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Article

Dysfunctional Attitudes in Victims of Terrorism: Validity Evidence for the DAS-A

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Abstract

Background: The Dysfunctional Attitudes Scale, Form A (DAS-A), is the reference instrument for measuring dysfunctional attitudes which, according to Beck's cognitive theory, constitute the key vulnerability factor for depression. The psychometric properties of the Spanish version of the DAS-A have been examined in university students, but not in people with psychological disorders, despite being one of the most widely-used instruments in research and clinical practice of cognitive therapy for depression. The objective of the present study was to obtain validity evidence for the DAS-A in victims of terrorism with and without emotional disorders. **Method:** The DAS-A's factor structure, internal consistency, and relationship with depression were analyzed in 196 victims of terrorism with emotional disorders and 280 victims without disorders. **Results:** In both samples, the DAS-A exhibited a structure with three correlated factors: Achievement-Perfectionism, Dependency-Need for Approval, and Autonomous Attitude. In general, the total scale and the subscales showed good or adequate indices of internal consistency (alphas and omegas = .60 - .89) and a relationship with depression (r =.22 - .44). **Conclusions:** The DAS-A provides reliable, valid measures of depressogenic dysfunctional attitudes in Spanish adults with emotional disorders and victims of terrorism.

Keywords: Disfunctional attitudes, depression, DAS-A, factur structure, reliability, validity.

Resumen

Actitudes Disfuncionales en Víctimas del Terrorismo: Evidencias de Validez de la DAS-A. **Antecedentes:** la Escala de Actitudes Disfuncionales, Forma A (DAS-A), es el instrumento de referencia para medir las actitudes disfuncionales que, según la teoría cognitiva de Beck, constituyen el factor de vulnerabilidad clave para la depresión. Las propiedades psicométricas de la versión española de la DAS-A han sido examinadas en estudiantes universitarios, pero no en personas con trastornos psicológicos, a pesar de ser uno de los instrumentos más utilizados en la investigación y práctica clínica de la terapia cognitiva de la depresión. El objetivo del presente estudio fue obtener evidencias de validez de la DAS-A en víctimas del terrorismo con y sin trastornos emocionales. **Método:** se analizó la estructura factorial, consistencia interna y relación con la depresión en 196 víctimas con trastornos emocionales y 280 sin trastornos. **Resultados:** la DAS-A presenta, en las dos muestras, una estructura de tres factores correlacionados: logro-perfeccionismo, dependencia-necesidad de aprobación y actitud autónoma. La escala total y las subescalas mostraron, en general, índices buenos o adecuados de consistencia interna (alfas y omegas= .60 - .89) y de relación con la depresión (r = .22 - .44). **Conclusiones:** la DAS-A proporciona medidas fiables y válidas de las actitudes disfuncionales depresógenas en adultos españoles con trastornos emocionales y en víctimas del terrorismo.

Palabras clave: actitudes disfuncionales, depresión, DAS-A, estructura factorial, fiabilidad, validez.

Beck's (Beck et al., 1979; Beck & Haigh, 2014) cognitive theory of depression is one of the most researched and validated psychological models of depression, as cognitive or cognitive-behavioral therapy based on it is the psychotherapy with the largest number of studies that support its effectiveness for depressive disorders (Sanz & García-Vera, 2017). According to this theory, dysfunctional attitudes are the key vulnerability factor for depression. These attitudes form cognitive schemas that, activated by stressful events, lead to information processing consistent with the dysfunctional content of these attitudes and, therefore, to systematic cognitive errors. These errors produce voluntary and automatic images and thoughts of a negative and distorted nature about oneself, the world, and the future, which are the sufficient and proximal cause of the rest of the depressive symptoms.

Different types of dysfunctional attitudes can form depressogenic cognitive schemas (Beck & Haigh, 2014) but perhaps the most investigated are the conditional ones or those based on categorical imperatives that establish unrealistic, inflexible, and inadequate conditions to determine one's worth. These attitudes are what the Dysfunctional Attitude Scale, Form A (DAS-A) of Weissman and Beck (1978), the most commonly used instrument to evaluate such attitudes in research on Beck's theory or therapy (Cristea et al., 2015; Soflau & David, 2017), aims to measure.

In Spain, the DAS-A has been validated in a sample of university students, in which their total score and those of the three subscales

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created from the results of factor analysis —Achievement, Dependence-Need for Approval, and Autonomous Attitude— obtained good or acceptable evidence of validity to distinguish people with and without depressive symptoms, concurrently predict depression, and, except for the Autonomous Attitude subscale, internal consistency (Sanz & Vázquez, 1993, 1994).

Based on these results, the Spanish version of DAS-A has been used in studies with university students (Carrasco Ortiz & Rodríguez Testal, 1998; Ruiz & Odriozola-González, 2016) but also with people with psychological disorders (Cuéllar et al., 2007; Senín-Calderón et al., 2017) or victims of trauma (Vera Guerrero, 2004). However, no study has examined the validity of the Spanish version in samples from these populations. This is important because, for example, in some of these studies with samples of people with psychological disorders (e.g., Cuéllar et al., 2007; Senín-Calderón et al., 2017) or victims of trauma (Vera Guerrero, 2004), the subscales created by Sanz and Vázquez (1993) from the factor structure obtained in university students were used. However, if this structure is not replicated in these other samples, the validity of the subscales would be questionable and, therefore, the results obtained with them would also be questionable.

The scientific literature on the internal structure of DAS-A has found different factorial solutions in different types of samples and even in the same type: one factor (Floyd et al., 2004; Moore et al., 2014), two factors (Cane et al., 1986; Floyd et al., 2004; Vaglum & Falkum, 1999), three factors (Floyd et al., 2004; Sanz & Vázquez, 1993), and four factors (Chioqueta & Stiles, 2006; Şahin & Şahin, 1992). This reaffirms the need to examine the internal structure that the DAS-A may present in Spanish samples other than university students.

This need is especially important for people with psychological disorders, as the DAS-A is one of the most widely used measures to assess the efficacy of cognitive therapy for depression or to measure the mediators of its therapeutic effects (Cristea et al., 2015). Currently, Spanish researchers studying cognitive therapy or Spanish professionals who apply it have the option of either using a factor structure—and the resulting scoring method—obtained with university students, which may not be applicable to their participants or patients, or performing a factor analysis of the DAS-A as a preliminary step, which, in single-case or small group designs, is mathematically unfeasible.

The objective of the present study was to obtain evidence of the validity of the DAS-A, including its internal structure, in two samples of Spanish adults who were victims of terrorism, one suffering from an emotional disorder and the other without any emotional disorder.

Method

Participants

We attempted to contact 1,704 adult victims of terrorism by telephone as part of a broader investigation, carried out in collaboration with the Association of Victims of Terrorism (AVT) and approved by the Ethics Commission of the Faculty of Psychology of the Complutense University of Madrid. Of this initial sample, 476 people underwent a psychological evaluation, during which the DAS-A was applied, as well as a structured diagnostic interview that allowed us to identify 196 people who currently suffered from a mood, anxiety, or post-traumatic stress disorder, and 280 who did not suffer from them. The most important sociodemographic and clinical characteristics of the two samples of participants are shown in Table 1.

Instruments

Dysfunctional Attitude Scale, Form A (DAS-A; Weissman & Beck, 1978), in its Spanish version (Sanz & Vázquez, 1993). This is a 40-item self-reporting instrument designed to assess the presence and intensity of the dysfunctional attitudes that are characteristic of depressed patients. For each of the DAS-A items, the respondent must indicate on a 7-point Likert scale, the degree to which they agree with the attitude reflected in the item. Each item is scored between 1 (*Strongly disagree*) and 7 (*Strongly agree*), except for 10 items that reflect functional attitudes and that are scored inversely. The DAS-A has obtained adequate evidence of validity in different samples of participants (Cane et al., 1986; Chioqueta & Stiles, 2006; Floyd et al., 2004; Şahin & Şahin, 1992; Vaglum & Falkum, 1999), including people with psychological disorders (Moore et al., 2014). The Spanish version has obtained adequate evidence of validity in university students, in whom, for example, the total score has shown an internal consistency alpha of .84 and a correlation with depression of .36 (Sanz & Vázquez, 1993, 1994).

Table 1
Sociodemographic and Clinical Characteristics of the Participant Samples

Characteristic	Victims of terrorism	
	Without disorders	With disorders
Females	47.8	63.3
Mean age in years (*SD*)	50.19 (15.34)	48.84 (12.43)
Age range in years	18 - 86	18 - 81
Civil status		
Married or living as a couple	65.4	67.9
Single	16.1	14.8
Widowed	14.3	11.2
Separated or divorced	4.3	6.1
Studies		
None	0.4	1.0
Primary/Basic	20.7	20.4
Secondary/ High school/Compulsory	27.5	29.1
Professional Vocation	16.0	22.4
University studies	35.4	27.1
Not currently working	49.8	56.8
Link to the attack*		
Injured	28.4	44.9
Relative of the deceased	42.1	41.3
Relative of the injured	31.7	18.9
Mean time in years since the attack (*SD*)	23.72 (9.42)	19.50 (10.62)
Mean age at which the attack was suffered (*SD*)	27.25 (15.83)	29.23 (13.16)
Is receiving psychological assistance	3.9	16.5
Is receiving psychopharmacological assistance	12.5	39.4
Current emotional disorders*		
Post-traumatic stress	0	41.5
Mood	0	39.3
Anxiety	0	75.8
Any disorder	0	100

Note: Unless otherwise noted, all data are percentages. *Some participants may fall into several categories or suffer from various disorders

Structured Clinical Interview for Axis I Disorders of the DSM-IV, Clinician Version (SCID-I-CV; First et al., 1997). For the diagnosis of mood, anxiety, and post-traumatic stress disorders, the corresponding modules of the Spanish translation of the SCID-I-CV were applied (First et al., 1999). The SCID-I-CV has obtained adequate evidence of validity, such as interjudge reliability indices (kappa) of .61 – .80 for major depressive disorder, .63 – .75 for generalized anxiety disorder, and .77 – .88 for post-traumatic stress disorder (Zanarini et al., 2000; Lobbestael et al., 2011).

Beck Depression Inventory-II (BDI-II; Beck et al., 1996). The Spanish adaptation of the BDI-II (Beck et al., 2011) was applied. This is a self-reporting instrument of 21 items or groups of statements created to assess the presence and severity of depressive symptoms. In each item, the person has to choose the statement that best reflects their condition during the last two weeks, which is valued from 0 to 3 points, such that a score in depressive symptomatology between 0 and 63 is obtained. The Spanish adaptation has obtained good or acceptable evidence of validity in different samples of participants, including people with psychological disorders (Beck et al., 2011), in whom, for example, an alpha of internal consistency of .91 and areas under the ROC curve of .82 – .88 have been obtained to distinguish severity levels of depressive symptomatology (Sanz & García-Vera, 2013; Sanz et al., 2014). In this study, an alpha of .94 was obtained in both victim samples.

Procedure

Participants were informed of the project through a postal letter and articles published in the AVT's quarterly journal. Subsequently, an attempt was made to contact the associates by telephone, and all those contacted were offered the possibility of a face-to-face interview. After obtaining their written informed consent, the following instruments were applied during this interview: SCID-I-CV, BDI-II, and DAS-A. All interviews were conducted by psychologists trained through a university diploma focused on psychological care for victims of terrorist attacks, observing interviews, conducting supervised interviews, and holding weekly clinical sessions.

Data Analysis

Factor analyses were performed on the responses to the DAS-A items in each sample of participants with the FACTOR program (Ferrando & Lorenzo-Seva, 2017), and following the recommendations of Ferrando (2021) and Calderón et al. (2019). Internal consistency analyses were performed with the JASP program (JASP Team, 2020), following the recommendations of Muñiz and Fonseca-Pedrero (2019).

Factor analyses were performed on the matrix of polychoric correlations between items because, in victims with and without disorders, most of the 40 items (25 and 30, respectively) had kurtosis or asymmetry values outside the range that indicates a normal distribution of their scores (-1/+1), and the Mardia kurtosis analysis and multivariate asymmetry revealed statistically significant results for kurtosis.

Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) test were calculated to analyze the adequacy of the data for factor analysis, and five procedures were performed to determine the number of factors to be extracted: Cattell's scree test, Hull's method, Velicer's MAP test, classic parallel analysis, and optimal parallel analysis of Timmerman and Lorenzo-Seva. The number of factors recommended by most of these procedures were extracted with the method of robust unweighted least squares (ULS) because this method does not assume a multivariate normal distribution of the data.

The following goodness-of-fit indices were calculated for each recommended factor solution (with the corresponding criteria for adequate fit) (West et al., 2012): 1) χ^2/df (≤ 5); 2) goodness of fit index or GFI ($\geq .95$); 3) comparative fit index of Bentler or CFI ($\geq .95$); 4) non-normal fit index or NNFI ($\geq .95$); 5) root mean square error of approximation or RMSEA ($\leq .08$), and 6) weighted residual mean square root or WRMR ($< .90$), and, if a single factor was extracted, three additional fit indices for a unidimensional solution were calculated: unidimensional congruence (UniCo), proportion of explained common variance (ECV), and the mean of item residual absolute loadings (MIREAL).

The results of these indices were assessed in the context of the psychological interpretation of the factor loading matrix of the different factor solutions, a matrix that, in the case of the solutions of two or more factors, was rotated with a normalized promax oblique procedure. In the psychological interpretation, the content of the defining items was taken into account, that is, those that presented in these matrices factor loadings $\geq .35$ in one factor and lower factor loadings in the rest.

To quantify the degree of convergence between the factor solutions found in the two samples of participants, Tucker's factorial congruence coefficient *C* and Pearson's correlation coefficient were calculated, considering that *C*-values of .85 – .94 indicate that two factors are similar, and of $\geq .95$ that they are virtually identical, and that a correlation of .75 indicates that two factors have a similar interpretation.

Finally, the internal consistency of the total DAS-A and the subscales defined by the factorial solution considered most appropriate was examined, using the Cronbach alpha and McDonald (1999) omega coefficients. The means and standard deviations of their items, the correlations of their items with the scores of the total scale or of the subscales without the corresponding item (corrected item-total and item-subscale correlations), and the correlations of the total scale and the subscales with depression measures (BDI-II) were calculated.

Results

Evidence of Internal Structure

For the two samples of participants, the results of Bartlett's sphericity tests (2081.9 and 3049, both with $p < .0001$) and of the KMO (.71 and .76, both acceptable) indicated that the polychoric correlation matrices were suitable for factor analysis.

The results of the five procedures for determining the number of factors (Table 2) did not indicate a unanimous factorial solution for any of the samples, but suggested solutions between one and five factors, although the two- and three-factor solutions were suggested by more indices and in more samples, whereas the five-factor solution was only suggested by one of the indices and in one of the samples. Leaving aside the five-factor solution, one, two, three, and four factors were extracted in each sample to compare their goodness-of-fit indices and their psychological interpretation.

Table 2
Recommended Number of Factors to be Extracted from Participant Samples

Index	Victims of terrorism with disorders	Victims of terrorism without disorders
Cattell's scree test	3	2
Optimal parallel analysis	3	3
Classic parallel analysis	4	5
Hull's method	1	1
Velicer's MAP test	2	2

The goodness-of-fit indices are shown in Table 3 and, although all the solutions seemed to have good indices in general, some solutions were found in both samples in which the six indices unanimously obtained acceptable or good values, in particular, the three- and four-factor solutions. Therefore, for the two samples, the one- and two-factor solutions were discarded because two of the three indices that specifically evaluated the fit of a single-factor solution (UniCo and ECV) suggested that the solution did not fit the data well in any of the samples.

The rotated matrices of the factor loadings of the three-factor solutions consistently indicated in both samples a factor defined by Items 3, 4, 5, 8, 9, 10, 13, 14, 15, 20, 21, 26, and 31, which reflects dysfunctional attitudes related to achievement and perfectionism. The second factor was defined by Items 7, 19, 28, 32, 34, 38, and 39, which reflects dysfunctional attitudes related to dependence on others and the need for their approval. The third factor, defined by the inverse Items 2, 17, 29, 30, 35, and 37, reflects functional or adaptive attitudes related to autonomy, with the capacity to realize that the potential for happiness and self-esteem does not come from the outside but rather depends on oneself (Table 4).

The rotated matrices of the four-factor solutions also showed three initial factors similar to the previous ones in both samples of participants but they also showed a fourth factor defined by only three items (28, 39, and 40) in the victims with disorders and also by only three items (3, 4, and 5) but different from the previous three, in victims without disorders, so this fourth factor was discarded in both samples.

In summary, the results of the factor analyses indicated that the internal structure of DAS-A in both samples was trifactorial and that the three factors were very similar, especially that of Achievement-Perfectionism because, for this factor, both the correlation coefficient between the two matrices of factor loadings (r = .82) and the congruence coefficient (C = .91) exceeded the standards that indicate that it is identical in both samples. For the factors of Dependence and Autonomous Attitude, the correlation coefficients (r = .80 and .79, respectively) exceeded the standard that indicates that these factors were similar in both samples, but not the congruence standards (C = .83 and .84, respectively), although they were very close to the standard of .85.

In the two samples, the Achievement-Perfection factor had a statistically significant and large correlation ($r \geq .50$) with the factor of Dependence-Need for Approval, with a value of .60 (p = .001) in victims with disorders and of .67 (p = .001) in victims without disorders. The Achievement-Perfectionism factor had a statistically significant and negative correlation with the factor of Autonomous Attitude, between almost moderate ($.30 \leq r < .50$) and large, in particular, with a value of -.29 (p = .001) in victims with disorders and of -.62 (p = .001) in victims without disorders. Finally, the Dependence factor had a statistically significant and negative correlation with the Autonomous Attitude factor, between moderate and large, specifically, with a value of -.42 (p = .001) in victims with disorders and of -.52 (p = .001) in victims without disorders.

Evidence of Internal Consistency

The finding of a three-factor structure justified the creation of three subscales in the DAS-A based on the items whose factor loadings defined in both samples the factors of Achievement-Perfectionism, Dependence-Need for Approval, and Autonomous Attitude, although, to increase the reliability of the last two subscales, two items whose factor loadings exceeded .35 in one of the samples and were very close (.34) in the other sample were also included. Thus, based on the results of Table 4, the Achievement-Perfectionism subscale was composed of the Items 3, 4, 5, 8, 9, 10, 13, 14, 15, 20, 21, 26, and 31; the Dependency-Need for Approval subscale contained the Items 7, 19, 28, 32, 34, 38, and 39, plus Item 27; and the Autonomous Attitude subscale was made up of

Table 3
Fit Indices of the DAS-A Factorial Solutions in the Participant Samples

Index	Victims of terrorism without disorders				Victims of terrorism with disorders			
	1 F	2 FF	3 FF	4 FF	1 F	2 FF	3 FF	4 FF
% of explained variance	28%	34%	39%	43%	27%	34%	40%	45%
χ^2 / gl	1.79*	1.48*	1.37*	1.33*	1.65*	1.41*	1.22*	1.13*
GFI	.926	.949	.959*	.967*	.913	.939	.955*	.963*
CFI	.962*	.978*	.984*	.988*	.954*	.973*	.986*	.992*
NNFI	.960*	.976*	.981*	.986*	.952*	.970*	.983*	.990*
RMSEA	.053*	.042*	.037*	.032*	.058*	.046*	.034*	.027*
WRMR	.068*	.056*	.050*	.045*	.076*	.064*	.055*	.050*
Unidimensionality indices								
UniCo	.854	—	—	—	.824	—	—	—
ECV	.814	—	—	—	.804	—	—	—
MIREAL	.206*	—	—	—	.187*	—	—	—

Note: 1F, 2FF, 3FF, and 4FF = Solutions of one, two, three, and four factors, respectively. *Acceptable or good indices according to conventional criteria

Table 4
Rotated Matrix of Factor Loadings of DAS-A Three-Factor Solutions in the Participant Samples

Item	Victims with disorders			Victims without disorders		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
1	.540					-.392
2*			.615			.499
3	.655			.459		
4	.736			.723		
5	.486			.622		
6*		.401	.635			
7		.377			.396	
8	.786			.664		
9	.894			.572		
10	.690			.469		
11	.518			.397		.742
12*			.412			
13	.578			.730		
14	.695			.658		
15	.690			.676		
16		.428		.312		
17*			.591			.619
18		.377				
19	.343	.406			.523	
20	.725			.528		
21	.373	.335		.432	.300	
22	.386			.325	.331	
23	.494			.519		
24*			.336			.586
25					.356	
26	.556			.726		
27		.361		.337	.337	
28		.544			.637	
29*			.579			.595
30*		-.312	.347			.433
31	.511			.530		
32		.591			.603	
33	.340	.302			.480	
34		.525			.442	
35*		-.324	.401			.559
36	.329			.523		
37*			.453			.636
38		.515			.397	
39		.584			.610	.327
40*		-.320		.367		.550

Note: Factor loadings < .30 are not displayed. * Inverse items

the Items 2, 17, 29, 30, 35, and 37, plus Item 24. The moderate-large correlations between the three factors justified the obtaining and validity of a total score in the DAS-A. The means and standard deviations of this total score and those of the subscales are shown in Table 6. These scores were normally distributed in both samples (kurtosis and skewness indices within the -1/+1 range), except for the total and Achievement-Perfectionism scores in victims without disorders (skewness within the range, but kurtosis of 1.52 and 2.17, respectively).

The results of the internal consistency analyses of all these scores in the two samples are shown in Table 5. According to the standards of Hernández et al. (2006), these results revealed generally excellent (≥ .85) or good (.80 ≤ alpha/omega < .85) internal consistency coefficients for the total scale and the Achievement-Perfectionism subscale; adequate (.70 ≤ alpha/omega < .80) or adequate but with some deficiencies (.60 ≤ alpha/omega < .70) for the Dependency scale; and adequate but with some deficiencies for the Autonomous Attitude subscale.

Table 6 shows the mean, standard deviation, and item-total and item-subscale correlations for each item of the DAS-A. The last ones indicated good internal consistency indices for all the items of the Achievement-Perfectionism and Dependency subscales, as their item-total and item-subscale correlations exceeded in all cases and both samples the value of .30, except for Item 5 (Achievement-Perfectionism) and Item 39 (Dependence-Need for Approval). However, the items of the Autonomous Attitude subscale had worse indices, as none had item-total correlations ≥ .30 in either sample and only two had item-subscale correlations ≥ .30 in both samples. Regarding the 12 items that do not belong to any subscale, we found six that had item-total correlations ≥ .30 in both samples, but also three with very poor indices of internal consistency, as they had item-total correlations of less than .10 in one of the samples (Items 6, 36, and 25).

The problems of internal consistency of these three items did not seem to be related to low variability or floor or ceiling effects in their scores, as all three showed means and standard deviations similar to those obtained by most of the remaining DAS-A items, which had means approximately between 2 and 5 in victims with disorders and between 1.5 and 3.5 in victims without disorders.

Evidence of Relationship with a Criterion

In the two samples of participants, statistically significant and moderate correlations of .38 (p = .001) were found between the measures of depression and the scores on the total DAS-A in victims with disorders and of .36 (p = .001) in victims without disorders, and between measures of depression and scores on the Achievement-Perfectionism subscale of .44 (p = .001) in victims with disorders and of .33 (p = .001) in victims without disorders. For the Dependency-Need for Approval subscale, correlations with depression were also statistically significant, albeit small, in both samples, of .22 (p = .002) in victims with disorders and of .23 (p = .001) in victims without disorders. As might be expected, correlations with measures of depression for the Autonomous Attitude subscale were negative: in victims with emotional disorders, it was not statistically significant (r = -.07, p = .302), whereas in victims without disorders, it was significant and small (r = -.27, p = .001).

Table 5
Internal Consistency of DAS-A Scores in the Participant Samples

Scores	Victims of terrorism			
	With disorders		Without disorders	
	Alfa	Omega	Alfa	Omega
Total	.89	.89	.87	.86
Achievement	.87	.88	.83	.83
Dependency	.76	.77	.68	.68
Autonomous Attitude	.60	.60	.64	.64

According to the standards of Hernández et al. (2016), in general, correlations with depression would be considered adequate evidence of validity for the total DAS-A and the subscale of Achievement-Perfectionism ($.35 \leq r < .45$), and adequate but with some deficiencies for the subscales of Dependence-Need for Approval and Autonomous Attitude ($.20 \leq r < .35$).

Table 6
Means, Standard Deviations, and Internal Consistency Indices of DAS-A Items in the Participant Samples

Subscale / Item	Victims with disorders				Victims without disorders			
	Mean	*SD*	r_{i-t}	r_{i-s}	Mean	*SD*	r_{i-t}	r_{i-s}
Achievement								
3	3.74	2.01	.450	.500	2.94	1.78	.343	.332
4	3.29	1.99	.507	.599	2.65	1.81	.430	.508
5	3.07	1.98	.384	.399	2.57	1.81	.214	.290
8	2.19	1.89	.486	.552	1.89	1.65	.411	.480
9	2.53	1.99	.615	.690	1.73	1.38	.629	.652
10	2.69	2.00	.629	.649	2.09	1.74	.548	.558
13	2.51	1.72	.595	.576	2.25	1.78	.443	.478
14	2.43	1.86	.620	.660	1.83	1.47	.448	.520
15	2.45	1.81	.542	.583	1.78	1.50	.436	.501
20	2.39	1.82	.605	.634	1.82	1.51	.565	.533
21	3.26	2.05	.504	.479	2.49	1.91	.528	.495
26	1.99	1.61	.527	.491	1.67	1.45	.509	.527
31	3.28	2.12	.360	.397	2.09	1.61	.400	.423
Dependency								
7	3.09	2.01	.544	.496	2.34	1.81	.367	.368
19	2.62	1.92	.623	.531	1.87	1.46	.552	.439
27	4.24	2.14	.363	.405	3.57	2.06	.302	.287
28	4.17	2.13	.322	.393	3.52	2.15	.330	.396
32	3.29	2.05	.572	.592	2.49	1.86	.479	.481
34	2.70	1.99	.547	.550	2.06	1.76	.366	.349
38	4.13	1.88	.449	.486	3.45	1.84	.418	.398
39	4.85	2.12	.162	.285	4.59	2.07	.138	.313
Autonomy								
2*	2.50	1.86	.270	.407	2.07	1.69	.290	.271
17*	2.42	1.99	.239	.338	2.11	1.92	.385	.399
24*	3.36	2.05	.259	.288	2.89	2.01	.250	.366
29*	3.32	2.03	.153	.344	1.79	1.98	.278	.423
30*	3.75	2.07	.153	.295	3.37	2.05	.308	.352
35*	3.74	2.13	.212	.295	3.32	2.35	.194	.277
37*	3.52	2.13	.195	.237	2.75	1.87	.261	.353
No subscale								
1	2.39	1.82	.402	—	2.03	1.56	.284	—
6*	3.04	2.21	.036	—	2.86	2.13	.205	—
11	3.59	2.14	.310	—	2.85	1.97	.305	—
12*	2.70	1.87	.222	—	2.33	1.84	.344	—
16	2.59	1.93	.543	—	2.07	1.69	.462	—
18	3.99	1.95	.311	—	3.51	2.05	.379	—
22	3.12	2.21	.473	—	2.48	1.90	.519	—
23	4.39	1.93	.438	—	3.42	2.04	.418	—
25	4.60	2.03	.255	—	4.85	1.86	.043	—
33	2.66	1.91	.549	—	1.83	1.53	.448	—
36	3.03	2.16	.083	—	2.84	2.19	.199	—
40*	4.20	2.08	.216	—	3.76	2.24	.160	—
Achievement	39.41	16.65	—	—	30.65	13.18	—	—
Dependency	29.11	9.99	—	—	23.90	8.41	—	—
Autonomy	33.38	7.72	—	—	36.67	7.81	—	—
Total	127.88	34.44	—	—	105.86	29.73	—	—

Note: r_{i-t} = Corrected item-total correlation. r_{i-s} = Corrected item-subscale correlation. *Inverse items with their score reversed

Discussion

The main objective of this study was to obtain validity evidence of the Spanish version of the DAS-A in two samples of adult victims of terrorism, one with emotional disorders and the other without emotional disorders. The results allow us to affirm that, at least in these two samples, the DAS-A measurements present adequate validity indices in internal structure, internal consistency, and concurrent relationship with depression.

Indeed, the results suggest, firstly, that the DAS-A presents an internal structure of three factors—Achievement-Perfectionism, Dependence-Need for Approval, and Autonomous Attitude—that correlate with each other moderately or highly, which is consistent with Beck's cognitive theory. This structure is very similar in both samples of participants and is consistent with the three-factor structure found by Sanz and Vázquez (1993) in Spanish university students, whose factors were named the same. In fact, the Achievement-Perfectionism subscale created from the homonymous factor of this study shares 9 of its 13 items with the Achievement subscale, also of 13 items, created by Sanz and Vázquez from the factor discovered in their study. Likewise, the Dependency-Need for Approval subscale of this study shares 6 of its 8 items with the homonymous 8-item subscale of Sanz and Vázquez, whereas the Autonomous Attitude subscale shares 5 of its 7 items with the homonymous 6-item subscale of Sanz and Vázquez.

Moreover, although some studies have found that the internal structure of the DAS-A is composed of one, two, three, or four factors, these studies also suggest that the most solid findings replicated in different samples are those that point to a first factor related to issues of achievement and perfectionism and a second factor related to issues of dependence and need for approval. These two factors have not only been found in two-factor solutions (Cane et al., 1986; Vaglum & Falkum, 1999) but also in the three- and four-factor solutions (Chioqueta & Stiles, 2006; de Graaf et al., 2009; Şahin & Şahin, 1992). These two factors coincide with the first two factors of this study; in this sense, the results presented herein corroborate their solidity.

The results also show that the scores of the total scale and the subscales of the DAS-A, in general, present in the two samples of participants good or adequate indices of internal consistency, except for the scores of the subscale of Autonomous Attitude, whose indices were adequate, but with some deficiencies. In fact, almost all of the items in the Achievement and Dependence subscales show adequate internal consistency indices in both victim samples (corrected item-subscale correlations ≥ .30), but most of the items in the Autonomous Attitude subscale have indices of less than .30 in one of the samples.

In addition, the results indicate that the total scale and subscale scores have significant and small or moderate correlations with measures of the construct—namely, depression—with which dysfunctional attitudes should have a significant relationship, as they are conceived as cognitive vulnerability factors for depression. This pattern of correlations is consistent in the two samples, except for the Autonomous Attitude subscale, which, in the sample of victims with emotional disorders, did not show a significant correlation with depression.

These lower validity pieces of evidence for the Autonomous Attitude subscale recommend that it be used with some caution because, moreover, the subscale and its underlying factor are made up of inverse items and, therefore, the grouping of the inverse items of the DAS-A may respond more to a method factor than to a content factor, as has appeared in previous studies (Chioqueta & Stiles, 2006; Şahin & Şahin, 1992). In fact, several studies warn about the psychometric problems of using direct and inverse items on the same scale (Suárez-Álvarez et al., 2018). Although there are mathematical procedures that allow avoiding these problems while maintaining the purpose of the inverse items to control for the effects of acquiescence (Vigil-Colet et al., 2020), these problems also suggest the possibility of developing a Spanish version of the DAS-A that eliminates the inverse items and focuses on the two subscales, Achievement-Perfectionism and Dependence-Need for Approval, which appear consistently in the two samples of victims of terrorism in this study and in that of university students of Sanz and Vázquez (1993). This, precisely, was the strategy followed by Graaf et al. (2009) to build a revised version of the DAS-A based on the results obtained in a sample of the general Dutch population, a version that also works well in Spanish samples composed mostly of university students (Ruiz et al., 2015).

In summary, the results of this study offer empirical support for the validity of the interpretations of the scores of the total scale and subscales of DAS-A, especially those of Achievement-Perfectionism and Dependence-Need for Approval, as measures of dysfunctional depressogenic attitudes.

However, this conclusion and the previous ones should be assessed in light of the limitations of this study. The most important is that the participants were not selected by a random procedure, but belonged to convenience samples and, therefore, are susceptible to the biases of this type of sampling. Consequently, it would be useful to obtain evidence of the validity of DAS-A in other Spanish samples of people with psychological disorders or who have suffered traumas other than a terrorist attack. It would also be useful to examine other sources of evidence of validity not addressed in this study (e.g., test-retest reliability, relationship with other measures of dysfunctional attitudes).

Despite these limitations, the findings of this study suggest, for example, that the DAS-A can be applied with adequate psychometric guarantees in people with post-traumatic stress disorders, and mood or anxiety disorders, which facilitates the psychological evaluation of these people when they receive cognitive or cognitive-behavioral therapy for these disorders, precisely one of the first choice psychological therapies for them (Fonseca Pedrero et al., 2021; García-Vera et al., 2021).

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