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BRIEF CLINICAL REPORT

Work and Social Adjustment Scale (WSAS): psychometric characteristics of a Spanish adaptation in a clinical population

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Abstract

Background: The Work and Social Adjustment Scale (WSAS) is an instrument that can be easily applied for routine evaluation of the impact of mental disorders on patient functioning. In spite of the interest in its use, there is very little information available on its psychometric characteristics and even less in Spanish.
Aims: The objective of this study was to analyse its psychometric characteristics.
Method: The sample consisted of 441 patients treated in a community mental health unit. They filled out the WSAS and two psychopathology measures, one for anxiety and the other for depression. Fifty-five of them, chosen at random, were asked to fill out the scale again a second time to explore its temporal reliability.
Results: The scale showed high internal consistency, a single factor that explained 60.4% of the variance, and temporal reliability of .78 for the total score. Significant correlations were found between the WSAS scores and the psychopathological measures, as well as significant differences between those working and those on leave.
Conclusions: The results confirm the validity and reliability of the scale and support its possible use for routine evaluation of the functional impact of mental disorders.

Keywords: assessment; psychometric characteristics; social adjustment; Work and Social Adjustment Scale

Introduction

One very relevant part of the evaluation of patients with mental disorders is related to the impact those disorders have on their social functioning and ability to work. There is therefore a growing interest in incorporating measures of functioning in routine clinical practice.

The Work and Social Adjustment Scale (WSAS; Mundt *et al*., 2002) is an instrument developed for evaluating the impact of psychopathological disorders on work and social adjustment. Originally designed as a 4-item scale for evaluating the functional impact on patients with phobias, it was later expanded to its current composition of five items (Marks, 1986). There are studies in various languages and cultures on its psychometric characteristics in populations with depression and obsessive disorders (Mundt *et al*., 2002) and phobias (Mataix-Cols *et al*., 2005), among others.

Although a study on some of the WSAS psychometric characteristics in the Spanish population was published recently, the sample was limited to bipolar disorder and a small number of non-clinical participants (Echezarraga *et al*., 2019). There are no data on its characteristics in other

groups in the Spanish clinical population or on its test–retest reliability. It is therefore of interest to explore its characteristics in various clinical groups and provide new psychometric data for exploring its feasibility as an instrument for routine use in study of results and follow-up in daily clinical practice.

Method

Participants

All referrals to a community mental health unit (CMHU), who had been diagnosed with a mental disorder according to ICD-10 (World Health Organization, 1992), but excluding those diagnosed with psychosis, organic brain disorders or intellectual deficit, were invited to participate in the study during their first visit, and gave their voluntary consent to participate. The sample consisted of 441 patients treated in a CMHU. It included 302 women (68.5%) and 139 men (31.5%), with a mean age of 43.10 years (range 17–87 years).

Measures

The Work and Social Adjustment Scale (Mundt *et al.*, 2002) is a 5-item self-report scale on functional impairment attributable to an identified mental health problem. The items cover areas related to work, home, social leisure, personal leisure and interpersonal relationships. The data on the original English version show adequate validity and reliability for subjects with depression and obsessive disorders.

The Patient Health Questionnaire-9 (PHQ-9; Kroenke *et al.*, 2001) consists of nine items evaluating the frequency of depressive symptoms in the past 2 weeks. The original English version shows adequate validity and reliability. In this study, we used the Spanish version (Vázquez *et al.*, 2014), which has acceptable psychometric properties with a Cronbach's alpha of .77 (.87 in this study).

The Generalized Anxiety Disorder-7 (GAD-7; Spitzer *et al.*, 2006) is a self-report questionnaire that attempts to detect and evaluate the severity of generalized anxiety disorders. It consists of seven items measuring the severity of various signs of anxiety disorders in the past 2 weeks. Several studies have confirmed its adequate psychometric characteristics. The Spanish adaptation (García-Campayo *et al.*, 2010) used in this study has excellent psychometric properties, with a Cronbach's alpha of .94 (.86 in this study).

Procedure

The questionnaire was translated with the permission of the author, using the back-translation method. This study was based on information accumulated since 2013 from various instruments (PHQ-9, GAD-7 and WSAS) used as routine evaluation measures at the admission of all patients referred to a CMHU. All the patients were informed of the voluntary nature of the evaluation and its purpose.

Statistical analysis

After checking the data for suitability for factor analysis using the Kaiser–Meyer–Olkin (KMO) test and Bartlett's sphericity, factorial validity was explored by principal component analysis. Internal consistency of the scale was analysed using the Omega coefficient and Cronbach's alpha so the study could be compared with others that used that coefficient. The item-total correlation was also calculated for each of the items. Pearson's *r* correlation coefficient was used for test–retest reliability and convergent validity analysis. For convergent validity, the correlations between the scores on the WSAS and the corresponding scores on the PHQ-9 and GAD-7 were analysed.

Table 1. Descriptive statistics and internal consistency of the items and total WSAS (*n*=441)

	Mean	SD	Scale mean if item is deleted	Scale variance if item is eliminated	Corrected total-item correlation	Cronbach's alpha if item is eliminated
Item 1	4.58	2.82	16.62	74.05	.60	.81
Item 2	3.72	2.59	17.51	75.73	.64	.80
Item 3	4.71	2.75	16.52	70.93	.68	.79
Item 4	3.81	2.77	17.46	71.69	.68	.79
Item 5	4.39	2.64	16.68	77.57	.58	.82
WSAS global	21.14	10.64	—	—	—	—

For criterion validity, the difference in means was evaluated for employment situation using Student's *t* test, and an analysis of variance was done for scores found for groups formed by depression (PHQ-9) and anxiety (GAD-7) severity scores.

Results

Factorial validity

The KMO test sample adequacy was .81 and the Bartlett's sphericity test was significant ($\chi^2 = 655.140$, d.f. $= 10$, $p<.001$), justifying adequacy for factor analysis.

The principal component analysis of the five items on the questionnaire identified a single factor with an eigenvalue of 3.02, which explained 60.37% of the observed variance. The factor saturation of each of the five items was: .74, .78, .81, .81 and .73, respectively.

Descriptive statistics

The mean total score on the WSAS was 21.14 (*SD*=10.64; range 0–40). The mean and standard deviation for each of the items are shown in Table 1. The highest score was observed on Item 3 'Leisure', while the lowest was on Item 2 'Housework'.

Item 1, related to the work/academic environment, shows fewer answers because it was not relevant for those who were not working or studying.

Reliability

Internal consistency

The Omega coefficient of .88, as well as the Cronbach's alpha coefficient of .84 for the total scale, showed high internal consistency of the five items. Item-total correlation scores, which vary from .58 (Item 5) to .68 (Items 3 and 4) are shown in Table 1.

Test–retest reliability

The correlation observed between the two applications in a subgroup of 55 participants after a 2–3 week interval was .78 (*p*<.001) for the total score on the WSAS. The correlations for each of the five items were .69, .68, .71, .66 and .70, respectively.

Convergent validity

The correlations between the total WSAS score and the depression and anxiety scales were moderate. With the PHQ-9 it was .58 (*p*<.001), while with the GAD-7 it was .51 (*p*<.001).

Criterion validity

This indicator was based on the differences in WSAS scores between subjects on sick leave and actively working/studying. The subjects on sick leave had a mean score of 26.42 (SD=9.49) and active subjects had a mean score of 19.98 (SD=10.41), with significant differences (F=5.55, d.f.=418, p<.001), showing a stronger functional impact on people on sick leave.

Furthermore, the differences in WSAS scores between depressive and anxiety symptomatology severity groups were significant for the functional impact measured by the total WSAS score for depression (F=57.57, d.f.=4, p<.001) and anxiety (F=46.23, d.f.=3, p<.001).

Discussion

Overall, these results support the reliability of the Spanish translation of the WSAS in a clinical population. The results of the principal component analysis were similar to those in other studies with clinical samples, identifying a single factor with an eigenvalue of 3.02, which explained 60.37% of the variance. In the various samples used by Mundt *et al.* (2002), the principal component analysis also extracted a single factor with eigenvalues of 2.73 to 4.05, and in turn, explained 54.6 to 81% of the total variance. These results are very similar to those found by Mataix-Cols *et al.* (2005), who obtained a single factor in several samples with eigenvalues varying from 2.37 to 3.64, and which explained 47 to 73% of the variance.

All the items showed adequate saturation on the single factor identified, which varied from .73 to .81. Thus, in all cases, saturation was higher than the conservative cut-off point (.51) suggested by Stevens (1992). This range is very similar to what was observed by Echezarraga *et al.* (2019), which varied from 0.69 and 0.81, as well as the one by Mundt *et al.* (2002) in their study, which varied from .66 to .93, and the one by Mataix-Cols *et al.* (2005), who found saturations of .69 to .92.

Moreover, internal consistency, with a Cronbach's alpha of .84, is very similar to what has been observed in other studies, and over .70, the generally accepted range for Cronbach's alpha (Nunnally and Bernstein, 1994). Thus, Mundt *et al.* (2002) found an alpha of .70 to .94 in samples of subjects with depression and obsessive disorders. In the only study with a Spanish population, Echezarraga *et al.* (2019) found an alpha of 0.86, almost identical to the present study.

The test–retest correlation found confirms the temporal reliability of the instrument (r=.78, p<.001). Convergent validity based on the correlation of the WSAS with the severity of depressive and anxiety symptomatology was confirmed by the results. The correlations between the WSAS and both the PHQ-9 (.58, p<.001) and GAD-7 (.51, p<.001) were significant with a large effect, according to Cohen (1988), whose criteria identify it based on values equal to or greater than .05. These moderate-intensity correlations are similar to those found by Mundt *et al.* (2002) with the Hamilton Depression Scale. The stronger functional impact observed on patients on sick leave than those who were actively employed confirmed the scale's criterion validity.

Significant differences were observed in WSAS scores in the various groups formed by depressive and anxiety symptom severity (F=57.57, d.f.=4, p<.001, and F=46.23, d.f.=3, p<.001, respectively). Mundt *et al.* (2002) also observed significant differences (F=438, d.f.=2.991, p<.001) in the WSAS scores in different groups formed by severity of depression symptoms. Likewise, Echezarraga *et al.* (2019) found significantly higher scores in participants with bipolar disorder than in the non-clinical population sample.

Among the limitations of this study, those related to self-report measures should be mentioned. Future lines of interest are study of the psychometric characteristics of the scale in subjects with psychotic disorders, the exploration of sensitivity to change, especially for its use as a measure of results in intervention studies, and the analysis of its convergent validity with quality of life

measures, for example. Future research should also confirm the factor structure with confirmatory factor analysis.

Summarizing, this Spanish version of the WSAS is an easily applied, reliable and valid measure, of interest for evaluating the functional impact on patients with various mental disorders, which in turn enables identification of specific functional areas to be prioritized in the recovery process. Its potential as an additional outcome measure, along with symptom measures, confers special relevance to its use in the clinical setting. Similarly, due to its characteristics, it can be included in routine epidemiological evaluation and by healthcare services, as well as in psychological therapy research.

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