Australia (Rose et al., 2017), and Argentina (Góngora & Solano, 2011).

Results obtained in the present study also show that these factors had a low and positive correlation, which would be consistent with results that indicated a correlation tending to zero, such as those obtained in Brazil (Damasio & Koller, 2015), China (Jiang et al., 2016), and Argentina (Góngora & Solano, 2011), and they would even be quite similar to those initially obtained by Steger et al. (2006). Therefore, our results would support this author's statement about the possibility of evaluating the two factors independently. Moreover, reliability was adequate for both the Presence and Search subscales.

Nevertheless, our results would contradict those obtained by some authors who reported high correlations between the presence and search factors, either negative, as in India (Singh et al., 2016), Italy (Negri et al., 2020), Turkey (Boyras et al., 2013), or Japan (Steger, Kawabata et al., 2008), or positive, as in Hong Kong (Chan, 2014) or Nigeria (Chukwuorji et al., 2019). The influence of the sociocultural, religious, and ecological context on MIL has been shown in numerous studies (Heintzelman & King, 2014; Steger, Kawabata, et al., 2008). However, studies of the MIL and its dimensions across different countries and cultures are scarce. Given these differences in the relationships obtained between the two MLQ factors, future research should try to deepen and clarify the possible reasons for these differences (Steger, Kawabata et al., 2008) (e.g., differences in religion or the influence of cultural characteristics, more independent Western societies vs more interdependent Eastern societies).

Regarding the second aim, our results revealed that we cannot assume factorial invariance for both genders (Cheung & Rensvold, 2002). In addition, our results showed that we cannot assume factorial invariance for age groups. This result would indicate that the factorial weights, the variance-covariance matrix, and the error variances are not equal in the two models, which implies that the factorial structure is different for both sexes and age groups.

These results are different from previous studies that found no gender differences in studies with adult participants (Negri et al., 2020; Steger et al., 2006). However, our results would even be quite similar to those obtained by Góngora & Solano (2011) in Spanish adolescents from Argentina. The culture we live in

influences our values and expectations (Markus & Kitayama, 1991), the development of our mental schemes about the world, our purpose and goals (Constantine & Sue, 2006), and MIL (Steger et al., 2008). Thus, our results would indicate that the Spanish cultural framework for making meaning could be different for women and men (from different age groups) possibly due to social influences, the practice of religion (mostly Catholic), culture, traditions, and family structures.

Regarding the third aim, on the search subscale, there were no statistically significant differences in terms of gender. However, there were statistically significant differences depending on the age of the sample: participants over 45 years of age showed lower scores on the search subscale than those under 23 and participants between 23 and 45 years old. On the presence subscale, there were no statistically significant differences in terms of gender. However, there were statistically significant differences depending on the age of the sample: participants under 23 years of age showed lower scores on the presence subscale than participants over 45 years old and participants between 23 and 45 years old. These results are consistent with previous studies that found that older participants show a greater presence of meaning and less search than younger participants. On the other hand, the younger participants present greater search and less presence of meaning (Garcia-Alandete et al., 2011). This result shows the need to carry out interventions aimed at building a life oriented towards functional sources of meaning in the developmental stages when people present a greater search and a lower presence of meaning in life, that is, in participants under 23 years of age, adolescents and young adults (Frankl, 1978). Based on the meaning making model of eating disorders (MESTA), it was shown that building a life oriented towards authentic and functional sources of meaning is a way to keep vulnerable people from being oriented towards dysfunctional sources of meaning and, thus, prevent the appearance of some mental disorders such as eating disorders (Marco et al., 2021).

Finally, regarding the fourth objective of the present study, the MLQ showed adequate convergent validity with measures of MIL and psychopathology, as previous studies also showed (Steger, 2012). Presence was highly and positively associated with Purpose in life, whereas Search was not. This result suggests that the Presence of meaning in life is quite similar to other constructs, such as Purpose in life assessed by the PIL, but the Search for meaning is an independent construct from Purpose in life.

Moreover, our results provide evidence of the divergent validity of each factor of the MLQ. Presence had a moderate and negative association with depression and a low and negative association with anxiety and somatization. These results are similar to other studies (Marco & Alonso, 2019; Negri et al., 2020; Steger, 2012; Volkert et al, 2014) that found that meaning in life was negatively associated with depressive symptoms and anxiety. Search for meaning was moderately and positively correlated with anxiety, somatization, and depression, which is similar to the results found by previous studies (Park, 2010).

This study has several limitations. First, the sample was obtained through the massive distribution of emails, and participation was voluntary. Therefore, the sample may not be representative of the population of Spanish population.

Although the data showed an adequate fit to the bifactorial model of the MLQ, they did not show invariance with respect to gender and age. This may be because the sample was not large enough. Thus, future studies should check whether the structural model of the MLQ is invariant for men and women and at different ages in a larger sample of Spanish participants. Moreover, our study does not include a test-retest analysis, and so future research should replicate our results in a longitudinal study and analyze test-retest reliability. Finally, another limitation of the study is that the sample was divided by age into groups that do not represent the typical developmental stages.

In sum, the present research provides support for the good psychometric properties and reliability of the MLQ in adult Spanish speakers from Spain, and the results suggest that the MLQ is an adequate measure to assess meaning in life and the two MIL dimensions of Presence and Search.

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