GRUPO EDITORIAL DE PSICOFUNDACIÓN

Psicothema (2024) 36(1) 64-71

Psicothema

https://www.psicothema.com/es • ISSN 0214–9915

Colegio Oficial de Psicólogos del Principado de Asturias

Psicothema

Article

Validity Evidence for the Self-Absorption Scale (SAS) in Spanish Population

José M. S. Marqueses [1,2], Rocío Fausor [1], Ana Sanz-García [1], María Paz García-Vera [1] and Jesús Sanz[1]

1 Universidad Complutense de Madrid (Spain)
2 Centro Universitario Cardenal Cisneros (Spain)

ARTICLE INFO

Received: December 30, 2022
Accepted: June 07, 2023

Keywords:
Self-absorption
Self-focused attention
SAS
Reliability
Validity

ABSTRACT

Background: The Self-Absorption Scale (SAS) is one of the few instruments that measure dysfunctional self-focused attention or self-absorption, a transdiagnostic factor of vulnerability to various emotional disorders. The internal structure of the Spanish version of the SAS and its relationship with other variables have not been examined, nor has whether its subscales provide relevant information. These were the two goals of the present study. **Method:** The factor structure of the SAS, its internal consistency, and its relationship with depression and post-traumatic stress were analyzed in a Spanish community sample of 519 adults. **Results:** The SAS presented a symmetrical bifactor structure with a general factor of self-absorption that explained most of the variance in the items and two specific factors of private and public self-absorption. The total scale and the two subscales of the SAS exhibited excellent, good or adequate reliability coefficients (alphas/omegas = .70 – .88) and correlated with depression and post-traumatic stress (r = .34 – .46). **Conclusions:** The SAS provides reliable, valid measures of dysfunctional self-focused attention in Spanish adults, but its Private and Public Self-absorption subscales are not much more useful than the information provided by its total scale.

Evidencias de Validez de la Escala de Autoabsorción (SAS) en Población Española

Palabras clave:
Autoabsorción
Atención autofocalizada
SAS
Fiabilidad
Validez

RESUMEN

Antecedentes: la Escala de Autoabsorción (SAS) es uno de los pocos instrumentos que mide la atención autofocalizada disfuncional o autoabsorción, un factor transdiagnóstico de vulnerabilidad a diversos trastornos emocionales. La estructura interna de la versión española de la SAS y su relación con otras variables no han sido examinadas, ni tampoco si sus subescalas aportan información relevante. Estos fueron los objetivos del presente estudio. **Método:** se analizó la estructura factorial de la SAS, su consistencia interna y la relación con la sintomatología depresiva y de estrés postraumático en una muestra comunitaria española de 519 adultos. **Resultados:** la SAS presentó una estructura bifactor simétrica con un factor general de autoabsorción que explicaba la mayoría de la varianza de los ítems y dos factores específicos de autoabsorción privada y pública. La escala total y las dos subescalas mostraron coeficientes de fiabilidad excelentes, buenos o adecuados (alfas/omegas = .70 – .88) y correlacionaban con la depresión y el estrés postraumático (r = .34 – .46). **Conclusiones:** la SAS proporciona medidas fiables y válidas de la atención autofocalizada disfuncional en adultos españoles, pero sus subescalas de autoabsorción privada y pública pueden no ser muy útiles más allá de la información proporcionada por su escala total.

Cite as: Marqueses, J. M. S., Fausor, R., Sanz-García, A., García-Vera, M. P., & Sanz, J. (2024). Validity evidence for the Self-Absorption Scale (SAS) in Spanish population. *Psicothema, 36*(1), 64-71. https://doi.org/10.7334/psicothema2022.524
Corresponding author: Jesús Sanz, jsanzfer@ucm.es

Self-focused attention is the process of directing attention to aspects of the self and being aware of self-referential, internally generated information (e.g., emotions, thoughts or sensations) to the detriment of external information (Carver, 1979; Ingram, 1990). Self-focused attention can be conceived as an adaptive capacity with important implications for behavioral self-regulation (Duval & Wicklund, 1972; Grant et al., 2002) or emotions (Carver & Scheier, 1990; Nakajima et al., 2017), but the scientific literature has also shown that high levels of self-focused attention are associated with a broad variety of psychological problems, mainly depression and anxiety (Mor & Winquist, 2002). Ingram (1990) coined the term "self-absorption" to refer to "excessive, sustained, and rigid attention to information emanating from internal sources" (p. 169) and proposed that this type of self-focused attention was a transdiagnostic factor in explaining various mental disorders. Numerous studies, reviewed by Ingram (1990) and Spurr and Stopa (2002), support this hypothesis, as their results associate elevated levels of self-focused attention with high levels of depression, social anxiety, generalized anxiety, and panic (mean d = .51 in the meta-analysis of Mor & Winquist, 2002) and post-traumatic stress (r = .41; Vitanza et al., 1995). In fact, treatments with techniques have been developed to reduce the excessive tendency towards self-focused attention (e.g., Wells, 2009), which has been shown to be a potentially modifiable cognitive factor, the reduction of which is associated with significant improvement in emotional symptoms (e.g., Gregory & Peters, 2017; Normann & Morina, 2018). Therefore, due to the important role of this construct, instruments are needed to obtain valid measures of self-absorption to identify who may be at risk of developing disorders related to this construct or who may need treatment to address it, as well as to monitor the effectiveness of such treatment.

A search conducted on December 22, 2022, in the fields abstract, title of the work and test in the PsycInfo bibliographic database with the instruction AB(self-absorption and (instrument or test or scale or questionnaire or inventory)) OR TI(self-absorption and (instrument or test or scale or questionnaire or inventory)) OR TM(self-absorption and (instrument or test or scale or questionnaire or inventory)) revealed that the only instrument designed specifically to assess Ingram's (1990) self-absorption, that is, contemplating the excessive parameters of degree, duration and flexibility of self-focused attention, is the Self-Absorption Scale (SAS of McKenzie & Hoyle, 2008). This instrument is also based on the distinction of Fenigstein et al. (1975) between private self-awareness—the tendency to direct attention to one's internal aspects, such as thoughts or emotions—and public self-awareness—the tendency to focus attention on external or physical aspects of the person or on the impression they make on others—, a distinction that has proven useful in distinguishing some mental disorders (Mor & Winquist, 2002). Thus, the SAS, in addition to a Global Self-absorption scale, has two subscales to measure private and public self-absorption; that is, excessive, sustained and rigid self-focused attention to internal (e.g., "*I think about myself more than anything else*" [excessive]; "*My mind never focuses on things other than myself for very long*" [sustained]; "*When I try to think of something other than myself, I cannot*" [rigid]) and external aspects of the person (e.g., "*I am very aware of what others think of me, and it bothers me*" [excessive]; "*I feel like others are constantly evaluating me when I'm with them*" [sustained]; "I find myself wondering what others think of me even when I don't want to" [rigid]).

The SAS has shown evidence of reliability and validity in various countries such as the USA (McKenzie & Hoyle, 2008), Brazil (DaSilveira et al., 2011), Serbia (Kostić & Stanojević, 2022) and Turkey (Öngen, 2015 (alphas of the private and public subscales of .72—.83 and .75—.89, respectively), although with some problems that will be seen later. The results of these studies suggest that the SAS has a structure of two correlated factors that load on a general higher-order factor and that this structure remains invariant in samples of different populations—university students and general population—and countries, which would justify the original proposal of the subscales of private and public self-absorption (DaSilveira et al., 2011; Kostić & Stanojević, 2022; McKenzie & Hoyle, 2008; Öngen, 2015).

However, adaptations in different countries have also been characterized by the problematic psychometric behavior of various SAS items. The Brazilian version eliminated Item 14 because it presented a low commonality index, and its exclusion improved both the accumulated explained variance and the internal consistency (DaSilveira et al., 2011). To improve the factorial fit of the instrument, the Serbian version eliminated four items (Items 2, 6, 8 and 12) (Kostić & Stanojević, 2022) and the Turkish version eliminated three items (Items 7, 8 and 14) (Öngen, 2015). These results underscore the need for psychometric analyses for each new population in which the SAS is used.

On the other hand, none of the psychometric studies conducted so far has examined whether the subscales' scores provide important information beyond that yielded by their total score, an analysis that would allow us to know the usefulness of the different measures offered by the SAS.

In Spain, Perona-Garcelán et al. (2013, 2014) translated the SAS into Spanish and used it in studies with university students and patients suffering from auditory verbal hallucinations, but they did not specifically examine its psychometric properties in these populations, only reporting that the patients' scores on the Private and Public Self-absorption subscales obtained excellent internal consistency indices of, respectively, .85 and .91 (Perona-Garcelán et al., 2016; Úbeda-Gómez et al., 2015).

In summary, taking into account the importance of the self-absorption construct, the scarce number of instruments suitable for its evaluation, the small number of psychometric studies on the SAS, the problems found in some of its adaptations and the virtual absence of works that analyze its psychometric properties in the Spanish population, new psychometric studies are warranted, which should be conducted with samples of Spanish participants. Precisely, this was the main objective of the present study; specifically, to obtain evidence of the internal structure, internal consistency and validity in relation to other variables (symptoms of depression and post-traumatic stress) of the SAS in the general Spanish population. If the bifactorial structure of the SAS were demonstrated, a secondary objective of the study was to analyze whether the scores of its subscales of public and private self-absorption provide important information beyond that yielded by its global scale.

Method

Participants

This study initially involved 552 adults from the general Spanish population recruited by students of the Psychology Degree of the Complutense University of Madrid, who participated in a voluntary seminar on personality and post-traumatic stress disorder (PTSD). Each student applied 11 short questionnaires to six relatives, of which only three questionnaires were relevant to this study. Of that initial sample, 519 participants completed the SAS without leaving any items unanswered, comprising the final sample. These participants were between 18 and 90 years of age (M = 40.5, SD = 15.7), 58.7% were women, and 59.7% were working at the time of assessment. Concerning education, 45.8% of the participants had secondary education, 42.2% had university studies, 11.2% had primary studies, and the remaining 1% had no regulated studies. Most participants (56%) were married or living with a stable partner, 36.5% were single, 6.2% were divorced or separated, and 1.4% were widowed.

Instruments

Beck Depression Inventory-II (BDI-II; Beck et al., 1996; Spanish adaptation in Beck et al., 2011). The BDI-II is a 21-item self-report designed to assess the presence and severity of depressive symptoms. The BDI-II presents evidence of reliability and validity in its original version and its Spanish adaptation (Beck et al., 2011; Sanz, 2013; Sanz & García-Vera, 2013). In the sample of participants of the present study, the BDI-II obtained a Cronbach alpha coefficient of .88.

PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013; Spanish adaptation of Sanz et al., 2023, unpublished manuscript). The PCL-5 is a 20-item instrument that assesses the presence and severity of PTSD symptoms according to the DSM-5. Both its original version and its Spanish adaptation present evidence of reliability, convergent validity and diagnostic validity (Blevins et al., 2015; Sanz et al., 2023, unpublished manuscript). Participants completed the PCL-5 concerning the most traumatic event they had experienced, and their scores had a Cronbach alpha coefficient of .94.

Self-Absorption Scale (SAS; McKenzie & Hoyle, 2008). We used the Spanish version of Perona-Garcelán et al. (2013, 2014), which replaces the original instructions that ask about the degree to which the persons consider the behaviors presented in its 17 items characteristic of themselves with instructions that ask about the frequency with which these behaviors have happened to them. The SAS provides scores of a total scale and two subscales, one that evaluates the Private Self-absorption factor (8 items) and the other that evaluates the Public Self-absorption factor (9 items). All three scores have shown adequate indices of reliability and validity in different populations (DaSilveira et al., 2011; McKenzie & Hoyle, 2008).

Procedure

Each participant signed an informed consent to collaborate in a broader investigation on personality and PTSD. Subsequently, the student who had invited the participant applied several short questionnaires in this order: the BDI-II, a dysfunctional attitudes questionnaire, an optimism questionnaire, the SAS, a meta-cognition questionnaire, a traumatic events questionnaire, and the PCL-5. The students were rewarded with a subject's grade, but the participants did not receive any compensation. The first two authors of the study taught a seminar to train students in the questionnaires' content, characteristics and mode of application.

Data Analysis

An exploratory factor analysis (EFA) was performed on the scores in the SAS items of a first subsample (Subsample 1) comprising 50% of the cases of the total sample, leaving a second subsample with the remaining cases (Subsample 2) for cross-validation with a confirmatory factor analysis (CFA). The Solomon method was used to divide the sample, carried out with the FACTOR program, v. 12.01.02 (Ferrando & Lorenzo-Seva, 2017) because, compared to random partitioning, it optimizes the equivalence of the subsamples in terms of the amount of their common variance. We also calculated the commonality ratio index S, which indicates the degree of equivalence obtained (Lorenzo-Seva, 2021).

Given that, in Subsample 1, 14 of the 16 items of the SAS presented kurtosis or skewness values higher in absolute value than the range of values indicative of a normal distribution of scores (± 1), the EFA was performed on the matrix of polychoric correlations, as it is usually more appropriate when a high percentage of items do not meet the assumption of normality. The Bartlett sphericity test and the Kaiser-Meyer-Olkin (KMO) test were calculated to analyze the adequacy of the data to factor analysis. Five procedures were used to determine the number of factors to be extracted: Cattell's scree plot, Hull's method, Velicer's MAP test, classical parallel analysis, and Timmerman and Lorenzo-Seva's optimal parallel analysis. We extracted as many factors as recommended by most of these procedures, using the unweighted least squares (ULS) estimation method because it does not assume a multivariate normal distribution of the data.

For each recommended factorial solution, we calculated the following goodness-of-fit indices, with their corresponding criteria for an adequate fit in parenthesis (West et al., 2012): 1) χ^2/df ($\leq$ 5); 2) goodness of fit index or GFI ($\geq$ .95); 3) Bentler's comparative fit index or CFI ($\geq$ .95); 4) non-normalized fit index or NNFI ($\geq$ .95), and 5) root mean square error of approximation or RMSEA ($\leq$ .08). In the case of extracting a single factor, three additional fit indices were calculated for a one-dimensional solution: unidimensional congruence index or UniCo (> .95), percentage of explained common variance or ECV (> .85), and mean of item residual absolute loadings or MIREAL (< .30).

We assessed the results of these indices in the context of the psychological interpretation of the factorial loading matrix of the different factorial solutions. In the case of the multifactor solutions, the matrix was rotated with a promin oblique procedure. Following the recommendations of Lloret-Segura et al. (2014), for the psychological interpretation, we considered the content of the items that presented factorial loadings $\geq$ .40 in one factor and lower loadings in the rest.

The factorial solution or solutions of the SAS found in Subsample 1 were validated in Subsample 2 with CFA, performed with the JASP program (JASP Team, 2020). For the CFA, the polychoric

correlation matrix, the diagonally weighted least squares (DWLS) method and the aforementioned goodness-of-fit indices were used.

If multifactorial solutions were obtained, we performed Schmid-Leiman analyses with FACTOR on the total sample. We calculated the hierarchical omega coefficients (ωH) with the formulas of Rodriguez et al. (2016) to obtain, in a hierarchical model, the proportion of variance of the items that a general factor would explain and the variance that the lower-order factors would explain, controlling for the variance due to the general factor.

Finally, for the total scale of the SAS and the subscales defined by the most appropriate factorial solution, we examined the internal consistency using Cronbach's alpha and McDonald's (1999) omega coefficients calculated with JASP, the ordinal alpha coefficient calculated with CATPCA of the SPSS program, and the ordinal omega coefficient calculated with FACTOR. We also calculated the means and standard deviations of the SAS items, the correlations of their items with the scores of the total scale or with the subscales without the concurrence of the corresponding item (item-total and item-subscale corrected correlations), as well as the correlations of the total scale and the subscales with the measures of depression and post-traumatic stress symptomatology.

Results

In the sample of participants of this study, Item 14 ("*No dedico mucho tiempo a pensar en mí mismo/a*" for the original English item "*I do not spend long amounts of time thinking about myself*") presented anomalous psychometric behavior, showing practically null corrected item-total correlations (-.058) with the Private Self-absorption subscale to which it belongs and with the total scale (-.069). This anomalous behavior was consistent with the results of the same item in the Brazilian and Turkish adaptations of the SAS, which led to its elimination from these adaptations (DaSilveira et al., 2011; Öngen, 2015). Consequently, we also decided to discard Item 14 in the analyses of this study.

With the SOLOMON method, a total of 260 and 259 participants were obtained for Subsamples 1 and 2, respectively, and an S index of .994, indicating that the two subsamples were equivalent.

Evidence of Internal Structure

For Subsample 1, the results of Bartlett's sphericity test (2220, $p < .001$) and the KMO (.83) indicated that the matrix of polychoric correlations was adequate for EFA. The scree plot (Figure 1), the two parallel analyses and the MAP test indicated that two factors should be extracted in Subsample 1, but Hull's method indicated only one. Consequently, one and two factors were extracted in Subsample 1 to compare their goodness-of-fit indices and their psychological interpretation. These indices are shown in Table 1.

Both the unifactorial and bifactorial solutions obtained good fit indices, as all five general fit indices showed acceptable or good values (Table 1). However, two of the three indices that specifically evaluated the fit of a single-factor solution (UniCo and ECV) suggested that this solution did not fit the data well. The matrix of factorial loadings of the unifactorial solution indicated that all the items of the SAS loaded more than .40 in this solution, except for Item 4, which showed a factorial loading of .35 (Table 2). This pattern of factor loadings corroborated the good general fit indices of the unifactorial solution, but the pattern of factorial loadings of the rotated bifactorial solutions of Table 2 corroborated the good general fit indices of the bifactorial solution and the psychological coherence of this solution with the theory underlying the SAS. Thus, as originally intended by the authors of the SAS, Items 1, 2, 3, 7, 8, 13, 16, and 17 presented relevant factorial loadings (> .40) on the same first factor, which could be considered public self-absorption, and irrelevant factorial loadings, even less than .30, on the second factor. In addition, Items 4, 5, 6, 9, 11, 12 and 15 presented relevant factorial loadings on the second factor, which could be considered private self-absorption, and factorial loadings of less than .30 on the first factor.

In summary, from a statistical point of view, both the unifactorial and bifactorial solutions seemed adequate in Subsample 1. However, the bifactorial solution appeared to be slightly better and conformed to the distinction between types of self-absorption postulated by the creators of the SAS, namely private and public self-absorption. Therefore this latter solution seemed the most appropriate from a psychological point of view. The two self-absorption factors had a high and statistically significant correlation, with a value of .69 ($p < .001$). This high correlation justified performing a second-order EFA. In this analysis, the two factors showed very high factor loadings on a higher-order factor, specifically, loadings of .918 and .748 for Public and Private Self-absorption factors, respectively.

Figure 1

Cattell Scree Test of the Matrix of Polychoric Correlations between the Items of the SAS in Subsample 1

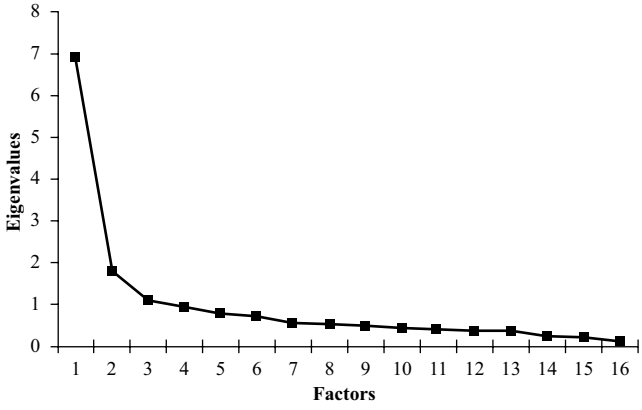

Table 1

Goodness-of-Fit Indices of the SAS Factorial Solutions in Subsample

Indices	One factor	Two factors
% of explained variance	43.2%	54.5%
$\chi 2$ / degrees of freedom	2.97*	1.26*
GFI	.957*	.985*
CFI	.972*	.994*
NNFI	.967*	.992*
RMSEA	.073*	.036*
Fit of unifactorial solutions		
UniCo	.950	—
ECV	.808	—
MIREAL	.297*	—

Note. *Acceptable or good fit indices according to conventional criteria.

Table 2
Factor Loading Matrix of the Single-Factor and Two-Factor Solutions (Rotated Matrix) of the SAS in Subsample 1

Subscale / Item	One factor	Two factors	
		Public Self-absorption	Private Self-absorption
Public Self-absorption			
1	**.582**	**.808**	
2	**.659**	**.740**	
3	**.677**	**.758**	
7	**.531**	**.711**	
8	**.710**	**.727**	
10	**.795**	**.636**	
13	**.605**	**.633**	
16	**.566**	**.586**	
17	**.635**	**.654**	
Private Self-absorption			
4	.354		**.551**
5	**.604**		**.839**
6	**.601**		**.702**
9	**.665**		**.978**
11	**.742**		**.535**
12	**.627**		**.526**
15	**.613**		**.601**

Note. Factorial loadings < .30 are not shown, and those > .40 are presented in bold.

However, the bifactorial solution could represent a symmetrical bifactor model instead of a hierarchical model of two correlated factors that would reflect the existence of a general second-order factor. In a symmetrical bifactor model, the variance observed in the SAS would be decomposed into one part that is common to all the SAS items—that is, a general factor—and another part that is specific to different groups of items—in this case, two specific groups corresponding to the Public and Private Self-absorption factors.

To answer this question, CFAs were performed in Subsample 2 in which three models were tested: unifactorial, hierarchical with two primary factors and one second-order factor and symmetric bifactor model. The goodness-of-fit indices of the three models were generally adequate (Table 3), although better for the second-order model and the bifactor model, especially the latter. In fact, when comparing the three models through analysis of structural equation models performed with JASP, a statistically significant reduction was found in χ^2 of the bifactor model compared with the unifactorial model ($\Delta\chi^2 = 187.06$, $p < .001$) and the second-order model ($\Delta\chi^2 = 103.27$, $p < .001$), suggesting that the bifactor model had a more appropriate fit to the data.

In summary, the results of the factor analyses indicated that the SAS had a symmetrical bifactor structure of two specific factors and one general factor. The results of the Schmid-Leiman analysis performed with the total sample and the hierarchical omega coefficients obtained from these results are presented in Table 4. These coefficients revealed that the general factor explained 78.6% of the variance of the items, whereas, controlling for the variance due to the general factor, the Public Self-absorption factor explained 12.7% of the variance of its items, and the Private Self-absorption factor explained 36.4% (Table 4). These results support the presence of a relatively strong overall self-absorption factor, as it explained more than 70% of the variance of the items, with an explained common variance greater than .70 (ECV = .73). In addition, in the Schmid-Leiman analysis, 13 of the 16 items loaded higher on the general self-absorption factor than on their respective specific factors (Table 4). This pattern of results was also replicated, in general, when performing the Schmid-Leiman analyses in 12 subsamples created, two of them with the SOLOMON method and the remaining 10 with the random method of the SPSS. In 10 of these 12 subsamples, the general factor explained more than 70% of the variance of the items —approximately, an average of 76.8%—, the Public Self-absorption factor, an average of 13.6%, and the Private Self-absorption factor, an average of 37.3%.

Table 3
Goodness-of-Fit Indices of the SAS Factorial Models in Subsample 2

Indices	One factor	Two factors & a second order factor	Symmetrical bifactor
χ^2 (degrees of freedom)	300.78 (104)	217.01 (102)	113.73 (88)
χ^2 / degrees of freedom	2.89*	2.12*	1.29*
GFI	.975*	.982*	.991*
CFI	.964*	.979*	.995*
NNFI	.959*	.976*	.994*
RMSEA	.086	.066*	.034*

*Note. *Acceptable or good fit indices according to conventional criteria.*

Table 4
Schmid-Leiman Solution in the Total Sample

Subscale / Item	F1 Public	F2 Private	General
Public Self-absorption			
1	0.248	-0.063	**0.611**
2	0.296	-0.005	**0.710**
3	0.276	0.008	**0.676**
7	0.257	-0.060	**0.549**
8	0.249	0.033	**0.642**
10	0.192	0.212	**0.717**
13	0.263	-0.019	**0.613**
16	0.262	-0.044	**0.580**
17	0.294	-0.060	**0.638**
Private Self-absorption			
4	-0.054	0.343	0.278
5	-0.080	**0.534**	**0.442**
6	0.041	0.369	**0.539**
9	-0.107	**0.646**	**0.511**
11	0.085	0.383	**0.661**
12	0.041	0.363	**0.531**
15	0.024	0.369	**0.498**
ω_H	0.127	0.364	**0.786**

Note. Factorial weights and ω_H > .40 are presented in bold.

Evidence of Internal Consistency

The finding of a hierarchical bifactorial structure with a higher-order factor empirically supported obtaining and validating a total SAS score and the scores for the two SAS subscales initially proposed by the instrument's authors. The results of the internal consistency analyses of all these scores revealed that, according to the standards of Hernández et al. (2016), the internal consistency coefficients were excellent (alpha/omega ≥ .85) for the total scale and the Public Self-absorption subscale, and good (.80 ≤ alpha/omega < .85) or adequate (.70 ≤ alpha/omega < .80) for the Private Self-absorption subscale (Table 5).

Table 6 shows, for each item of the SAS, its mean, standard deviation, and item-total and item-subscale correlations for the total sample of participants. The item-total and item-subscale correlations indicated good internal consistency indices for all the items because they exceeded in all cases the value of .30, except for Item 4, whose item-total correlation was .28, although its item-subscale correlation (.31) did exceed the standard of .30.

Table 5
Internal Consistency of SAS Scores in the Total Sample

Scores	Alpha	Omega	Ordinal alpha	Ordinal omega
Total	.875	.875	.906	.908
Private self-absorption	.754	.741	.843	.843
Public self-absorption	.857	.853	.867	.891

Table 6
Means, Standard Deviations, Skewness and Kurtosis Indices and Internal Consistency Coefficients of SAS Items in the Total Sample

Subscale / Item	*M*	*SD*	$r_{i\text{-}t}$	$r_{i\text{-}s}$
Private				
4	.91	.96	.280	.312
5	.22	.56	.345	.413
6	.56	.81	.485	.463
9	.23	.54	.443	.545
11	.43	.78	.595	.540
12	.65	.82	.502	.502
15	.46	.74	.449	.470
Public				
1	1.00	.89	.535	.565
2	.45	.75	.608	.631
3	.55	.82	.590	.596
7	.91	.90	.478	.508
8	.65	.79	.566	.572
10	.46	.74	.628	.586
13	.92	.95	.575	.589
16	1.01	1.06	.534	.555
17	1.28	1.01	.602	.626

Note. $r_{i\text{-}t}$ = corrected item-total correlation of the SAS. $r_{i\text{-}s}$ = corrected item-subscale correlation with the corresponding SAS subscale.

Evidence of Validity Based on Relationship with Other Variables

In the total sample, the mean score on the measure of depressive symptoms (BDI-II) was 9.34 (*SD* = 7.51), and on the measure of post-traumatic stress symptoms (PCL-5), it was 14.25 (*SD* = 14.71). Statistically significant and moderate correlations (.30 ≤ *r* < .50) were found between the SAS measures and measures of depression and post-traumatic stress symptoms (Table 7). According to the standards of Hernández et al. (2016), these correlations are considered good evidence of validity for the total measure of self-absorption of SAS (.45 ≤ *r* < .55) and, in general, adequate evidence of validity for the measures of private and public self-absorption of the SAS (.35 ≤ *r* < .45).

Table 7
Correlations of SAS Self-Absorption Measures with Measures of Depression and Post-Traumatic Stress Symptomatology

SAS measures	Depression symptomatology (BDI-II)	Post-traumatic stress symptomatology (PCL-5)
Total self-absorption	.459	.453
Private self-absorption	.403	.341
Public self-absorption	.406	.437

Note. All correlations are statistically significant at $p < .001$.

Discussion

The main objective of this study was to obtain evidence of validity for the Spanish version of the SAS in a sample of adults from the general Spanish population. The results allow us to state that, in this sample, the SAS scores present adequate validity indices regarding internal structure, internal consistency, and concurrent relationship with depression and post-traumatic stress.

Thus, the results suggest that the SAS has a symmetrical bifactor structure composed of two specific Public and Private Self-absorption factors and a strong overall Self-absorption factor. This result is consistent with the theoretical proposal of the authors of the instrument (McKenzie & Hoyle, 2008) and with the two-factor structure found in previous studies with samples from other countries in both university students (Öngen, 2015) and the general population (DaSilveira et al., 2011; Kostić & Stanojević, 2022), although none of these studies examined whether these two factors corresponded to a symmetrical bifactor model.

The results of the present study also suggest that, in the present sample of the general population, the general factor explains more than 70% of the variance of the items and allows us to conclude that this General Self-absorption factor influences the variance of the SAS items more than the two specific factors of Public and Private Self-absorption.

On the other hand, due to the poor psychometric behavior of Item 14 of the SAS in the present study, we decided to eliminate it, as this was also the case in the adaptations in other countries (DaSilveira et al., 2011; Öngen, 2015). One explanation for this poor behavior could be the participants' difficulty understanding its reverse wording. For example, if a person wanted to answer that they do not spend much time thinking about themselves, they would have to answer yes to a denial. Another possible explanation is that some participants could have answered the scale relatively quickly and did not notice the reverse wording of Item 14, especially as it is one of the last items and the only reversed item.

On the other hand, an analysis of the Spanish translation of Item 16 suggests that it does not retain the meaning of the original version. "*Cuando estoy a punto de conocer a alguien, me preocupa*

si me gustará" ("*When I'm about to meet someone, I'm worried about whether I'll like them*") does not seem the most appropriate Spanish translation for the original item "*When I'm about to meet someone for the first time, I worry about whether they'll like me*". On the contrary, a Spanish translation such as "*Cuando estoy a punto de conocer a alguien por primera vez, me preocupa si le gustaré a esa persona*" ("*When I am about to meet someone for the first time, I worry about whether that person will like me*") makes more sense theoretically, as it refers to attending to the impression that one may make on others, a characteristic of public self-absorption and, moreover, its wording is similar to that of the adaptations in other countries (DaSilveira et al., 2011; Kostić & Stanojević, 2022; Öngen, 2015). Although Item 16 did not show any anomalous psychometric behavior in the present study, it is recommended to replace it with the above-mentioned alternative wording in Spanish to improve the evaluation of public self-absorption.

The results of this study also indicate that, in adults of the general Spanish population, the total scale and the two subscales of the SAS showed excellent, good or adequate reliability coefficients (alphas and omegas = .70 —.88), similar to those obtained in other countries with general population (DaSilveira et al., 2011; Kostić & Stanojević, 2022; McKenzie & Hoyle, 2008).

Finally, the results of the correlation analyses indicated that the scores of the total scale and the subscales of the SAS present significant and moderate relationships with measures of depression and post-traumatic stress symptoms. These results are consistent with previous studies (McKenzie & Hoyle, 2008; Mor & Winquist, 2002; Vitanza et al., 1995). Although one would expect higher correlations of depressive and post-traumatic stress symptoms with private self-absorption than with public self-absorption, given that the latter targets a person's more external aspects and the former the more internal aspects, the results of the present study do not support this difference and are consistent with the absence of differences between private and public self-focused attention found in some studies (Sanz & Avia, 1994). In any case, the results support the notion that self-absorption may be a vulnerability factor to several psychological problems, including depression and PTSD (Ingram, 1990; Wells, 2009).

In summary, the findings of the present study provide empirical support for the reliability and validity of the scores of the total scale and subscales of the SAS as measures of self-absorption in adults of the general Spanish population and their usefulness in understanding emotional problems, especially in the case of the total scale, which seems to provide more information than the subscales.

The conclusions derived from these results should be assessed taking into account the limitations of the study. Among them, it should be noted that the use of a convenience sample and not having counterbalanced the order of application of the questionnaires could have biased the results. Also, the inclusion of a measure of social anxiety would have improved the evaluation of the validity of the Public self-absorption subscale. Therefore, future studies should replicate the psychometric properties of SAS in other Spanish samples of the general population and other populations (e.g., people with depressive or anxiety disorders) and examine other sources of validity evidence (e.g., relationship with other measures of self-focused attention or other emotional symptoms, primarily social and generalized anxiety). In addition, as self-absorption is conceived as excessive, sustained and rigid self-focused attention, future studies could improve the measurement of these three parameters by adding more items to the SAS and examining the possible establishment of factors and subscales based on these parameters.

Despite these limitations, the results of this study indicate that the SAS can be applied to adults from the general Spanish population, with adequate psychometric support. In addition, and according to the correlations found between self-absorption and depressive symptoms and post-traumatic stress, its application could help detect people in this population who may be at greater risk of suffering psychological problems and who are susceptible to receiving psychological programs aimed at reducing the level of self-absorption (Wells, 2009).

Acknowledgements

This work was possible thanks to a grant for predoctoral contracts of University Teacher Training (FPU) of the Ministry of Education, Culture, and Sport granted to the first author (FPU16/02976) and a research grant from the Ministry of Science, Innovation, and Universities granted to the last two authors (PGC2018-098387-B-I00).

References

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II.* Psychological Corporation.

Beck, A. T., Steer, R. A., & Brown, G. K. (2011). *Manual. BDI-II. Inventario de Depresión de Beck-II* (Adaptación española: Sanz, J., y Vázquez, C.) [Manual. BDI-II. Beck Depression Inventory-II (Spanish adaptation: Sanz, J., & Vázquez, C.)]. Pearson Educación.

Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress, 28*(6), 489-498. https://doi.org/10.1002/jts.22059

Carver, C. S. (1979). A cybernetic model of self-attention processes. *Journal of Personality and Social Psychology, 37*(8), 1251-1281. https://doi.org/10.1037/0022-3514.37.8.1251

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review, 97*(1), 19-35. https://doi.org/10.1037/0033-295X.97.1.19

DaSilveira, A. C., Gomes de Castro, T., & Gomes, W. B. (2011). Adaptação da Escala de Autoabsorção para adultos brasileiros [Adaptation of the Self-Absorption Scale to Brazilian adults]. *Interação em Psicologia, 15*(1), 1-10. http://dx.doi.org/10.5380/psi.v15i1.17472

Duval, S., & Wicklund, R. A. (1972). *A theory of objective self-awareness*. Academic Press.

Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: assessment and theory. *Journal of Consulting and Clinical Psychology, 43*(4), 522-527. https://doi.org/10.1037/h0076760

Ferrando, P. J., & Lorenzo-Seva, U. (2017). Program FACTOR at 10: Origins, development and future directions. *Psicothema, 29*(2), 236-241. https://dx.doi.org/10.7334/psicothema2016.304

Grant, A. M., Franklin, J., & Langford, P. (2002). The self-reflection and insight scale: A new measure of private self-consciousness. *Social Behavior and Personality, 30*(8), 821-835. https://doi.org/10.2224/sbp.2002.30.8.821

Gregory, B., & Peters, L. (2017). Changes in the self during cognitive behavioural therapy for social anxiety disorder: A systematic review. *Clinical Psychology Review, 52*, 1-18. https://doi.org/10.1016/j.cpr.2016.11.008

Hernández, A., Ponsoda, V., Muñiz, J., Prieto, G., & Elosua, P. (2016). Revisión del modelo para evaluar la calidad de los test utilizados en España [Assesing the quality of tests in Spain: Revision of the Spanish test review model]. *Papeles del Psicólogo, 37*(3), 192-197.

Ingram, R. E. (1990). Self-focused attention in clinical disorders: Review and a conceptual model. *Psychological Bulletin, 107*(2), 156-176. https://doi.org/10.1037/0033-2909.107.2.156

JASP Team. (2020). *JASP (version 0.14)* [Computer software]. https://jasp-stats.org

Kostić, S. M., & Stanojević, D. (2022). Validation of the Serbian adaptation of the Self-Absorption Scale. *Primenjena Psihologija, 15*(1), 119-145. https://doi.org/10.19090/pp.v15i1.2351

Lloret-Segura, S., Ferreres-Traver, A., Hernández-Baeza, A., & Tomás-Marco, I. (2014). El análisis factorial exploratorio de los ítems: una guía práctica, revisada y actualizada [Exploratory factor analysis of items: a revised and updated practical guide]. *Anales de Psicología, 30*(3), 1151-1169. https://doi.org/10.6018/analesps.30.3.199361

Lorenzo-Seva, U. (2021). SOLOMON: a method for splitting a sample into equivalent subsamples in factor analysis. *Behavior Research Methods*. https://doi.org/10.3758/s13428-021-01750-y

McDonald, R. P. (1999). *Test theory: A unified treatment*. Lawrence Erlbaum Associates.

McKenzie, K. S., & Hoyle, R. H. (2008). The Self-Absorption Scale: Reliability and validity in non-clinical samples. *Personality and Individual Differences, 45*(8), 726-731. https://doi.org/10.1016/j.paid.2008.07.020

Mor, N., & Winquist, J. (2002). Self-focused attention and negative affect: A meta-analysis. *Psychological Bulletin, 128*(4), 638-662. https://doi.org/10.1037/0033-2909.128.4.638

Nakajima, M., Takano, K., & Tanno, Y. (2017). Adaptive functions of self-focused attention: Insight and depressive and anxiety symptoms. *Psychiatry Research, 249*, 275-280. https://doi.org/10.1016/j.psychres.2017.01.026

Normann, N., & Morina, N. (2018). The efficacy of metacognitive therapy: A systematic review and meta-analysis. *Frontiers in Psychology, 9*, Article 2211. https://doi.org/10.3389/fpsyg.2018.02211

Öngen, D. E. (2015). The relationships among self-absorption, self-criticism and perfectionism. *Procedia-Social and Behavioral Sciences, 191*, 2559-2564. https://doi.org/10.1016/j.sbspro.2015.04.273

Perona-Garcelán, S., García-Montes, J. M., López-Jiménez, A. M., Rodríguez-Testal, J. F., Ruiz-Veguilla, M., Ductor-Recuerda, M., Benítez-Hernández, M. M., Arias-Velarde, M., Gómez-Gómez, M. T., & Pérez-Álvarez, M. (2014). Relationship between self-focused attention and mindfulness in people with and without hallucination proneness. *Spanish Journal of Psychology, 17*, 1-8. https://doi.org/10.1017/sjp.2014.23

Perona-Garcelán, S., García-Montes, J. M., Rodríguez-Testal, J. F., Ruiz-Veguilla, M., Benítez-Hernández, M. M., López-Jiménez, A. M., Arias-Velarde, M., Ductor-Recuerda, M., Gómez-Gómez, M. T., & Pérez-Álvarez, M. (2013). Relationship of absorption, depersonalisation, and self-focused attention in subjects with and without hallucination proneness. *Cognitive Neuropsychiatry, 18*(5), 422-436. https://doi.org/10.1080/13546805.2012.728133

Perona-Garcelán, S., Úbeda-Gómez, J., León-Palacios, M. G., Escudero-Pérez, S., Barros-Albarrán, M. D., López-Jiménez, A. M., Vallina-Fernández, O., Jiménez-García-Bóveda, R., Diez-Alegría, C., Rodríguez-Testal, J. F., Ruiz-Veguilla, M., García-Montes, J. M., & Pérez-Álvarez, M. (2016). Relationship between public and private self-focused attention and auditory verbal hallucinations as an interpersonal process. *Psychosis, 8*(2), 118-129. https://doi.org/10.1080/17522439.2015.1115540

Rodriguez, A., Reise, S. P., & Haviland, M. G. (2016). Evaluating bifactor models: Calculating and interpreting statistical indices. *Psychological Methods, 21*(2), 137-150. https://doi.org/10.1037/met0000045

Sanz, J. (2013). 50 años de los Inventarios de Depresión de Beck: consejos para la utilización de la adaptación española del BDI-II en la práctica clínica [50 years of the Beck Depression Inventories: Recommendations for the use of the Spanish adaptation of the BDI-II in clinical practice]. *Papeles del Psicólogo, 34*(3), 161-168. https://www.papelesdelpsicologo.es/pdf/2275.pdf

Sanz, J., Altungy, P., Reguera, B., Navarro, R., Gesteira, C., Sanz-García, A., Morán, N., Cobos Redondo, B., Fausor, R., & Garcia-Vera, M. P. (2023). *Psychometric validation of the Spanish version of the PTSD Checklist for DSM-5 (PCL-5).* [Manuscript submitted for publication]. Department of Personality, Assessment, and Clinical Psychology, Complutense University of Madrid.

Sanz, J., & Avia, M. D. (1994). Cognitive specificity in social anxiety and depression: Self-statements, self-focused attention, and dysfunctional attitudes. *Journal of Social and Clinical Psychology, 13*(2), 105-137. https://doi.org/10.1521/jscp.1994.13.2.105

Sanz, J., & García-Vera, M. P. (2013). Rendimiento diagnóstico y estructura factorial del Inventario de Depresión de Beck-II (BDI-II) [Diagnostic performance and factorial structure of the Beck Depression Inventory-Second Edition (BDI-II)]. *Anales de Psicología, 29*(1), 66-75. https://dx.doi.org/10.6018/analesps.29.1.130532

Spurr, J. M., & Stopa, L. (2002). Self-focused attention in social phobia and social anxiety. *Clinical Psychology Review, 22*(7), 947-975. https://doi.org/10.1016/S0272-7358(02)00107-1

Úbeda-Gómez, J., León-Palacios, M. G., Escudero-Pérez, S., Barros-Albarrán, M. D., López-Jiménez, A. M., & Perona-Garcelán, S. (2015). Relationship between self-focused attention, mindfulness and distress in individuals with auditory verbal hallucinations. *Cognitive Neuropsychiatry, 20*(6), 482-488. https://doi.org/10.1080/13546805.2015.1089225

Vitanza, S., Vogel, L. C., & Marshall, L. L. (1995). Distress and symptoms of posttraumatic stress disorder in abused women. *Violence and Victims, 10*(1), 23-34. https://doi.org/10.1891/0886-6708.10.1.23

Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). *The PTSD Checklist for DSM-5 (PCL-5)*. National Center for PTSD. http://www.ptsd.va.gov

Wells, A. (2009). *Metacognitive therapy for anxiety and depression*. Guilford Press.

West, S. G., Taylor, A. B., & Wu, W. (2012). Model fit and model selection in structural equation. In R. H. Hoyle (Ed.), *Handbook of structural equation modeling* (pp. 209-231). Guilford Press.