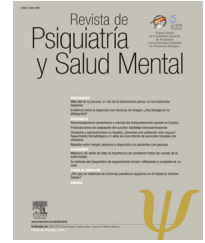




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ORIGINAL ARTICLE

Spanish adaptation and validation of the Peer Mental Health Stigmatization Scale (PMHSS-24)



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KEYWORDS

Stigma;
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Abstract

Introduction: There is currently a growing interest in interventions aimed at the reduction of stigma towards people with emotional difficulties in adolescents. Unfortunately, the number of scales available in Spanish to assess stigma at these ages is limited. This paper aims to adapt and validate the scale of stigmatizing attitudes towards mental health among peers (Peer Mental Health Stigmatization Scale PMHSS-24).

Material and methods: A total of 443 adolescents (46.6% female and 53.7% male) between 13 and 17 years of age participated ($M_{\text{age}} = 14.64$; $SD = 0.83$) in the 3rd and 4th grades of Obligatory Secondary Education. The internal consistency of the test was calculated, an exploratory factorial analysis (EFA) was performed with half of the sample and a confirmatory one (CFA) with the other half, and the invariance of measurement of the scale through sex was found.

Results: The EFA showed a two-factor structure for the negative scale (53% of the variance explained) and another 2 for the positive scale (62% of the variance explained). The CFA corroborated the factor structure with appropriate goodness-of-fit indicators ($CFI > 0.95$; $NNFI > 0.95$, $SRMR < 0.08$, $RMSEA < 0.08$). Factor loads ranged from 0.49 to 0.89, with α factor correlation between $r = 0.53$ and 0.45. Both subscales exhibited optimal alpha values (negative 0.94 and positive 0.81). The scale was invariant between the sexes.

Conclusions: The data suggest that PMHSS-24 may be a useful scale for the initial screening of the stereotypes exhibited by adolescents toward people with mental illness.

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PALABRAS CLAVE

Estigma;
Salud mental;
Adolescencia;
PMHSS-24

Validación y adaptación española de la Escala de Actitudes Estigmatizadoras hacia la Salud Mental entre Iguales (*Peer Mental Health Stigmatization Scale, PMHSS-24*)

Resumen

Introducción: En la actualidad, existe un creciente interés por las intervenciones con adolescentes encaminadas a la reducción del estigma hacia las personas con problemas de salud mental. Desafortunadamente, el número de escalas disponibles en castellano para evaluar el estigma en estas edades es reducido. El presente trabajo tiene por objetivo adaptar y validar en población española la Escala de Actitudes Estigmatizadoras hacia la Salud Mental entre Iguales (PMHSS-24).

Material y métodos: Participaron 443 adolescentes (46,6% mujeres y 53,7% hombres) de entre 13 y 17 años ($M_{\text{edad}} = 14,64$; $DE = 0,83$) alumnos de 3.º y 4.º de Educación Secundaria Obligatoria. Se calculó la consistencia interna de la prueba, se realizó un análisis factorial exploratorio (AFE) con la mitad de la muestra y otro confirmatorio (AFC) con la otra mitad, y se halló la invarianza de medición de la escala a través del sexo.

Resultados: El AFE arrojó una estructura de 2 factores para la escala negativa (53% de la varianza explicada) y otros 2 para la positiva (62% de la varianza explicada). El AFC corroboró la estructura factorial con adecuados indicadores de bondad de ajuste ($CFI > 0,95$; $NNFI > 0,95$; $SRMR < 0,08$; $RMSEA < 0,08$). Las cargas factoriales oscilaron entre 0,49 y 0,89, con una correlación entre factores $r = 0,53$ y $0,45$. Ambas subescalas exhibieron valores de α óptimos (negativa 0,94 y positiva 0,81). La escala fue invariante entre sexos.

Conclusiones: El PMHSS-24 puede ser un instrumento útil para el cribado inicial de los estereotipos que exhiben los adolescentes hacia las personas con dificultades emocionales.

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Introduction

The changes that have been taking place in recent decades in how the general population conceptualizes mental health issues are still very limited and it is not uncommon to see how negative attitudes towards people with these kinds of conditions continue to emerge. Stigma is a complex construct that encompasses three dimensions: cognitive (stereotype), affective (prejudice), and behavioural (discrimination). Ideas such as potential danger, unpredictability, weakness, or the idea that the patients are responsible to some degree for the appearance of their disorder are maintained as stereotypes that are not very sensitive to change.^{1–6}

Although prejudices are not usually articulated explicitly, the behavioural effects (discrimination) associated with them are clearly perceived by those affected, which has a significant impact on their lives, psychological well-being, self-esteem, and possibilities of fulfilling meaningful social roles.^{7–10} The self-stigma linked to their internalization impairs their sense of self and of belonging to the group (social identity) and can also be a barrier that limits the recognition of difficulties and effective search for professional help to resolve them.^{11–16}

Adolescence is a particularly relevant time when it comes to the developing anti-stigma strategies. First, because of the high incidence of emotional difficulties during this stage of life, estimated to be around 15–20%, in addition to the generalized opinion that these problems are both underestimated and undertreated.^{17–20} Second, because it is precisely at this stage of development that the ideas and stereotypes that will later come to shape the style of adult approach to

mental health problems begin to crystallize.^{21,22} The pooled data from the different meta-analyses and empirical studies also underscore that this is a stage that is very sensitive to change and that interventions at this age can be cost-effective with a limited investment of resources.^{23–29}

Understanding how adolescents conceptualize emotional difficulties and developing specific assessment instruments for this population are two of the key factors in developing effective acts targeting prevention and promotion. The process of affective, cognitive, and social development in which the adolescent finds themselves determines a particular construction of stigma that, in certain aspects, differs from that of the adult, so that these two populations do not appear to be comparable.^{6,30–36} Nevertheless, even today, the study of stigma in adults continues to receive preferential attention, which is reflected in the numerous scales that exist to articulate it in objective terms, although the limited reliability and psychometric properties of some of them continues to be underscored.³⁷

This problem can be extrapolated to the field of adolescent stigma, with the addition that there are considerably fewer measures. Although new instruments have recently been developed³⁸ and others have been validated in Spanish, they continue to be scant in number. We currently have some adaptations that have demonstrated adequate internal consistency and evidence of validity, but which, in our opinion, are limited for use with this population profile, either because they have been «exported» from the measurement of stigma in adults and are lengthy (as in the case of the *Community Attitudes towards Mental Illness, CAMI*)³⁹ or because, despite being shorter, the validation sample has not been profiled exclusively for this population

or because it focuses on a particular type of mental problem, such as the *Student Attitudes Towards Schizophrenia Questionnaire*.⁴⁰ Recently, the *Youth Program Questionnaire (YPQ)*⁴¹ has been adapted and validated in Catalan. This is a short assessment instrument, integrated into the *Open Minds*⁴² anti-stigma strategy, although no Spanish version is available.

The limitations derived from the dearth of tests are compounded by others, such as the need to adapt their contents to the specific age range (comprehensibility) or to the motivational requirements imposed by them (extension). Both of these factors are crucial from an intervention perspective. Typically, anti-stigma programs with adolescents are developed with significant time constraints, most often during school hours and within the context of the classroom itself. These circumstances, which are usually pointed out as an element to improve results,^{43–46} require that the evaluation process be highly optimized, with a controlled time load and that it not interfere substantially in the intervention itself. For all these reasons, measures must be available that display adequate psychometric properties and are brief, so as to facilitate their application. The *Peer Mental Health Stigmatization Scale (PMHSS-24)*⁴⁷ meets, a priori, these conditions: it is short and specifically designed for use with the adolescent population.

The objectives of this study were: (1) to adapt the PMHSS-24 to Spanish; (2) to study its factorial structure; (3) to ascertain the internal consistency of the scale, and (4) to analyse its measurement invariance across the sexes. It is hypothesized that with the sample analysed, a factor structure of the PMHSS-24 will be obtained that is similar to the one obtained in the original validation and that the scores will be reliable. It is assumed that the constructs being measured have the same structure and meaning in both sexes.

Material and methods

Participants

The study is part of the process of implementing a strategy to reduce stigma in the classroom undertaken by the Mental Health Clinical Management Unit of the University Hospital of Puerto Real through the "Lo Hablamos" program. Data collection was carried out collectively at the 5 centres of obligatory secondary education in Puerto Real that agreed to participate. The inclusion criteria for participants were: belonging to the centre in question, agreeing to take part in the study, being between 13 and 17 years of age, and being in the third or fourth year of obligatory secondary education. No explicit exclusion criteria were established so that the sample would resemble the actual students of those ages as closely as possible. The initial study sample consisted of 497 adolescents, 53 of whom were eliminated because of missing values in the sociodemographic variables or in the evaluation tests (3 or more unanswered items). The final convenience sample consisted of 443 participants (46.6% female and 53.4% male) aged 13–17 years ($M_{age} = 14.64$; $SD = 0.83$).

Measure

Before adapting the PMHSS-24 instrument, explicit permission was requested from the authors of the scale, who gave their authorization to use it in accordance with the objectives of the study. To carry out the study, the instrument was translated, adapted, and back-translated by a native Spanish-English speaker and vice versa.

The PMHSS-24⁴⁷ scale contains 24 *Likert*-type multiple choice items (from 1 to 5 points). The questions are worded in such a way that information can be obtained on both perceived stigma (beliefs about what others think about the individuals affected) and expressed stigma. In the original validation study, 2 subscales were outlined – a negative one with 16 items and a positive one with 8. The negative subscale is organized around 2 factors, "agreement with stigma" (8 items), which refers to the degree of personal identification with stigmatizing attitudes and behaviours, and "stigma awareness" (8 items), which alludes to the perception of these attitudes in others. These two factors accounted for 35.66% of the variance, with a Cronbach's value of 0.81 (agreement with stigma 0.75 and stigma awareness 0.71). The positive subscale contains 3 factors, "intellectual ability" (4 items), which includes positive beliefs about the intelligence of the afflicted person, "recovery" (2 items), which integrates ideas about his or her potential recovery, and "friendship" (2 items), referring to desires for interpersonal contact. These three factors accounted for 61.02% of the variance with a value of 0.67 (intellectual ability, 0.67; recovery, 0.73, and friendship, 0.44).

Procedure

The test was administered in a group setting within the context of the class itself and respecting the number of students in the class (groups of 25–30). Although the instrument has written instructions, said instructions were also given verbally to all the participants collectively to ensure better understanding. Apart from the above, two members of the research team were present during the test, to guarantee the possibility that individual doubts raised by the students could be addressed. The estimated completion time was 20 min. The guidelines by Muñiz and Fonseca⁴⁸ were followed regarding the procedure for administering the instrument. To guarantee confidentiality of the responses, the questionnaire was completed anonymously. Mothers, fathers, and guardians were informed of the study objectives and gave their written consent for their children to participate in the research. The study was approved by the Bioethics Committee of the Hospital de Puerto Real (Cádiz) and all the procedures performed with the participants guaranteed the ethical standards of the Declaration of Helsinki (2013) and its subsequent amendments.⁴⁹

Data analysis

The descriptive data (means and standard deviations), skewness and kurtosis of the PMHSS-24 and the percentage of affirmative responses to the items were analysed. Missing values were replaced by the item mean. The sample was ran-

domly divided into two halves and no statistically significant differences in sex or age were observed. Exploratory factor analyses (EFA) were carried out with one half and confirmatory factor analyses (CFA) with the other half. In order to find evidence of internal structure of the PMHSS-24 scale, two FFAs were performed with the *Robust Diagonally Weighted Least Squares* (RDWLS) extraction method on the matrix of polychoric correlations and prominent rotation. The intention of the two CFAs was to follow the same procedure as the authors of the scale. Subsequently, two CFA were performed using the RDWLS method, given the ordinal nature of the data. The goodness-of-fit of the model was assessed using the *Comparative Fit Index* (CFI), *Non-Normed Fit Index* (NNFI) (whose values should be greater than 0.90), *Root Mean Square Error of Approximation* (RMSEA) (whose values should not exceed 0.08 to be considered acceptable),⁵⁰ and *Standardized Root Mean Square Residual* (SRMR) (in which values close to 0 indicate a good model fit).⁵¹ To establish the scale's internal consistency, the ordinal and McDonald scales were used, which estimate reliability with greater precision than Cronbach's α for ordinal data.⁵²

Finally, an invariance analysis of the PHMSS-24 measure was performed by sex. In the first CFA, goodness-of-fit indicators were evaluated independently for males and females. Then, in the multigroup CFA, configural invariance (M0), which assesses whether the factor structure is equivalent between sexes, was analysed and, finally, strong invariance (M1) was assessed, in order to check that factor loadings and thresholds were similar in both males and females. In cases in which strong invariance was not reached, the invariant item was detected through the modification indices and freely estimated. To test for evidence of invariance, the M0 and M1 models were compared using a χ^2 test difference and the Δ CFI, whose value should be <0.01 .⁵³ Statistical analyses were calculated with SPSS 22⁵⁴, Lisrel 8.7⁵⁵, and Factor 10.8.04⁵⁶.

Results

Preliminary analyses

Table 1 displays the descriptive statistics of the PMHSS-24 scale items. Both skewness and kurtosis were not very high, although Mardia's test was statistically significant (23.06; $p < 0.001$), indicating non-compliance with multivariate normality. Responses to items with the options "strongly agree" and "agree" were grouped so as to obtain the percentage of affirmative responses. Items 15, 19, and 21 had a higher percentage of affirmative response. These items are related to acceptance and positive attitude towards people with mental health problems. The items with the least affirmative response frequency were 14, 16, and 24, all of which are associated with negative beliefs and attitudes toward people with emotional and behavioural problems.

Evidence of validity regarding the internal structure of the PMHSS-24 scale

Two EFAs were performed using the RDWLS extraction method with the first half of the sample ($n = 225$). In the first analysis, negative scale items were introduced. The

Kaiser-Meyer-Olkin was 0.84 and Bartlett's test was statistically significant $2(120) = 1.693.6$; $p < 0.001$), indicating that the correlation matrix can be factored. Parallel analysis recommended the extraction of two factors, which accounted for 52% of the variance. The structure was identical to that obtained by the authors of the scale. In the first factor, named by the authors "stigma awareness", items 2, 4, 5, 6, 8, 8, 10, 11, and 12 were saturated. In the second factor, corresponding to the dimension "agreement with stigma", items 14, 16, 17, 18, 20, 22, 23, and 24 were saturated. The EFA calculated with positive items yielded a *Kaiser-Meyer-Olkin* score of 0.79, with a statistically significant *Bartlett's test* ($\chi^2(28) = 577.5$; $p < 0.001$). With two factors recommended by the parallel analysis, 62% of the variance was explained. These factors did not coincide with those found by the creators of the scale. We named the first factor "acceptance"; items 13, 15, 19, and 21 were saturated. The second factor, denominated "standardization", items 1, 3, 7, and 9 were saturated (Tables 2 and 3).

Two CFA with the RDWLS method were carried out on the asymptotic covariance matrix with the second half of the sample ($n = 218$). Goodness-of-fit indicators for negative items were all adequate: *Satorra-Bentler* $\chi^2(103) = 210.95$; CFI = 0.97; NNFI = 0.96; RMSEA = 0.069 (90% CI: 0.56–0.83); SRMR = 0.077. Standardized factor loadings ranged from 0.53 to 0.85 and the correlation between the dimensions "agreement with stigma" and "stigma awareness" was $r = 0.53$. The positive items also obtained appropriate goodness-of-fit indicators: *Satorra-Bentler* $\chi^2(19) = 45.88$; CFI = 0.96; NNFI = 0.94; RMSEA = 0.080 (90% CI: 0.51–0.11); SRMR = 0.073. The correlation between the dimension "acceptance" and "standardization" was $r = 0.45$. The standardized factor loadings ranged from 0.49 to 0.89.

Estimation of reliability of PMHSS-24 scores

Internal consistency was estimated separately for the negative and positive scale items. The ordinal for the negative scale factors ranged between 0.88 and 0.90, while for the positive scale, it was between 0.65 and 0.71. The discrimination indices varied between 0.48 and 0.72. Table 4 provides the values of the α ordinal, McDonald's ω , and discrimination indices.

Descriptive analysis of mean scores

Mean scores on the scale factors were compared on the basis of sex. Statistically significant differences were reached for all factors except the "standardization" scale. Considering Cohen's criterion,⁵⁷ effect sizes were small, except for the factor "agreement with stigma" which was moderate (Table 5).

Invariance of the PMHSS-24 scale measurement across sexes

Adequate goodness-of-fit indicators were found independently in the male and female models for both negative and positive items. For negative items, the increase in CFI between M0 and M1 was greater than 0.01 and the

Table 1 Descriptive statistics of the *PMHSS-24*.

Items	<i>M</i>	<i>SD</i>	Asymmetry	Kurtosis	Percentage of affirmative response
PMHSS 1	2.40	1.16	0.40	−0.81	56.3
PMHSS 2	3.04	1.21	0.18	−1.09	41.4
PMHSS 3	2.70	1.08	0.23	−0.59	45.1
PMHSS 4	3.22	1.16	−0.04	−0.94	30.6
PMHSS 5	3	1.22	0.10	−1.06	41
PMHSS 6	3.57	1.13	−0.42	−0.67	19
PMHSS 7	2.27	1.02	0.12	−0.23	61.6
PMHSS 8	3.04	1.19	0.08	−0.88	35.2
PMHSS 9	2.38	1.07	0.031	−0.87	57
PMHSS 10	3.13	1.12	−0.01	−0.73	29.7
PMHSS 11	2.94	1.13	0.16	−0.70	37
PMHSS 12	3.12	1.24	−0.04	−1.05	35.4
PMHSS 13	1.93	0.97	1.01	0.72	75.7
PMHSS 14	4.10	1.10	−1.07	0.27	10.6
PMHSS 15	1.82	1.02	1.26	1.09	78.6
PMHSS 16	4.09	1.05	−1.15	0.741	9.3
PMHSS 17	3.70	1.18	−0.67	−0.37	15.8
PMHSS 18	3.87	1.11	−0.83	0.03	11
PMHSS 19	1.90	0.91	1.03	1.15	77.7
PMHSS 20	3.88	1.17	−0.89	−0.04	12.7
PMHSS 21	1.91	0.96	1.05	0.93	77.1
PMHSS 22	3.40	1.16	−0.21	−0.78	22
PMHSS 23	3.38	1.17	−0.18	−0.84	23.4
PMHSS 24	4.03	1.12	−1.07	0.12	10.1

χ^2 difference was statistically significant; therefore, strong invariance could not be confirmed. The equal threshold constraint for item 8 was released and the model was re-estimated to test for partial strong invariance. With this re-specification, partial strong invariance was confirmed ($p > 0.05$). For the positive items, no statistically significant differences were found between the M0 and M1 models ($\Delta CFI < 0.01$ and $p > 0.05$), confirming strong invariance. The data are presented in Table 6.

Discussion

The main objective of the present study was to adapt and validate the PMHSS-24 scale in Spanish. The results revealed that it is a valid and reliable instrument for detecting stigmatizing attitudes among adolescents towards persons with psychological disorders. The analyses carried out on the study sample found psychometric indicators that were somewhat higher than those referred to in the original. With regard to the negative scale (16 items), maintaining the two primitive factors, a percentage of explained variance of 52% was obtained (compared to 35.6% in the initial study), and interclass correlations between the items also improved, which in almost all cases exceeded 0.50 (range 0.371–0.879). On the other hand, the positive scale (8 items) did not maintain the primitive factor structure, but exhibited greater internal consistency with two factors, as opposed to the three that were proposed. These new factors called «standardization» and «acceptance» were grouped around four items each and explained a 62% percentage of variance, with high correlations between them (ranging

from 0.579 to 0.836). This new grouping of the positive scale not only improved the α values, but also made it possible to circumvent one of the most important weaknesses that, in our opinion, it exhibited in its initial three factor format, inasmuch as it proposed a less consistent structure: two of them contained only two items, which is far from psychometric recommendations.⁵⁸ The internal consistency of both the total negative and positive items and their factors was optimal.

This work presents some limitations that should be taken into account. It is a cross-sectional study, in which only the PMHSS-24 scale was administered. The fact that no other instruments are available to measure stigma in Spanish made it difficult to find evidence of the validity of the relationship with other variables. Other instruments could have been used, of stereotypes toward health in general, or of social desirability in order to see the convergence, but it was ultimately decided not to do so because they did not present sufficient substantive coherence with the primary instrument to establish relationships.⁴⁸ Nevertheless, with respect to the original study, this one provides measurement invariance across sex, previously unknown. The invariance analyses revealed that the PMHSS-24 has a comparable structure in both males and females and, as a result, the scores can be interpreted in the same way for each group (females and males), except for item 8, for which there were interpretative differences. The study was carried out in natural conditions and using broad inclusion criteria; possible confounding effects with other potentially intervening variables (socioeconomic status, prior history of mental health, IQ, etc.) were not controlled for.

Table 2 Exploratory factor analysis of the negative items of the PMHSS-24 scale with sample 1 ($n = 225$).

Items	Stigma awareness	Agreement with stigma
8. Most employers believe it is a bad idea to give a job to a person with emotional or behavioural problems	0.838	
4. Most people believe that teenagers with emotional or behavioural problems are dangerous.	0.810	
12. Most people are afraid of teenagers who visit a counsellor because they have emotional or behavioural problems.	0.805	
2. Most people reject teenagers who visit a counsellor because they have emotional or behavioural problems.	0.731	
5. Most people believe that teenagers with emotional or behavioural problems are not as trustworthy as other teenagers.	0.592	
6. Most people believe that teenagers with emotional or behavioural problems are to blame for their problems.	0.463	
11. Most people believe that teenagers with emotional or behavioural problems are not as good as other teenagers at taking care of themselves.	0.449	
10. Teachers believe that teenagers with emotional or behavioural problems do not behave the same as others in class.	0.313	
24. I would be afraid of someone if I knew that they had emotional or behavioural problems.		0.875
16. I believe that teenagers with emotional or behavioural problems are dangerous.		0.830
14. I would look down on a teenager that I knew had visited the psychologist due to their emotional or behavioural problems.		0.736
18. I believe that teenagers with emotional or behavioural problems are to blame for their problems.		0.725
17. I believe that teenagers with emotional or behavioural problems are not as trustworthy as other teenagers.		0.702
20. I believe that it is not a good idea for employers to give jobs to teenagers with emotional or behavioural problems.		0.652
22. I believe that teenagers with emotional or behavioural problems do not behave the same as others in class.		0.590
23. I believe that teenagers with emotional or behavioural problems are not as good as other teenagers at taking care of themselves		0.477

Table 3 Exploratory factorial analysis of the positive items of the PMHSS-24 scale with sample 1 ($n = 225$).

Items	Normalization	Acceptance
9. Most people believe that teenagers with emotional or behavioural problems can get good grades at school.	0.711	
3. Most teenagers would be delighted to spend time with someone who has emotional or behavioural problems.	0.641	
1. Most people believe that teenagers with emotional or behavioural problems are as intelligent as other children.	0.608	
7. Most people believe that teenagers with emotional or behavioural problems are going to get better some day.	0.497	
21. I believe that that teenagers with emotional or behavioural problems can get good grades at school.		0.762
15. I could have a good time with someone with emotional or behavioural problems.		0.725
13. believe that teenagers with emotional or behavioural problems are as intelligent as the rest.		0.685
19. believe that teenagers with emotional or behavioural problems are going to get better some day.		0.679

Table 4 Estimation of reliability of subscale scores, positive and negative total scale of PMHSS-24.

	α ordinal	ω coefficient	Discrimination index
Stigma awareness	0.90	0.84	From 0.58 to 0.72
Agreement with stigma	0.88	0.83	From 0.48 to 0.61
Normalization	0.65	0.63	From 0.50 to 0.64
Acceptance	0.71	0.74	From 0.57 to 0.60
Total negative scale	0.94	0.86	—
Total positive scale	0.81	0.70	—

Table 5 Contrast of means between PMHSS-24 subscales based on sex.

Variables	Female means (SD)	Male means (SD)	<i>t</i>	<i>gl</i>	<i>p</i>	Cohen's <i>d</i>
Stigma awareness	25.93 (7.06)	24.42 (5.74)	2.43	441	0.015	0.236
Agreement with stigma	32.28 (5.43)	29.03 (6.27)	5.71	441	<0.001	0.552
Normalization	9.81 (3.10)	9.63 (2.86)	0.64	441	0.525	0.06
Acceptance	7.16 (2.65)	7.83 (3.02)	2.46	441	0.014	0.236

Table 6 Goodness-of-fit indicators to test the measurement invariance of the PMHSS-24 scale between females and males.

	SB χ^2	<i>gl</i>	CFI	NNFI	RMSEA	Difference test		Δ CFI
						$\Delta\chi^2$ (Δ gl)	<i>P</i>	
<i>Negative items</i>								
Males (<i>n</i> = 237)	248.45	103	0.949	0.941	0.071 [0.0650, 0.089]			
Females (<i>n</i> = 207)	174.73	103	0.976	0.973	0.058 [0.0420, 0.071]			
Configural invariance (M0)	416.92	206	0.961	0.954	0.068 [0.0580, 0.077]			
Strong invariance (M1)	493.79	220	0.949	0.944	0.075 [0.0660, 0.084]	76.89 (14)	<0.001	0.012
Partial invariance	400.32	219	0.966	0.963	0.061 [0.0520, 0.071]	16.60 (13)	0.218	−0.002
<i>Positive items</i>								
Males (<i>n</i> = 237)	37.54	19	0.972	0.958	0.064 [0.0330, 0.094]	0.076		
Females (<i>n</i> = 207)	51.35	19	0.955	0.933	0.091 [0.0610, 0.121]	0.079		
Configural invariance (M0)	89.68	38	0.958	0.938	0.078 [0.0560, 0.099]	0.086		
Strong invariance (M1)	98.87	44	0.955	0.943	0.067 [0.0550, 0.094]	9.19 (6)	0.163	0.003

The instrument scores display good reliability indicators and have the advantage of assessing both perceived and expressed stigma. This may be where one of its limitations can be found, given that the construction of the items for this purpose might mislead the individuals being assessed, especially in the younger age ranges. Indeed, «putting oneself in the other person's head» requires a certain mental capacity that should not be a problem in the age ranges the questionnaire targets (adolescents from 14 years of age onwards), but which could make it difficult for younger individuals to understand. This could make the data less consistent. In any case, regardless of age, and even though the questionnaire has specific instructions on how the answers should be formulated, our recommendation is that the interviewer should give them verbally and make it possible to resolve any doubts prior to their appraisal.

Anti-stigma interventions in the school setting are an area receiving attention at the present time. Increasing the number of instruments in Spanish to measure stigma in adolescents is a necessary preliminary step to make it possible to conduct research in this field, which will help to outline

the differential efficacy of the various programs available. In this context, the incorporation of the PMHSS-24 may be a useful resource.

Conflict of interests

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