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SELF-DESCRIPTION QUESTIONNAIRE II-SHORT (SDQ-II-S): MEASUREMENT PROPERTIES IN SPANISH ADOLESCENTS

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Abstract

Self-concept is a fundamental construct that is related to many positive and negative aspects of life. It plays an essential role in adolescence, due to the important biological, social and psychological changes that occur at this stage, and is a determining factor in the academic environment. In order to have appropriate instruments for its assessment, the aim of the study was to analyse the measurement properties and adapt the short version of the Self-Description Questionnaire II (SDQ-II-S) in Spanish adolescent. A sample of 726 secondary school students aged between 12 and 18 years (*M*= 15.44, *SD*= 1.41) participated. Descriptive analysis, correlation analysis, confirmatory factor analysis, reliability and invariance analysis were conducted. The different analyses confirmed the multidimensional structure of the questionnaire, with adequate factor loadings, satisfactory goodness-of-fit indices, convergent validity, and corroborated gender invariance. Composite reliability of the dimensions ranged from .70 to .92. In conclusion, the SDQ-II-S is an instrument with appropriate characteristics, valid and reliable for the assessment of self-concept in Spanish students in adolescence.
KEY WORDS: *self-concept, adolescence, SDQ-II-S, assessment, validation.*

Resumen

El autoconcepto es un constructo fundamental que se relaciona con muchos aspectos positivos y negativos de la vida. Tiene un papel esencial en la adolescencia, por los importantes cambios biológicos, sociales y psicológicos que se producen en esa etapa, y es determinante en el ámbito académico. Para disponer de instrumentos apropiados para su evaluación, el objetivo de este estudio fue analizar las propiedades de medida y adaptar el "Cuestionario de autodescripción II-abreviado" (SDQ-II-S) en adolescentes españoles. Participaron 726 estudiantes de educación secundaria, con edades de entre los 12 y 18 años (*M*= 15,44; *DT*= 1,41). Los diferentes análisis confirmaron la estructura multidimensional del cuestionario y un buen ajuste del modelo, con saturaciones factoriales adecuadas, índices de bondad y ajuste satisfactorios, validez convergente, y corroboraron la invarianza de género. La fiabilidad compuesta de las dimensiones osciló entre 0,70 y 0,92. El SDQ-II-S es un instrumento con

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apropiadas características, válido y fiable para la evaluación del autoconcepto en estudiantes españoles en la adolescencia.
PALABRAS CLAVE: *autoconcepto, adolescencia, SDQ-II-S, evaluación, validación.*

Introduction

Self-concept is the mental perception or representation that individuals have of themselves, bringing together the way they represent, know and value themselves (Harter, 2012). This set of descriptive and evaluative judgements that the person makes about themselves is constructed through their own experiences and those of others, their relationships with the environment, and the attributions that they make of their own behaviour (Chen et al., 2021; Shavelson et al., 1976).

Self-concept has a key impact, as it relates to many transcendental issues (Brown et al, 2023). On the one hand, a positive self-concept has been associated with general psychological well-being (DeBettignies & Goldstein, 2020; Liu et al., 2020; Mo et al., 2019), efficient coping and adaptation (Tomaka et al., 2013), social support and positive relationships (Tomaka et al., 2013; Xu et al., 2019), or authenticity and self-acceptance (Taylor & Montgomery, 2007; Tomaka et al., 2013; Wright et al., 2018), among others. On the other hand, a negative self-concept has been shown to be linked to general mental health problems (Mo et al., 2019; Xu et al., 2019), anxiety (Mo et al., 2019; Versluis et al., 2018), depression (Swann et al., 2007), worst stress coping (Liu et al., 2019; Mo et al., 2019), substance abuse (Tam et al., 2020), or eating disorders (Perry et al., 2008; Taylor & Montgomery, 2007), among many other problems.

In the last decades self-concept has been assumed to be a multidimensional construct. There is strong evidence from non-experimental and experimental studies to show that the components of self-concept are so different from each other that they cannot be explained by a single overall component (Marsh et al., 2006). Initially, young children's self-concept is global, undifferentiated and highly situation-specific, but as cognitive development progresses and as a product of interactions with the environment, children are recognising that their attributes and behaviours change from context to context (Calero & Molina, 2016). People can construct their different types of self-concept according to the environment in which they live, the significant events in their lives, the social relationships they establish and the social role they play (Bermúdez et al., 2012). The ability to categorise events and situations, to integrate different parts of experience into a single conceptual framework, and the acquisition of verbal labels produces an increasing differentiation in the self-concept which is expressed in an increase in the number of its domains (Harter, 2012; Shavelson et al., 1976). Therefore, a widely accepted and widespread model is that proposed by Shavelson et al. (1976), which proposes that self-concept is a multidimensional construct composed of five dimensions: academic, emotional, social, physical and family. Different studies have demonstrated this multidimensionality of self-concept in different settings, such as in educational contexts, in developmental psychology,

mental health research, personality research and gender studies (see Marsh et al., 2006).

Self-concept plays an essential role in adolescence. Adolescence is a developmental stage of transition to adulthood, and a crucial period of change characterised by important biological, social and psychological changes (Crone, 2017; Parise et al., 2019). At this stage, young people are susceptible to multiple and important influences, as their personalities are still developing and have not yet been consolidated (Slobodskaya, 2021).

Several studies have corroborated the significant role of self-concept in adolescents. Thus, a high self-concept predisposes them to be emotionally stable, sociable and responsible (Calero & Molina, 2016), a greater sense of satisfaction with life and greater psychological wellbeing (Palacios et al., 2015) and plays a central role in the experience of the sense of life (Liu et al., 2023; Shin et al., 2016). It is also associated with positive emotions (Bieg et al., 2014), better social functioning and satisfactory peer relationships (Esnaola et al., 2008; Jelalian et al., 2011), higher self-efficacy (Rabiei et al., 2013), and is negatively associated with bullying victimization (Shemesh & Heiman, 2021). However, a low self-concept also predisposes adolescents to develop psychiatric pathologies, such as depression, anxiety, social phobia, or feelings of inferiority, and to increase their intentions to consume tobacco (Freitas et al., 2022; Melguizo-Ibáñez et al., 2023; Palenzuela-Luis et al., 2022a), among other problems.

Likewise, in adolescence, the academic aspects of self-concept are crucial. Academic self-concept represents self-related beliefs and expectations about one's ability to succeed in academic tasks and is considered a prerequisite for achievement motivation (Wigfield & Eccles, 2000). Previous research has shown that self-concept is associated with educational performance (Craven & Marsh, 2008; Nagengast & Marsh, 2012), positively influencing students' commitment to learning and actively seeking a sense in their lives, and to be more optimistic about the future (Liu et al., 2023).

When assessing self-concept, an instrument of particular interest due to its widespread use is the Self-Description Questionnaire II (SDQ-II; Marsh, 1992). This original questionnaire is a self-report measure designed to assess self-concept in adolescents aged 12-18 years. It consists of 102 items distributed in 11 scales. Three of them are academic factors: Math (one’s interest and ability in mathematic reasoning), Verbal (interest and ability in language and reading) and General School (one’s interest and abilities in schoolwork). Seven scales are non-academic: Physical abilities (skills/interest in physical/sporting activities), Physical appearance (one’s physical attractiveness to others), Parent relations (relationship with one's own parents), Opposite-sex relations (interactions with members of the opposite sex), Same-sex relations (interactions with peers of the same sex), Honesty-Trustworthiness (one’s dependability and truthfulness), and Emotional stability (one’s freedom from emotional dysfunction). It also features a global component, General self or Self-esteem (one’s feelings of self-worth, self-confidence and self-satisfaction). The SDQ-II has validation studies in different countries, and together with the Self-Concept Form 5 (AF-5; García & Musitu, 2014), they are the

instruments with the largest number of studies in recent years, which shows their validity and reliability (Pulido et al, 2023).

Also, an instrument widely used internationally is the SDQ-II in short version (SDQ-II-S). In the study by Marsh et al. (2005), factor analyses revealed a factor structure based on responses to 51 items, and the reliabilities for the 11 factors were consistently high (0,80 to 0,89). In addition, multitrait-multimethod analyses supported the internal validity of the responses over time, with the effects of gender and age being invariant across the 11 factors.

Validation studies of the SDQ-II have been carried out in different countries, but there have been few studies of the SDQ-II-S. There is a version translated into Spanish for use in the Chilean population (Lagos-San Martín et al., 2016), which presented adequate psychometric properties. In Spain, the extended version of the 102-item SDQ-II has been validated by Inglés et al. (2012), and it has been used to assess academic self-concept, with excellent psychometric results (Esnaola et al., 2018, 2023), but only using the three related academic scales of the SDQ-II. However, there are no studies that have analysed the full short version in Spanish adolescents.

In view of the above, due to the importance of self-concept in adolescence, it is necessary to have instruments that can contribute to its research and analysis. To this end, instrumental research was conducted (Ato et al., 2013). This type of research analyses the psychometric properties of psychological measurement instruments, whether they are new tests or the translation and adaptation of existing tests. The study hypotheses were: H1) the 11-factor multidimensional model of the SDQ-II-S will present a better overall fit than the one-dimensional model (global self-concept); H2) the SDQ-II-S will have adequate properties and will be shown to be a valid instrument for use in the Spanish population. Therefore, the aim of this study was to analyse the measurement properties of the SDQ-II-S in Spanish adolescent students.

Method

Participants

The sample was composed of 726 adolescents, students of Compulsory Secondary Education, 365 females (50.2%) and 361 males (49.7%). Participants were between 12 and 18 years old (M= 15.44, SD= 1.41). By year, 15,1% were first year students, 24,9% were second year students, 23,0% were third year students, 15,5% were fourth year students and 21,5% were first year students of Bachillerato. The participants were from three public high schools in the Region of Murcia (Spain). The socio-economic context of the schools is middle class.

The sample was selected using a non-probabilistic, incidental, convenience method, based on the willingness of three schools to participate in the study.

Instruments

a) *Self-Description Questionnaire II-Short* (*Self-Description Questionnaire II-Short*, SDQ-II-S; Ellis *et al*., 2002). The SDQ-II-S is comprised of 51 items, with a six-point scale (from 1= false to 6= true), distributed across 11 dimensions. Three of them are academic factors: General School, Math and Verbal. Seven are non-academic factors: Physical Abilities, Physical Appearance, Opposite-Sex Relations, Same-Sex Relations, Parent Relations, Honesty-Trustworthiness, and Emotional Stability. In addition, it has a scale of General Self. The sum of the items in each scale gives a total score on the dimension, and high scores on each indicate a positive self-concept in that area. The studies by Ellis et al. (2002) and Marsh et al. (2005) confirmed high reliabilities for all 11 factors, between .80 and .89, and gender and age invariance.
b) *Academic Situations-Specific Perceived Self-Efficacy Scale* (EAPESA; Palenzuela, 1983). The EAPESA is a one-factor scale that assesses perceived academic self-efficacy. It comprises 10 items. Although in the original study the items were rated on a ten-point scale, in the present study we used the four-point scale (from 1= never to 4= always) used by García-Fernández et al. (2010) because of its greater ease of interpretation in people of the ages analysed. Both the studies by Palenzuela (1983) and García-Fernández et al. (2010) demonstrated the validity of the instrument, with a reliability of .91 and .89, respectively. In the present study, the reliability obtained was α= .93.

Procedure

The test adaptation guidelines of the International Test Commission (ITC) were followed for this study (Hernández et al., 2020).

Firstly, to obtain evidence of content validity, the 51 items of the short version were selected from the Spanish translation of Inglés et al. (2012), adaptation of the original 102-item instrument (Marsh, 1992). The 51 items were analysed by three psychologists. There was consensus on the appropriateness of the wording, the relevance of the inclusion of each item to each dimension, and the suitability of items and dimensions for the assessment of self-concept. Subsequently, the questionnaire was administered to 12 students from different grades to analyse their understanding of the questionnaire. All students affirmed their understanding of the items.

In the next step, the management of several schools was then contacted to explain the objectives of the research and to ask for their participation. Finally, three schools showed their willingness to collaborate in the study, and facilitated the contact details for teachers from different grades, to whom the objective was also explained. These teachers provided students with a consent form, which they had to fill in and return signed by the parents.

The surveys were answered collectively in the classroom of each group, after explaining to the participants the aims of the study, the relevance of their participation and the confidential treatment that the data obtained would receive. The participation of the students was voluntary, and they could withdraw at any

time. The researchers were present during the application of the tests, supervising the correct completion of the data and resolving any doubts that might arise.

Data analysis

An preliminary data analysis was carried out to ensure the integrity of the responses and the absence of out-of-range values in the observed variables. Subsequently, descriptive statistics and correlations were calculated using IBM SPSS 21.

Given previous research on factor structure in the original version (Ellis et al., 2002; Marsh et al., 2005), a confirmatory factor analysis (CFA) was conducted using Amos Graphics 21 (IBM Statistics). Fit indices were obtained to evaluate a one-dimensional model and an 11-factor multifactor model. In order to assess the fit of the measurement model, taking as a reference the suggestions of different works (Hu & Bentler, 1999; Jöreskog, 1970; Levy & Varela, 2006; Schreiber et al., 2006) the following indices were calculated: χ^2/df, values within the range between one and three are considered acceptable; RMSEA (root mean square error of approximation) and SRMR (standardized root mean square residual), in both values below .80 are acceptable; NFI (Normed Fit Index), GFI (goodness of fit index) and CFI (comparative adjustment index), values of .90 or above are acceptable.

In addition, an analysis of invariance was conducted using three nested models to check for model equality across different groups. Invariance was assessed by differences in χ^2 tests, applying the criterion of Cheung and Rensvold (2002), where differences greater than .01 in CFI values are indicators of non-invariance.

Finally, we chose to calculate the composite reliability index to assess reliability, as this analysis takes into account the presence of multidimensionality, by taking into account the factor loadings and the error variance of each item in structural equation models (Dunn et al., 2014), unlike Cronbach's alpha, which is a more appropriate type of analysis when items measure a single construct or dimension. In addition, alpha values were obtained in order to be able to compare with previous studies. Regarding its interpretation, composite reliability and Cronbach's alpha are similar, since the index values above .70 in descriptive contexts or 0,90 in selective tests are considered acceptable (Prieto & Delgado, 2010).

Results

Descriptive statistics

The data in all dimensions of the questionnaire do not follow a normal distribution, according to the normality tests used ($p< .05$). This suggests that it is important to take into account the non-normality of the data when performing further statistical analyses and to consider the use of non-parametric methods or robust statistical techniques that do not rely on the assumption of normality.

Descriptive statistics for each item are shown in Table 1. The item means ranged from 2,72 (*SD*= 1.61, item 7) to 5,45 (*SD*= 1.01, item 8). In relation to the dimensions and their descriptives (Table 2), the highest mean was found for Parent Relations (*M*= 5.14, *SD*= 1.00), while the lowest mean was for Emotional Stability (*M*= 3.05, *SD*= 1.12). The data do not show a clear trend towards a specific distribution in terms of skewness and kurtosis, we can say that the distribution of the sample is approximately symmetric and does not show a significant skew to the left or to the right. In addition, the distribution appears to be generally mesocurtic. Regarding its distribution, the highest positive skewness was found in item 7 (.63) and the negative skewness was for item 41 (-2.28). Regarding the kurtosis indices, item 34 presents the highest negative value (-1.41), while the highest positive value is observed for item 41 (4.45).

Table 1
Descriptive statistics of items

Item	*M*	*SD*	Skewness	Kurtosis
1	3.02	1.86	.28	-1.38
2	4.17	1.54	-.52	-.61
3	4.64	1.31	-.84	.11
4	5.15	1.02	-1.58	3.06
5	4.64	1.60	-1.00	-.11
6	3.96	1.65	-.26	-1.13
7	2.71	1.61	.63	-.70
8	5.45	1.01	-2.09	4.26
9	4.43	1.63	-.70	-.74
10	3.62	1.73	-.09	-1.22
11	4.98	1.54	-1.46	.92
12	3.48	1.84	-.06	-1.38
13	4.32	1.62	-.65	-.65
14	4.28	1.27	-.59	-.07
15	4.42	1.43	-.81	-.16
16	4.28	1.79	-.65	-.94
17	4.08	1.66	-.52	-.86
18	2.96	1.82	.43	-1.23
19	5.05	1.30	-1.44	1.38
20	4.11	1.54	-.45	-.78
21	4.59	1.65	-.97	-.25
22	4.39	1.68	-.77	-.63
23	2.94	1.92	.39	-1.37
24	4.23	1.49	-.56	-.54
25	4.25	1.33	-.56	-.20
26	4.74	1.61	-1.16	.13
27	5.11	1.47	-1.64	1.54
28	3.09	1.73	.24	-1.20
29	3.43	1.69	-.00	-1.20
30	4.66	1.51	-.96	-.15
31	4.12	1.51	-.51	-.65

Item	*M*	*SD*	Skewness	Kurtosis
32	3.87	1.86	-.28	-1.34
33	4.92	1.65	-1.36	.45
34	3.57	1.86	-.09	-1.41
35	3.87	1.72	-.34	-1.10
36	4.57	1.49	-.88	-.15
37	4.40	1.43	-1.00	.29
38	3.30	1.75	.04	-1.31
39	3.81	1.69	-.28	-1.11
40	3.30	1.75	.12	-1.28
41	5.43	1.18	-2.28	4.45
42	4.12	1.56	-.56	-.65
43	5.12	1.40	-1.60	1.51
44	5.08	1.40	-1.53	1.35
45	5.07	1.31	-1.53	1.68
46	4.93	1.55	-1.34	.60
47	3.72	1.68	-.26	-1.12
48	2.87	1.77	.47	-1.13
49	4.94	1.43	-1.39	1.04
50	5.09	1.38	-1.56	1.49
51	3.81	1.87	-.27	-1.39

Table 2
Descriptive statistics of the dimensions

Dimensions	Items	*M*	*SD*	Asymmetry	Kurtosis
Physical Abilities	5, 16, 27, 38	4.33	1.32	-.73	-.31
Physical Appearance	2, 13, 24, 35	4.14	1.35	-.50	-.61
Same-Sex Relations	11, 21*, 22**, 33, 43*, 44**, 49	4.90	1.11	-1.16	.91
Opposite-Sex Relation	10, 21**, 22*, 32, 43*, 44*	4.24	1.08	-.46	-.17
Honesty-Trustworthiness	4, 15, 26, 37, 46, 51	4.57	.93	-.67	.19
Parent Relations	8, 19, 30, 41	5.14	1.00	-1.46	1.87
Emotional Stability	7, 18, 29, 40, 48	3.05	1.12	.33	-.36
Verbal	6, 17, 28, 39, 47	3.73	1.30	-.23	-.75
Math	1, 12, 23, 34	3.25	1.61	.17	-1.17
General School	9, 20, 31, 42	4.19	1.23	-.35	-.69
General Self	3, 14, 25, 36, 45, 50	4.65	.96	-.96	.89

Note: *Indicates that items are included to saturate on the factor if it is a male sample; **indicates that items are included to saturate on the factor if it is a female sample.

Confirmatory factor analysis

To analyse construct validity, a CFA was conducted, based on the factor structure defined by Ellis et al. (2002) and Marsh et al. (2005). For this purpose, two models were considered, one from a one-dimensional perspective and the

other from a multidimensional perspective (Table 3). Given the results obtained, the 11-factor model presents better factorial validity.

Table 3
Model fit indices of SDQ-II-S

Modelo	χ^2	*gl*	*p*	CFI	RMSEA	90% CI	SRMR
1. One-dimensional	11612.01	1224	<.01	.30	.108	[.106, .110]	.10
2. Multidimensional	2453.683	1133	<.01	.91	.040	[.038, .042]	.05

Nota: χ^2= Chi squared; *gl*= degrees of freedom; *p*= p value; CFI= Comparative Fit Index; RMSEA= Root Mean Square Error of Approximation; CI= confidence interval; SRMR= Standarized Root Mean Square Residual.

For the 11-factor model, this specific model contained 1326 different sample moments, 193 parameters to estimate and 1133 degrees of freedom. The method used to estimate the parameters was Maximum Likelihood (ML) with bootstrap due to a non-normal multivariate distribution (Mardia Coefficient= 476.69, RC= 87.4).

The general model fit was: χ^2= 2453.683 (*p*< .001), χ^2/df= 2.16, GFI= .90, CFI= .91, NFI= .95, RMSEA= .04, CI 90% [.038, - .042], and SMSR= .05.

The factor loadings were statistically significant (Table 4), with values ranging between .31 (item 40, Opposite-Sex Relations) and .96 (item 23, Math). The average loadings by dimension were: Physical Abilities= .72; Physical Appearance= .79; Same-Sex Relations= .64; Opposite-Sex Relations= .50; Honesty-Trustworthiness= .51; Parent Relations= .71; Emotional Stability= .51; Verbal= .70; Math= .78; General School= .70; General Self= .63.

Finally, it should be noted that significant and positive correlations are observed between most of the dimensions (Table 5), suggesting that these dimensions are to some extent related in the sample analysed. The highest correlations were recorded between General School and the dimensions Verbal (*r*= .443) and General Self (*r*= .511). However, it should be noted that the correlations do not imply causality, but suggest that certain characteristics may be associated with each other in the context of this specific sample.

Tabla 4
Factor loadings

Dimension	Item	λ	δ	R^2
Physical Abilities	5	.80	.36	.64
	16	.90	.19	.81
	27	.65	.57	.42
	38	.54	.70	.29
Physical Appearance	2	.87	.24	.75
	13	.88	.22	.77
	24	.68	.53	.46
	35	.73	.46	.53
Same-Sex Relations	11	.71	.49	.50
	21	.67	.55	.44

Dimension	Item	λ	δ	R^2
	22	.90	.19	.81
	33	.58	.66	.33
	43	.40	.84	.16
	44	.45	.79	.20
	49	.79	.37	.62
Opposite-Sex Relation	10	.38	.85	.14
	21	.67	.55	.44
	22	.90	.19	.81
	32	.34	.94	.05
	43	.40	.84	.16
	44	.45	.79	.20
Honesty-Trustworthiness	4	.46	.78	.21
	15	.65	.57	.42
	26	.36	.87	.12
	37	.69	.52	.47
	46	.35	.87	.12
	51	.53	.71	.28
Parent Relations	8	.77	.40	.59
	19	.69	.52	.47
	30	.77	.40	.59
	41	.63	.60	.39
Emotional Stability	7	.52	.72	.27
	18	.42	.82	.17
	29	.53	.71	.28
	40	.31	.90	.09
	48	.81	.34	.65
Verbal	6	.59	.65	.34
	17	.72	.48	.51
	28	.63	.60	.39
	39	.80	.36	.64
	47	.78	.39	.60
Math	1	.95	.09	.90
	12	.66	.56	.43
	23	.96	.07	.92
	34	.56	.68	.31
General School	9	.67	.55	.44
	20	.50	.75	.25
	31	.86	.26	.73
	42	.79	.37	.62
General Self	3	.60	.64	.36
	14	.77	.40	.59
	25	.83	.31	.68
	36	.63	.60	.39
	45	.40	.84	.16
	50	.55	.69	.30

Nota: λ= factor loadings; δ= error; R^2= variance.

Table 5
Inter-dimensional correlations and composite reliability

Dimensiones	1	2	3	4	5	6	7	8	9	10	11
1. PAb	**.88**										
2. PAp	.301**	**.92**									
3. SSR	.262**	.303**	**.84**								
4. OSR	.209**	.410**	.516**	**.70**							
5. HT	.003	.062	.044	.049	**.74**						
6. PR	.055	.146**	.233**	.142**	.196**	**.87**					
7. ES	.017	.085*	.239**	.104**	.107**	.179**	**.73**				
8. VER	.063	.080*	.092*	.034	.199**	.162**	.046	**.89**			
9. MAT	.175**	.075*	-.017	-.013	.124**	.101**	.072	.069	**.91**		
10. GSc	.117**	.209**	.193**	.096**	.206**	.184**	.144**	.443**	.433**	**.80**	
11. GSe	.384**	.572**	.372**	.330**	.159**	.321**	.338**	.285**	.377**	.511**	**.87**

Nota: PAb= Physical Abilities; PAp= Physical Appearance; SSR= Same-Sex Relations; OSR= Opposite-Sex Relation; HT= Honesty-Trustworthiness; PR= Parent Relations; ES= Emotional Stability; VER= Verbal; MAT= Math; GSc= General School; GSe= General Self. Composite reliability in bold. $^{**}p < .01$; $^{*}p < .05$.

Reliability and convergent validity analyses

In Table 5, in addition to the correlations between factors, shows the results obtained for composite reliability. For this model, the highest reliability index was found for Physical Appearance (.92) and the lowest index for Opposite-Sex Relations (.70). The Cronbach's Alpha (α) values obtained were as follows: Physical Abilities= .86; Physical Appearance= .87; Same-Sex Relations= .81; Opposite-Sex Relation= .70; Honesty-Trustworthiness= .72; Parent Relations= .83; Emotional Stability= .72; Verbal= .84; Math= .90; General School= .79; and General Self= .81.

To analyse convergent validity, an analysis of correlations between self-efficacy scores and the scores obtained in the different dimensions was carried out. Statistically significant correlations (p< .001) were recorded between self-efficacy and General School (r= .639), Physical Abilities (r= .262), Physical Appearance (r= .434), Verbal (r= .363), Math (r= .338) and General Self (r= .589). No significant correlations were found with the other dimensions.

Invariance analysis

An invariance analysis was conducted to verify that the overall fit of the model was applicable regardless of gender.

The analysis had the following structure: Model 1 (configuration model) is a baseline model with no restrictions on parameter estimation in the different groups on which subsequent comparisons were performed. In this type of model, the indicators defining the measurement structure have the same configuration across the selected groups. Model 2 specified, in addition to the factor structure, the equality or invariance of factor loadings between groups, and model 3 added factor correlations and variances.

The differences in CFI values were less than 0,01 for both model 2 (ΔCFI= -.004) and model 3 (ΔCFI= -.008) compared to model 1. Therefore, factorial invariance between males and females is established. Table 6 shows the obtained indices for the invariance.

Table 6
Model invariance by gender

Model	χ^2	*df*	*p*	NNFI	CFI	RMSEA	90% CI	$\Delta\chi^2$	Δgl	ΔCFI
1. Configuration model	3977.10	2306	<.01	.779	.892	.032	.030-.033	--	--	--
2. Invariant factor loadings	4104.57	2372	<.01	.772	.888	.032	.030-.033	127.4	66	.004
3.Invariant factor correlations	4306.83	2459	<.01	.761	.881	.032	.031-.034	202.2	87	.008

Note: NNFI= Bentler-Bonett non-normed fit index; CFI= comparative fit index; RMSEA= root mean square error of approximation; Δ= difference between values.

Discussion

The aim of this study was to analyse the measurement properties of the short version of the Self-Description Questionnaire II (SDQ-II-S) in Spanish adolescent students. While the validation of the original and extended version of the instrument showed acceptable internal consistency and test-retest reliability

estimates (Inglés et al, 2012), and its three specific scales have been used for the assessment of academic self-concept also with good results (Esnaola et al., 2018, 2023), the properties of the short version had not previously been studied in Spanish students.

The results found indicate that the SDQ-II-S has adequate properties, according to the criteria recommended by different authors (Browne & Cudeck, 1993; Hu & Bentler, 1999; Manzano & Zamora, 2009; Schreiber et al., 2006).

Regarding the dimensionality of the instrument, the results show a better global fit of the multidimensional model compared to the one-dimensional model, as in the study with the Chilean population (Lagos-San Martín et al., 2016). In terms of construct validity, the results indicated a good fit of the 11-dimensional model. The value of χ^2/df= 2.16 is within the range (between one and three) to consider the model acceptable (Jöreskog, 1970). In addition, the comparative fit index CFI, goodness-of-fit index GFI and normalised fit index (NFI) obtained values above .90, which can also be considered adequate (Arias, 2008; Hu & Bentler, 1999). Likewise, the values obtained for the RMSEA and SMSR error indices, lower than .80 are desirable, as previously proposed (Hu & Bentler, 1999; Schreiber et al., 2006). The CFA also showed factor loadings above .50 (Hu & Bentler, 1999; Wheaton et al., 1977). All these indices corroborate the adequacy of the model, and are similar to the results obtained in the study by Marsh et al. (2005) and in the adaptation of the instrument in the Chilean population (Lagos-San Martín et al., 2016).

Moreover, the composite reliability of the scales in this study ranged from .70 for Opposite-Sex Relations to .92 for Physical Appearance, and the reliability obtained through Cronbach's alpha was between .70 for Opposite-Sex Relations and 0,90 for Math. In the study by Marsh et al. (2005) the reliabilities of the 11 factors of the SDQII-S were almost equal and consistently high (.80 to .88). In this study the indexes were slightly higher in most scales with respect Lagos-San Martín et al. (2016), between .70 on General Self and .84 on Parent Relations. Regarding the study on academic self-concept, the studies by Esnaola et al. (2018) and the comparison study between Spanish and Chinese students (Esnaola etal., 2023), the results are similar in terms of reliability of academic scales, with scores above .80.

Regarding the correlations, and according to Lagos-San Martín et al. (2016), the small average intercorrelation between the 11 factors (r= .21) confirms the difference of the factors when assessing the independent facets that constitute the self-concept, something that has been ratified in previous studies of both the short version of the SDQ-II (Ellis et al., 2002; Lagos-San Martín et al., 2016; Marsh et al., 2005), as in the original extended version (Guerin et al., 2003; Inglés et al., 2012; Marsh, 1992). In our study, the correlations found between the General School dimension and the associated Math and Verbal dimensions, as well as between General Self and all the other dimensions of the questionnaire, stand out.

At school level, academic self-concept is a domain of major importance, and as early as the model of Shavelson et al. (1976), the division between academic and non-academic self-concept was proposed. The correlations found between General School self-concept with Math and Verbal self-concept have been of high to moderate magnitude (Ellis et al., 2002; Esnaola et al., 2023; Lagos-San Martín

et al., 2016; Marsh et al., 2005), as in the present study. Similarly, and despite the high correlations cited above, the relationship between the Verbal and Mathematics factors has been small in the original studies (Ellis et al., 2002; Marsh et al., 2005), and even non-existent in the Chilean validation, and similarly with Spanish students, as shown in the study by Esnaola et al. (2023) and in the present study.

As for General Self or self-esteem, it registered statistically significant correlations with all other dimensions of the SDQ-II. Self-esteem refers to the evaluation and feelings of self-worth (Kawamoto, 2020; Liu et al., 2019; Tam et al., 2020), and when considering the evaluative component of self-concept, the results are congruent, as they are in line with those obtained in previous studies of the original and the short version (Ellis et al., 2002; Inglés et al., 2012; Lagos-San Martín et al., 2016; Marsh, 1992; Marsh et al., 2005), which obtained correlations of moderate to high magnitude.

When analysing convergent validity, self-efficacy scores were positively related to several dimensions, specifically, General School, Verbal and Math, as well as Physical Abilities, Physical Appearance and General Self. The relationship of the academic dimensions to self-efficacy may be evident, as it was assessed using a scale specific to academic situations (Palenzuela, 1983). In addition, previous studies also found significant relationships between academic self-efficacy and self-concept (García-Fernández et al., 2010; Huang, 2012; Lagos-San Martín et al., 2016; Pietsch et al., 2003). Likewise, one study found that academic self-efficacy positively predicted the Physical Abilities, Physical Appearance and General Self dimensions of self-concept (García-Fernández et al., 2016).

Also, the results confirm the gender invariance of the SDQ-II-S.In this study we followed the model evaluation criteria proposed by Cheung and Rensvold (2002), who recommend assessing the difference in CFI values, rather than differences in χ^2. According to the authors, if the estimate of the CFI difference of both tested models decreases by .01 or less, the restricted model is considered good and therefore meets invariance.In this study, the ΔCFI value was less than .01. Although not in gender, one study obtained measurement equivalences of the SDQ-II-S in indigenous and non-indigenous Australian students (Bodkin-Andrews et al., 2010).

As for the limitations of the study, there are several. As in any research using self-reports, we must take into account their nature and the inherent biases and response patterns that are often associated with such measurement. Also the use of convenience sampling, with non-randomly selected participants. Similarly, not having been able to carry out analyses to check the reliability of stability over time (test-retest) to check the constancy of the questionnaire scores. Another limitation is that, when analysing students, only one measure of academic self-efficacy was used to test convergent validity, and no other tests were used for non-academic factors.

We consider that future studies should contrast the information obtained using the SDQ-II-S with objective methods. Of particular interest would be longitudinal studies, with repeated measurements that allow us to verify possible changes over time. Also, following Lagos-San Martín et al. (2016), in order to

deepen the construct validity, the relationships with school performance and other psychosocial and cognitive-motivational variables such as, for example, attributions, academic goals or learning strategies, among others, should be analysed.

In conclusion, the results of this study provide evidence that the SDQ-II-S has adequate psychometric properties for use with Spanish adolescents, and the analyses conducted confirm the structure, reliability and validity of the instrument for the measurement of self-concept.

In addition to its interest for research, at the applied field, the questionnaire should help the different professionals of the multidisciplinary school teams to adequately and reliably assess the self-concept of the students, and thus be able to detect the students with the greatest problems, so that appropriate and pertinent interventions can be made. Additionally, the instrument may have an important use in clinical contexts. One of the main goals of therapy with adolescents is often to improve their self-concept, with important results through psychological therapy (Brown et al., 2023). The SDQ-II-S may be a appropriate instrument for their assessment and monitoring.

As a highly complex life stage, educators and parents should understand the importance of positively developing students' self-concept, guiding and encouraging them to actively engage in self-exploration to alleviate internal conflicts and contradictions (Liu et al., 2023). Furthermore, educational programmes should take into account work on the development and improvement of self-concept, as its positive evolution which increases the likelihood of being a more sociable, responsible and emotionally stable person, and is related to higher self-esteem (Palenzuela-Luis et al., 2022b).

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Appendix

Cuestionario de autodescripción II-Abreviado

Esta es una oportunidad para que veas cómo eres. Esto no es un examen. No hay respuestas correctas ni incorrectas, cualquiera de las frases puede tener diferentes respuestas. Asegúrate de que tus respuestas muestran lo que realmente piensas. Por favor, no hables con lo demás acerca de tus respuestas. Nosotros mantendremos tus contestaciones en secreto y no se las dejaremos ver a nadie.

Cuando estés preparado para empezar, lee cada una de las frases y elige la respuesta que te parezca más adecuada. Hay seis respuestas posibles para cada una de las frases: verdadero, falso y cuatro respuestas intermedias. En la hoja de respuestas hay seis espacios en blanco para contestar a cada una de las frases del cuestionario. Después de leer la frase elige la respuesta que a ti te parezca más adecuada y pon una "X" en el espacio que está debajo de la alternativa que tú has seleccionado. No comentes la respuesta seleccionada con nadie.

Antes de empezar, te presentamos unos ejemplos. Un alumno ya ha respondido a los dos primeros ejemplos para mostrarte cómo hacerlo.

EJEMPLOS	**Falso**	**La mayoría de veces falso**	**Más falso que verdadero**	**Más verdadero que falso**	**La mayoría de veces verdadero**	**Verdadero**
1. Me gusta leer cómics	☐	☐	☐	☐	☐	☑

(El alumno ha marcado la casilla correspondiente a la respuesta "Verdadero". Esto significa que le gusta mucho leer cómics. Si no le gustara mucho leer cómics, habría respondido "Falso" o " La mayoría de veces falso ").

2. En general soy cuidadoso y ordenado	☐	☐	☑	☐	☐	☐

(El alumno ha contestado "Más falso que verdadero" porque no es muy ordenado, pero tampoco es muy desordenado).

Si te equivocas y quieres cambiar una respuesta que has marcado, debes tachar la marca y poner una nueva "X" en otra casilla de la misma línea. Para todas las frases, asegúrate de que la marca está en la misma línea que la frase a la que has respondido. Debes responder sólo una respuesta para cada frase, y a todas las frases. Una vez que hayas empezado, por favor no hables.

	Falso	**La mayoría de veces falso**	**Más falso que verdadero**	**Más verdadero que falso**	**La mayoría de veces verdadero**	**Verdadero**
1. Matemáticas es una de mis asignaturas favoritas	☐	☐	☐	☐	☐	☐
2. Tengo una cara atractiva.	☐	☐	☐	☐	☐	☐

3.	En general, tengo mucho de lo que estar orgulloso/a	☐	☐	☐	☐	☐	☐
4.	Soy sincero/a	☐	☐	☐	☐	☐	☐
5.	Me gustan cosas como los deportes, la gimnasia y bailar	☐	☐	☐	☐	☐	☐
6.	Soy un desastre en las clases de lengua *	☐	☐	☐	☐	☐	☐
7.	Me preocupo más de lo necesario *	☐	☐	☐	☐	☐	☐
8.	Me llevo bien con mis padres	☐	☐	☐	☐	☐	☐
9.	Saco malas notas en la mayoría de las asignaturas escolares *	☐	☐	☐	☐	☐	☐
10.	No soy muy popular entre las personas del sexo opuesto *	☐	☐	☐	☐	☐	☐
11.	Me resulta difícil hacer amigos de mí mismo sexo *	☐	☐	☐	☐	☐	☐
12.	Saco buenas notas en matemáticas	☐	☐	☐	☐	☐	☐
13.	Soy guapo/a	☐	☐	☐	☐	☐	☐
14.	La mayoría de cosas que hago las hago bien	☐	☐	☐	☐	☐	☐
15.	Muchas veces digo mentiras *	☐	☐	☐	☐	☐	☐
16.	Se me dan bien cosas como los deportes, la gimnasia y bailar	☐	☐	☐	☐	☐	☐
17.	Para mí es fácil trabajar en las clases de lengua	☐	☐	☐	☐	☐	☐
18.	Soy una persona nerviosa *	☐	☐	☐	☐	☐	☐
19.	Mis padres son justos conmigo	☐	☐	☐	☐	☐	☐
20.	Aprendo las cosas con rapidez en la mayoría de las asignaturas escolares	☐	☐	☐	☐	☐	☐
21.	Me resulta fácil hacer amigos	☐	☐	☐	☐	☐	☐
22.	Me resulta fácil hacer amigas	☐	☐	☐	☐	☐	☐
23.	Matemáticas es una de mis asignaturas favoritas	☐	☐	☐	☐	☐	☐
24.	Otra gente piensa que soy guapo/a	☐	☐	☐	☐	☐	☐
25.	En general la mayoría de cosas que hago salen bien	☐	☐	☐	☐	☐	☐
26.	A veces me copio o hago trampas *	☐	☐	☐	☐	☐	☐
27.	Odio cosas como los deportes, la gimnasia y bailar *	☐	☐	☐	☐	☐	☐
28.	Lengua es una de mis asignaturas favoritas	☐	☐	☐	☐	☐	☐

29. Muchas veces me siento confundido y desconcertado *	☐	☐	☐	☐	☐	☐
30. Mis padres me entienden.	☐	☐	☐	☐	☐	☐
31. Me salen bien los exámenes de la mayoría de las asignaturas escolares	☐	☐	☐	☐	☐	☐
32. Tengo muchos amigos del sexo opuesto	☐	☐	☐	☐	☐	☐
33. Tengo pocos amigos de mí mismo sexo *	☐	☐	☐	☐	☐	☐
34. Los exámenes de matemáticas me salen mal *	☐	☐	☐	☐	☐	☐
35. Tengo un cuerpo atractivo	☐	☐	☐	☐	☐	☐
36. Puedo hacer las cosas tan bien como la mayoría de la gente	☐	☐	☐	☐	☐	☐
37. Siempre digo la verdad	☐	☐	☐	☐	☐	☐
38. Soy mejor que la mayoría de mis amigos para cosas como los deportes, la gimnasia y bailar.	☐	☐	☐	☐	☐	☐
39. Saco buenas notas en lengua	☐	☐	☐	☐	☐	☐
40. Me enfado con facilidad *	☐	☐	☐	☐	☐	☐
41. No me gustan mucho mis padres *	☐	☐	☐	☐	☐	☐
42. Se me dan bien la mayoría de las asignaturas escolares	☐	☐	☐	☐	☐	☐
43. No me llevo muy bien con los chicos *	☐	☐	☐	☐	☐	☐
44. No me llevo muy bien con las chicas *	☐	☐	☐	☐	☐	☐
45. Si realmente lo intento, puedo hacer casi todo lo que quiero hacer	☐	☐	☐	☐	☐	☐
46. A veces cojo cosas que pertenecen a otras personas *	☐	☐	☐	☐	☐	☐
47. Aprendo rápidamente en clase de lengua	☐	☐	☐	☐	☐	☐
48. Me preocupan muchas cosas *	☐	☐	☐	☐	☐	☐
49. Hago amigos fácilmente con personas de mí mismo sexo	☐	☐	☐	☐	☐	☐
50. En general soy un fracasado *	☐	☐	☐	☐	☐	☐
51. A veces miento para no meterme en problemas *	☐	☐	☐	☐	☐	☐

Nota: Los ítems marcados con * se puntúan de forma inversa.