Self-esteem in Spanish secondary school students: dimensions and influence of personal and educational variables

Autoestima en estudiantes españoles de secundaria: dimensiones e influencia de variables personales y educativas

西班牙中学生的自尊：个人和教育变量的维度和影响

Самооценка испанских учащихся средней школы: размеры и влияние личных и образовательных переменных

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Abstract

Interest in self-esteem during adolescence is essential, because promoting positive self-esteem and reducing the impact of negative self-esteem enables the optimal development of many school and personal experiences and general well-being. This study aimed to evaluate the validity and reliability evidence of the Rosenberg Self-Esteem Scale in Spanish students and to determine whether gender, age, academic course and type of school are decisive for its development. A total of 698 Compulsory Secondary Education (CSE) students participated, grouped into two random samples (Sample 1: 364 students, M = 12.57, SD = .49, and Sample 2: 334 students, M = 14.62, SD = .48). The results identified a two-factor structure (positive self-esteem and negative self-esteem) (χ^2/df = 2.938, CFI = .948, NNFI = .924, SRMR = .045, RMSEA = .075), with high internal consistency (α = .853). Multivariate analysis showed that adolescents have higher positive self-esteem if they are male, are in first, second, or third grade CSE, and study in concerted schools, whereas male adolescents who study first grade CSE at ages under 13 present high negative self-esteem. The Rosenberg scale has been shown to have adequate psychometric properties to be used in secondary school students in Spain.

Keywords: self-esteem, psychosocio-educational intervention, students, quantitative methodology, Spain.

Resumen

El interés de la autoestima durante la adolescencia es fundamental, ya que promover una autoestima positiva y reducir el impacto de la autoestima negativa, posibilita el desarrollo óptimo de gran parte de las experiencias escolares, personales y de bienestar general. El presente estudio tuvo como objetivo evaluar las evidencias de validez y fiabilidad de la Escala de Autoestima (Rosenberg Self-Esteem Scale) en estudiantes españoles y comprobar si el género, la edad, el curso académico y el tipo de centro son determinantes para su desarrollo. Participaron un total de 698 estudiantes de Educación Secundaria Obligatoria (ESO) que se agruparon en dos muestras aleatorias (muestra 1: 364 alumnos, M=12.57; DT= .49 y muestra 2: 334 alumnos, M=14.62; DT= .48). Los resultados identificaron una estructura factorial de dos factores (autoestima positiva y autoestima negativa) (χ^2/gl= 2.938; CFI= .948; NNFI= .924; SRMR = .045; RMSEA= .075), con una consistencia interna elevada (α = .853). Asimismo, los análisis de multivarianza mostraron que los adolescentes presentan una mayor autoestima positiva si son de género masculino, cursan primero, segundo o tercero de ESO y estudian en centros concertados, mientras que exhiben una alta autoestima negativa los adolescentes de género masculino que cursan primero de ESO con edades inferiores a los 13 años. La escala Rosenberg ha demostrado tener propiedades psicométricas adecuadas para ser utilizada en estudiantes de educación secundaria de España.

Palabras clave: autoestima, intervención psicosocioeducativa, estudiantes, metodología cuantitativa, España.

摘要

青春期的自尊问题尤为重要，因为促进积极自尊和减少消极自尊的影响可以增强大部分的学校、个人和幸福体验。本研究的目的是评估西班牙学生自尊量表（Rosenberg自尊量表）的有效性和可靠性证据，并验证性别、年龄、学年和学校类型是否构成对其发展的决定因素。共有 698 名中等义务教育阶段的学生参与。我们将其分成两组随机样本（样本 1：364 名学生，M=12.57；SD=.49 和样本 2：334 名学生，M=14.62；SD=.48）。结果确定了由两个因子组成的因子结构，其分别为积极自尊和消极自尊（χ2/gl= 2.938；CFI= .948；NNFI= .924

; SRMR= .045 ; RMSEA= .075），并且该结构具有高内部一致性 (α = .853)。同样，多变量分析表明，在半公半私学校的中学一年级、二年级或三年级的男性青少年表现出较高的积极自尊，而年龄小于 13 岁的初中一年级男性青少年表现出较高的消极自尊。Rosenberg 量表已被证明具有足够的心理测量特性，可用于西班牙的中学生。

关键词: 自尊，心理社会教育干预，学生，定量方法，西班牙。

Аннотация

Интерес к самооценке в подростковом возрасте имеет фундаментальное значение, поскольку развитие позитивной самооценки и снижение влияния негативной самооценки позволяет оптимально развивать значительную часть школьного, личного и общего благополучного опыта. Целью настоящего исследования было оценить валидность и надежность шкалы самооценки Розенберга у испанских студентов и проверить, являются ли пол, возраст, учебный год и тип школы определяющими факторами для ее развития. Всего в исследовании приняли участие 698 учащихся обязательного среднего образования (ОСО), которые были разбиты на две случайные выборки (выборка 1: 364 учащихся, M=12.57; SD= .49 и выборка 2: 334 учащихся, M=14.62; SD= .48). Результаты выявили двухфакторную структуру (позитивная самооценка и негативная самооценка) (χ2/gl = 2,938; CFI = .948; NNFI = .924; SRMR = .045; RMSEA = .075), с высокой внутренней согласованностью (α = .853). Многомерный анализ также показал, что подростки имеют более высокую положительную самооценку, если они мужского пола, находятся на первом, втором или третьем году СОШ и учатся в школе, субсидируемой государством, в то время как подростки мужского пола, находящиеся на первом году СОШ в возрасте до 13 лет, демонстрируют высокую отрицательную самооценку. Было показано, что шкала Розенберга обладает адекватными психометрическими свойствами для использования среди учащихся средней школы в Испании.

Ключевые слова: самооценка, психосоциально-педагогическое вмешательство, студенты, количественная методология, Испания.

Introduction

Self-esteem has been widely defined as the assessment that people make about their own characteristics, abilities, and behaviors, and it is notable for being a subjective judgment that does not reflect the objective characteristics of the individual (Leary & Baumeister, 2000). Specifically, it focuses on personal feelings and beliefs about skills, intelligence, social relationships, and future expectations, which are expressed in a positive attitude of approval or a negative attitude of depreciation, and which indicates the extent to which people believe they are capable, relevant, successful, and deserving (Rosenberg, 1965). This affective reaction, in the sense of general judgment of one's personal worth, greatly affects feelings such as self-confidence and personal esteem (Schunk et al., 2008).

The role of self-esteem is frequently framed in dichotomous terms, that is, having high self-esteem or having low self-esteem. Despite this double differentiation, there is controversy about its accuracy (Kernis, 2003), as self-esteem is a subjective self-judgment, which incorporates the self-concept in different areas of one's life (O'Mara et al., 2006). This leads to establishing differences between global self-esteem and specific self-esteem, whose domain implies concrete assessments of different dimensions,

such as social, intellectual, or athletic self-esteem (Leary & Baumeister, 2000). At present, self-esteem has become one of the most solid concepts in psychology, also demonstrating its relevance in people's life development (Orth et al., 2018; Rhodewalt & Tragakis, 2003).

Currently, the measurement of self-esteem is highly relevant (Donnellan et al., 2011). Given the subjective nature of this construct, self-esteem is usually assessed with self-report scales. The questionnaire developed by Rosenberg (1965) has become the most used scale to measure self-esteem in social sciences but there are many different measures of self-esteem. One review identified about 200 different instruments (Butler & Gasson, 2005). However, most of these measures have been used less frequently and are not sufficiently valid, and a small set of measures accounted for most of the citations related to the assessment of self-esteem. In this sense, the most commonly used measure of global self-esteem is the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), followed by the self-perception profile (Harter, 1988), the Self-Esteem Inventory (Coopersmith, 1967), the scale of Feelings of Insufficiency (Janis & Field, 1959), the single-item Self-Esteem Scale (Robins et al., 2001), the Self-Description Questionnaire (Marsh, 1992), the Self-Liking/Self-Competence Scale (Tafarodi & Swann, 1995), or the Texas Social Behavior Inventory (Helmreich & Stapp, 1974).

The RSES usually scores on a metric ranging from 0 (deficient) to 30 (excellent), but some research also considers the sum of the values of the response options from 10 to 40, depending on the study and how the response categories have been coded and added (0-3 vs. 1-4). In the present study, the score was interpreted in the original range of 0-30, although conversions can be easily made by adding 10 to any particular score (Sinclair et al., 2010).

Studies that have analyzed its factorial structure have generally gained support for its unifactorial structure (Shevlin et al., 1995). On the contrary, some other works have determined a bifactorial structure, made up of positive self-esteem and negative self-esteem (Hensley & Roberts, 1976). The scale generally has high reliability, with a Cronbach's alpha for different samples within the range of .77 to .88 (Rosenberg, 1986).

Self-esteem is affected by the value that culture grants to its specific characteristics, abilities, and contextual influences (Bandura, 1977), as well as by gender and age differences (Bleidorn et al., 2016; Rodríguez & Caño, 2012), also highlighting more specific factors such as physical appearance or economic situation (Ul-Haq, 2016). A large-scale systematic cross-cultural study of gender and age differences in self-esteem found an age-related increase from late adolescence to middle adulthood (Bleidorn et al., 2016), later decreasing in old age (Orth, 2016). In the case of gender, the gaps are also significant, as men reported higher self-esteem than women (Bleidorn et al., 2016; Magee & Upenieks, 2019). Thus, age and gender differences have been considered as some of the best-established findings in the literature on self-esteem (Bleidorn et al., 2016).

The school environment is also closely related to self-esteem. In many cases, the relationship is bidirectional, that is, a high academic performance produces high self-esteem, and vice versa (Guay et al., 2004; Schunk et al., 2008). Some of the specific situations that can lead to negative self-esteem are being in a low-performing group or repeating the same school year (Covington, 1992). Twenge and Campbell (2001) performed a longitudinal meta-analysis across 26 years (1968 to 1994) and observed that overall self-esteem decreased in the transition to secondary education. Likewise,

it has been shown that high self-esteem is related to a better school experience, both from the academic and social points of view (Orth & Robins, 2014).

Thus, Nathaniel Branden (1969), who addressed self-esteem in depth, stressed that positive self-esteem is a basic human need, necessary for normal and healthy self-development. Especially during adolescence, personal resources such as high self-esteem, general self-efficacy, and professional adaptability can be of relevance because they help to face personal development challenges and can generate a positive impact on life satisfaction (Marcionetti & Rossier, 2019).

The importance of the study of self-esteem is supported by its being a powerful predictor of the psychological adjustment of the adolescent population during their school stage (Simón et al., 2017). In this sense, positive self-esteem helps young people to have good psychological adjustment, which, in turn, favors their social adaptation and can mediate the prevention of risky behaviors (Reina, 2017). In addition, it is a remarkable indicator of health and well-being, as well as an explanatory indicator of different variables of human behavior (Rosenberg, 1965) and other constructs such as self-concept (Marsh, 1986). In this sense, we must bear in mind that self-esteem can affect the mental health of adolescents (Marshall et al., 2014) or be a predictor of typical behaviors of this age group, such as those derived from eating disorders (Brechan & Kvalem, 2015). Some authors have even linked self-esteem to the likelihood of pregnancies during adolescence (Vernon et al., 1983), academic performance (Cvencek et al., 2018), or, more recently, the inappropriate use of social networks (Huaytalla et al., 2016), as well as situations of grooming (Schoeps et al., 2020), bullying (Resett, 2018), and cyberbullying (Mallmann, 2018).

Method

Objectives

The objective of this study is to analyze the psychometric properties of the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). We hope to achieve evidence of its validity (corroborate the original factorial structure and its convergent validity) and reliability (internal consistency). Likewise, we expect to verify the existence of significant differences in self-esteem according to gender, age, academic year, and type of school.

Population and Sample

The population under study was made up of adolescents studying Compulsory Secondary Education (CSE) in the Autonomous Community of Galicia (northwestern Spain). Specifically, this study was carried out with 698 students enrolled during the 2019/2020 academic year in the four courses that make up the secondary education stage. The sample was selected by random and probabilistic sampling, seeking the representativeness of the four Galician provinces, of the different urban and rural areas, as well as the representation of public and concerted schools. Two random samples were established according to the educational cycle. Thus, the first sample corresponds to the first cycle of CSE (first and second year) and is made up of 364 students (176 females and 188 males) with an average age of 12.57 years (SD = .49). The second sample consists of 334 students (153 females and 181 males) of the second cycle of CSE (third and fourth year), with an average age of 14.62 years (SD = .48).

Instruments

Two self-administered instruments were applied for data collection. First, an ad hoc questionnaire was developed that includes the sociodemographic and educational variables. Secondly, for the collection of specific information on the participants' self-esteem, we used the RSES (Rosenberg, 1965), in the adaptation to Spanish of Echeburúa (1995), which was compiled from the bank of the Mental Health Networking Biomedical Research Center (CIBERSAM, 2020). This instrument originally targeted the adolescent population, but more recently, it has also been used in the adult population (Lima & Souza, 2019). It consists of 10 items in the form of affirmations about personal worth and self-satisfaction. Half of the items are stated positively and the other half negatively. Statements must be assessed on a Likert scale (0 = *strongly disagree*; 1= *disagree*; 2= *agree*; 3 = *strongly agree*). For its correction, the scores of the items stated negatively (3, 5, 8, 9, and 10) must be reversed, and then all the items are added.

Procedure of data collection and analysis

This study used a prevalence, quantitative-analytical and cross-sectional design conducted in the four provinces of the Autonomous Community of Galicia. For data collection, we visited each of the institutes contacted whose directors had agreed to participate in the research and offered them the possibility of completing the questionnaire in written format or online. The questionnaire was always administered in the presence of one of the people who make up the research team. Previously, the school obtained the parents' or legal guardians' express authorization for the participation of the youngsters in the study, stressing at all times the voluntariness of their participation. All the questionnaires collected were identified as complete and there was no experimental mortality in the course of the investigation.

Frequency analyses and contingency tables were used to analyze the information, providing quantitative, cross-sectional, and descriptive results. Descriptive statistical analyses were carried out, as well as analysis of skewness and kurtosis. Likewise, principal components factor analysis with Varimax rotation was used to extract the factors. Multivariate analysis of variance (*MANOVA*) was also carried out, taking as dependent variables the subscales of positive self-esteem and negative self-esteem and as fixed factors gender, age, academic year, and type of center. The value of Wilks' Lambda was used to determine statistically significant differences between all the variables. The SPSS V.23 software for Windows was used for data analysis.

Before completing the questionnaire, participants were informed about the anonymity of their responses, and they gave their tacit informed consent. The provisions of the Organic Law of 3/2018, of December 5, on the Protection of Personal Data and the guarantee of digital rights were respected. The investigation respected the principles set out in the Helsinki Declaration.

Results

Item analysis: corrected item, skewness, and kurtosis

Table 1 shows the descriptive statistics, skewness, and kurtosis obtained after the application of the questionnaire (Sample 1). The corrected item-total correlation was positive for all items, with values between .330 and .707, indicating that all items contribute to calculating what the test measures and in the same direction. The alpha coefficient excluding the item (ranging between .826 and .851) did not exceed any of the alphas achieved for the whole test (α = .853). Consequently, the elimination of any of the items would not improve the reliability of the questionnaire. Finally, concerning the values of skewness and kurtosis, eight items presented skewness and positive kurtosis and two presented negative kurtosis with very low values (less than ± 2), which confirms the existence of univariate normality. In addition, through the Mardia test, we verified multivariate normality [Mardia coefficient = 19.64, lower than that reached 10x(10+2) = 120].

Table 1

Mean, Standard Deviation, Item-Total Correlation, Alpha excluding the Item, Skewness and Kurtosis of the RSES for Sample 1 (N = 364)

ITEMS	M	SD	Ri-t	α-i	S (ET=.09)	K (ET=.18)
R.1. I feel that I am worthy of esteem, at least as much as others	2.15	.87	.485	.845	-.890	.146
R.2. I feel like I have positive qualities	2.28	.70	.555	.840	-.992	1.460
R.3. In general, I'm inclined to think I'm a failure	1.89	.99	.606	.834	-.476	-.852
R.4. I can do things as well as most others	2.11	.83	.531	.841	-.625	-.282
R.5. I feel like I don't have much to be proud of	1.85	1.02	.481	.846	-.369	-1.052
R.6. I adopt a positive attitude towards myself	1.99	.92	.647	.831	-.672	-.358
R.7. Overall, I feel satisfied with myself	1.98	.87	.707	.826	-.635	-.216
R.8. I would like to have more self-respect	1.23	.93	.330	.851	.402	-.673
R.9. Sometimes I feel useless	1.43	.98	.582	.836	.255	-.958
R.10. Sometimes I think I'm useless	1.75	1.07	.669	.828	-.215	-1.268

Note. M = Mean; *SD* = Standard Deviation; Ri-t= Item-total correlation; α-i= Cronbach's alpha coefficient if the item is removed; S = skewness; K= Kurtosis.

Validity of the construct

Exploratory factor analysis of the RSES

A principal components factorial analysis with varimax rotation was used in the exploratory factorial analysis (EFS) in Sample 1, where the Kaiser-Meyer-Olkin test (.878) and Bartlett's sphericity test ($p < .001$) confirmed that the correlation matrix was spherical and that the sample was suitable for factor analysis. Thus, EFS was performed, obtaining the factorial structures of the variance explained by each factor and the factorial rotation of the RSES (Table 2). The criteria adopted for inclusion in each factor were: to insert each item in a single factor, to set an estimate of .40 as the minimum loading value, and to include an item that loaded on more than one factor only in the factor determined by the original questionnaire.

Table 2

Sample Adequacy Test (KMO) and Bartlett's Sphericity Test, Rotated Components Matrix, Communality and Variance explained by the RSES Factors after Rotation in Sample 1 (n = 364)

KMO = .878	Bartlett's sphericity test ($\chi^2(45) = 1215.44$, $p = .000$)		
ITEMS	FACTORS		COM.
	PS	NS	
R.7	.735		.708
R.4	.732		.564
R.2	.715		.533
R.6	.682		.652
R.1	.666		.454
R.9		.749	.604
R.10		.737	.665
R.8		.731	.551
R.3		.608	.518
R.5		.562	.467
Eigenvalues	4.31	1.29	Accumulated %
% Explained variance	43.09	12.97	56.06

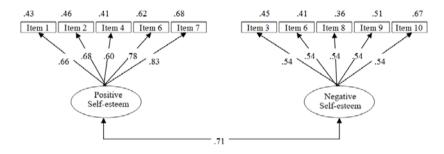*Note.* Extraction method: Principal components analysis.

Rotation method: Varimax with Kaiser normalization.

We note that all the items had communalities greater than .45. Two factors were extracted from the analysis, which accounted for 56.06% of the total variance of the data. Items 1, 2, 4, 6, and 7 were grouped into the first factor (explaining 43.09% of the variance), which represents Positive Self-Esteem (PS). The factorial weights for these items ranged from .66 to .73. The second factor (explaining 12.97% of the variance) grouped

Items 3, 5, 8, 9, and 10, designed to measure Negative Self-Esteem (NS). In this case, their factorial weights were between .56 and .74.

3.2.2. Confirmatory Factor Analysis of the RSES

Next, to confirm the orientation of the items and verify the relationships between the two factors, we performed confirmatory factor analysis (CFA) using the distribution obtained with the EFA of Sample 1. We proposed the initial measurement model established (Figure 1), which consists of two latent variables (Positive Self-Esteem [PS] and Negative Self-Esteem [NS]) and 10 observed variables (the items), but the CFA was performed with individuals from Sample 2. When specifying the model, high standardized loadings (values greater than .50) were observed (except for Item 8, where it was .40). The items that best define self-esteem are Item 7 (PS: Overall, I feel satisfied with myself) and Item 10 (NS: Sometimes I think I'm useless). Moreover, the correlation between the two factors was high (r = .71).

Figure 1

Bifactorial model of the RSES (2F) and goodness-of-fit indicators of the two models

Model	χ^2	df	χ^2/df	RMSEA$_{(90\% CI)}$	SRMR	GFI	NNFI	CFI
M2F	99.90	34	2.938	.075 (.058-.092)	.045	.946	.924	.948
M1F	223.48	35	6.385	.124 (.109-.140)	.066	.874	.829	.1851

χ^2: Chi squared; df: degrees of freedom; RMSEA: Root Mean Square Error of Approximation; CI: Confidence intervals; SRMR: Standardized Root Mean Squared Residual; GFI: Goodness-of-Fit Index; NNFI: Nonnormed Fit Index; CFI: Comparative Fit Index.

Taking into account that the items of the questionnaire present multivariate normality (Mardia coefficient), we estimated the parameters with the maximum likelihood procedure (ML). Two alternative measurement models were tested (Figure 1): a first two-factor model hypothesized from the EFA (M2F) and a second unifactorial model with the 10 items of the initial scale (M1F). The results indicate that the M2F presented the best goodness of fit (χ^2/df = 2.938, CFI= .948, NNFI= .924, SRMR = .045, RMSEA= .075).

Concurrent validity and reliability

The correlation between the two dimensions that make up the RSES was moderate and positive (r = .584) and statistically significant at the level of .001 (Table 3). Also, the reliability of the questionnaire, analyzed in terms of internal consistency, was calculated using the Cronbach's alpha coefficient for each factor. It can be observed that the reliability indices of the factors range from moderate to high, between .763 (NS) and .823 (PS). The global questionnaire also had high reliability (Cronbach's alpha = .853).

Table 3

Correlational Analysis of the Dimensions and Cronbach Alpha of the RSES

Factors	Correlation	Alpha (Questionnaire: .853)
Positive self-esteem	.584**	.823
Negative self-esteem		.763

Note. Significant correlation at levels ** p < .001.

Multivariate analysis (MANOVA) according to gender, age, academic year, and type of center

The means and standard deviations of the scores of the two subscales of the RSES (PS and NS) as a function of gender (female and male), age (< 13 years, 13-14 years, and >14 years), academic grade (1st grade of CSE, 2nd grade of CSE, 3rd grade of CSE, and 4th grade of CSE), and the type of center (public or concerted) are found in Table 4.

Table 4

Means and Standard Deviations of the Subscales of the RSES (PS, NS) according to Gender, Age, Academic Year, and Type of Center

		RSES Scale	
		Positive self-esteem M (SD)	Negative self-esteem M (SD)
Gender	Female	10.09 (3.46)	7.55 (3.54)
	Male	10.86 (2.98)	8.66 (3.56)
	Total	10.50 (3.23)	8.14 (3.59)
Age	< 13 years	11.36 (2.83)	8.85 (3.41)
	13 -14 years	10.38 (3.22)	7.89 (3.65)
	> 14 years	10.04 (3.41)	8.02 (3.58)
	Total	10.50 (3.23)	8.14 (3.59)

Academic year	1st grade CSE	11.14 (2.83)	8.63 (3.46)
	2nd grade CSE	10.34 (3.40)	7.79 (3.64)
	3rd grade CSE	9.41 (3.61)	7.53 (3.74)
	4th grade CSE	10.74 (2.93)	8.42 (3.48)
	Total	10.50 (3.23)	8.14 (3.59)
Type of center	Public	10.25 (3.32)	8.04 (3.58)
	Concerted	11.16 (2.89)	8.41 (3.63)
	Total	10.50 (3.23)	8.14 (3.59)

The two genders showed significant differences in the two RSES subscales, Wilks' Lambda = .98, F(2, 695) = 9.01, p < .001, ή2p = .025, power = .97. Univariate analyses indicated that there was a significant difference between male and female students on the two subscales (PS and NS). Male students had higher positive self-esteem (*M* = 10.86, *SD* = 2.98) than female students (M = 10.09, SD = 3.56), F(1, 697) = 9.97, p = .002, ή2p = .01, power = .88. Likewise, male students also had higher negative self-esteem (M = 8.66, SD = 3.56) than female students (M = 7.55, SD = 3.54), F(1, 697) = 17.14, p <.001, ή2p = .02, power = .99.

Age also showed significant differences in the two RSES subscales, Wilks' Lambda = .97, F(4, 1388) = 9.01, p < .01, ή2p = .013, power = .95. Univariate analyses revealed a significant difference between the age of the students and positive and negative self-esteem. Students younger than 13 years (M = 11.36, SD = 2.83) had higher positive self-esteem than students aged 13 or 14 (M = 10.38, SD = 3.22) and than students over 14 (M = 10.04, SD = 3.41), F(2, 695) = 8.01, p < .001, ή2p = .02, power = .95. Students younger than 13 (M = 8.85, SD = 3.41) had higher negative self-esteem than those aged 13 or 14 (M = 7.89, SD = 3.65), F(2, 695) = 4.05, p = .018, ή2p = .012, power = .72.

Likewise, the different academic grades also reflected differences in the two RSES subscales, Wilks' Lambda = .96, F(3, 694) = 4.86, p < .001, ή2p = .021, power = .99. Univariate analyses revealed significant differences in PS and NS between the four grades in which students were enrolled. Students in the first year of CSE (M = 11.14, SD = 2.83), second year of CSE (M = 10.34, SD = 3.40), and fourth year of CSE (M = 10.74, SD = 2.93) had higher positive self-esteem than students of the third year of CSE (M = 9.41, SD = 3.61), F(3, 694) = 9.18, p < .001, ή2p = .04, power = .99. Similarly, students who were in the first year of CSE had higher negative self-esteem (M = 8.63, SD = 3.46) than students of the third year of CSE (M = 7.53, SD = 3.74), F(3, 694) = 3.71, p = .011, ή2p = .02, power = .81.

Finally, the type of center also revealed significant differences in the RSES subscales, Wilks' Lambda = .98, F(2, 695) = 6.02, p < .01, ή2p = .017, power = .88. Univariate analyses indicated a significant difference between the type of center (public, concerted) and positive self-esteem. Students in concerted schools (M = 11.1,; SD = 2.89) had higher positive self-esteem than students in public schools (M = 10.14, SD = 3.32), F(1, 696) = 11.22, p < .01, ή2p = .016, power = .917. However, there was no significant difference between the type of center (public, concerted) and negative self-esteem, F(1, 696) = 1.46, p =.22, ή2p = .002, power = .227.

Discussion and conclusions

The objective of this work was to examine the psychometric properties of the Rosenberg Self-Esteem Scale in the Spanish adolescent population and to determine whether gender, age, academic year, and type of school are determinants of positive or negative self-esteem.

First, the factor analyses (exploratory and confirmatory) performed indicate a satisfactory bifactorial structure with high levels of internal consistency. Thus, the data show that the Spanish version of the scale presents a two-factor model that explains 56.06% of the total variance, with a grouping of items similar to the theoretical proposal, and with high consistency and reliability coefficients. These findings are similar to those found in previous investigations that also obtained two dimensions of the construct (Hyland et al., 2014; Marsh et al., 2010; McKay et al., 2014). However, they differ from the unifactorial structure initially proposed by Rosenberg (1965).

Through confirmatory factor analysis, the hypothetical fit to the original unifactorial model was confirmed and compared with a bifactorial model. The data confirm that the two-factor model (M2F) offers a satisfactory fit of the empirical data [$\chi 2/df= 2.938$; CFI= .948, NNFI= .924, SRMR = .045, RMSEA= .075], better than the original unifactorial model. A relevant longitudinal study of Marsh et al. (2010) shows that the single-factor model does not provide an optimal explanation of the RSES, concluding that longitudinal studies do not support the one-dimensional model, whereas the bifactorial model represents response styles that are stable over time. This is an important finding, given that the unifactorial model has been the most widely used in the context of research on self-esteem (Reise et al., 2016).

The internal consistency was measured with Cronbach's alpha, offering an excellent estimate of instrument reliability (Cronbach alpha = .853), similar to that obtained in previous studies, supporting the use of the RSES as a reliable assessment instrument to measure self-esteem (Franck et al., 2008; Ventura-León et al., 2018). Likewise, the coefficients obtained for each of the two dimensions of the test are optimal [Cronbach's alpha ranges from .763 (NS) to .823 (PS)].

In addition, the correlation between the factors that make up the construct "self-esteem" was positive and moderate (*r* = .584), which shows that the scores achieved in the two factors are separate. To conclude, based on our study sample, the questionnaire analyzed (two-factor model) meets sufficient requirements of factorial validity and reliability to be used in the above population.

When examining the dimensions analyzed, we noticed that adolescents evaluate themselves better in positive self-esteem than in negative self-esteem. Likewise, in positive self-esteem, we found a higher rating of feeling satisfied and adopting positive self-attitudes, while in negative self-esteem, the thought that one is good for nothing or feels useless prevails.

Likewise, gender differences in adolescents' self-esteem were verified with this questionnaire. Thus, gender significantly mediated in the two RSES subscales (PS and NS). Male adolescents had both higher positive and negative self-esteem than female adolescents. These results coincide with other studies that also conclude that gender differences in self-esteem generally consider that women have lower self-esteem shortly before adulthood (Bleidorn et al., 2016; Magee & Upenieks, 2019; Reina, 2017). Rodríguez and Caño (2012) indicate that men who attain personal achievements have high self-esteem, whereas women's self-esteem depends on external perceptions.

It has also been shown that age contributed to significant differences in positive and negative self-esteem. In fact, adolescents under the age of 13 years showed higher positive and negative self-esteem, from which it can be inferred that, as students grow older, both positive and negative self-esteem decrease. These data are in the line of the work by González et al. (2012) , who maintained that self-esteem decreases as age increases. However, investigations such as those carried out by Bleidorn et al. (2016) or Chung et al. (2017) confirmed a strengthening of self-esteem as the individual leaves adolescence. Thus, it can be said that self-esteem remains stable in childhood, suffers variations in adolescence (Rodríguez & Caño, 2012), and increases as people approach adulthood.

In the same way, the academic grade also contributes to differences in adolescents' positive and negative self-esteem. Students who attend first, second, and fourth grade of CSE have higher positive self-esteem than their classmates who study third grade of CSE. However, only first-grade CSE students had higher negative self-esteem than those in the third grade of CSE. Consequently, it can be inferred that the students enrolled in the third grade of CSE have worse positive and negative self-esteem than the rest of the academic grades of CSE. Likewise, students in concerted centers present better positive self-esteem than students in public centers. The same cannot be stated about negative self-esteem, which was not significant according to the type of center. However, the study conducted by Sigüenza et al. (2019) reported a high level of self-esteem in adolescents in public educational institutions.

Consequently, the importance of this study, as has been demonstrated in the longitudinal work of Trzesniewski et al. (2006), lies in the fact that people with low self-esteem during adolescence have a higher risk of suffering poorer physical and mental health in adulthood, a worse work and economic projection, and a higher likelihood of criminal behaviors, compared to adults who present higher self-esteem during adolescence. In this sense, better self-esteem in adolescence can be especially useful for the prevention of a wide range of behavioral, emotional, and health problems both in adolescence and in adulthood. Hence, the interest in having reliable and accurate instruments for its assessment.

In conclusion, the results achieved show that gender, age, academic year, and type of school can produce significant differences in the levels of self-esteem of the adolescent population in Spain. It has also been shown that the RSES has adequate psychometric properties and, therefore, is appropriate for use in this population.

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