

## ADAPTATION TO PORTUGUESE OF THE DEPRESSION, ANXIETY AND STRESS SCALES (DASS)

João Luís Alves Apóstolo<sup>1</sup>

Aida Cruz Mendes<sup>2</sup>

Zaida Aguiar Azeredo<sup>3</sup>

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*Objective: to adapt to Portuguese, of Portugal, the Depression, Anxiety and Stress Scales, a 21-item short scale (DASS 21), designed to measure depression, anxiety and stress. Method: After translation and back-translation with the help of experts, the DASS 21 was administered to patients in external psychiatry consults (N=101), and its internal consistency, construct validity and concurrent validity were measured. Results: The DASS 21 properties certify its quality to measure emotional states. The instrument reveals good internal consistency. Factorial analysis shows that the two-factor structure is more adequate. The first factor groups most of the items that theoretically assess anxiety and stress, and the second groups most of the items that assess depression, explaining, on the whole, 58.54% of total variance. The strong positive correlation between the DASS 21 and the Hospital Anxiety and Depression scale (HAD) confirms the hypothesis regarding the criterion validity, however, revealing fragilities as to the divergence between theoretically different constructs.*

*DESCRIPTORS: depression; anxiety; stress; scales; evaluation*

## ADAPTACIÓN PARA LA LENGUA PORTUGUESA DE LA DEPRESSION, ANXIETY AND STRESS SCALE (DASS)

*Objetivo: adaptar a la lengua portuguesa, de Portugal, la Depression, Anxiety and Stress Scale, versión corta de 21 ítems, (DASS-21), que permite evaluar depresión, ansiedad y estrés. Método: Después de haber sido traducida y retrovertida, con la ayuda de peritos, la DASS-21 fue administrada a enfermos en consulta externa de psiquiatría (N=101), y fue evaluada la consistencia interna, la validez de constructo y la validez concurrente. Resultados: Las propiedades de la DASS-21 atestiguan su calidad para evaluar estados emocionales. El instrumento reveló buena consistencia interna. El análisis factorial muestra que la estructura de dos factores es la más ajustada. El primer factor agrupa la mayoría de los ítems que teóricamente evalúan ansiedad y estrés, y el segundo agrupa la mayoría de los ítems que evalúan depresión, explicando en su conjunto el 58,54% de la variación total. La fuerte correlación positiva entre la DASS-21 y la escala Hospital Anxiety and Depression confirma la hipótesis relativa a la validez de criterio, siendo sin embargo reveladas fragilidades relativamente a la divergencia entre constructos teóricamente diferentes.*

*DESCRIPTORES: depresión; ansiedad; estrés; escalas; evaluación*

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*DESCRIPTORES: depressão; ansiedade; estresse; escalas; avaliação*

<sup>1</sup> RN, PhD in Nursing Science; Researcher, Health Science Research Unit, e-mail: joaoapostolo@eseaf.pt; <sup>2</sup> RN, PhD; Coordinating Professor, Researcher, Health Science Research Unit, e-mail: amendes@eseaf.pt. Higher School of Nursing Dr. Ângelo da Fonseca, Coimbra, Portugal; <sup>3</sup> PhD, MD, Abel Salazar Institute of Biomedical Sciences, Porto University, Portugal, e-mail: zaida@netc.pt

## INTRODUCTION

The relation between negative emotional states has been the object of clinical, conceptual and operational attention, considering that researches have developed models to explain the differentiation and superposition between anxiety and depression, as well as instruments to assess these mood states, such as the short version of the DASS-42, i.e. the DASS-21<sup>(1)</sup>.

The adaptation of this scale to Portuguese is justified by the fact that its specific qualities allow for the simultaneous assessment of three emotional states - depression, anxiety and stress -, because it is a short version, easily applicable in the clinical environment, and because it can be used to assess these states in adolescents and adults.

Although anxiety and depression are usually considered as distinct states, both disorders present superposing characteristics. As shown below, this superposition led to the development of models to explain common and distinctive characteristics of these two concepts.

In fact, the discussion about the relation between anxiety and depression has been the target of different studies and is as old as research on these syndromes, having been interpreted as: a) different points in the same continuum; b) alternative manifestations of a diathesis, an underlying disease with the same nature; c) heterogeneous syndromes that are associated because they share some subtypes of symptoms; d) separate phenomena in which, over time, each can develop the other; e) distinct phenomena from a conceptual and empirical viewpoint. Studies focusing on a shared factor of *general distress* tend to see anxiety and depression as points in the same continuum or as a common diathesis (a and b), while research focusing on specific factors point towards distinct phenomena (d and e). However, a full characterization of anxiety and depression should consider each of these perspectives<sup>(2)</sup>.

The tripartite anxiety and depression model explains superposing and distinctive characteristics. This model indicates the following three factors: Negative Affection (NA), grouping characteristics of anxiety and depression; reduced Positive Affect (PA), common in depression, and Physiological Hyperstimulation (FH), common in anxiety<sup>(2)</sup>.

The stress concept puts up additional questions related to the study of negative affective states or conditions, and is considered as an affective reaction standard or state that has clear affinities with anxiety<sup>(1)</sup>.

Among existing scales to assess mood state alterations, the DASS-21 has been translated to different languages and used in a number of validation studies.

Various studies have been published that apply the DASS-21 to clinical samples, two of which developed with an English version<sup>(3-4)</sup> and one with a Spanish version<sup>(5)</sup>, using samples of 258, 439 and 98 subjects, respectively.

Two studies have been published in Portuguese<sup>(6-7)</sup> which apply the DASS-42 to samples of 295 and 200 subjects, respectively.

The three DASS subscales can be considered consistent with the tripartite model<sup>(2)</sup>, as depression is characterized by low positive affect, reduced self-esteem and encouragement, and despair; anxiety by physiological hyperstimulation and stress by persistent tension, irritability and low threshold to become upset or frustrated.

In this context, this study aims to adapt the Depression, Anxiety and Stress Scales (DASS) to Portuguese.

## METHODOLOGY

An instrument's validity demonstrates the extent to which an instrument or empirical indicator measures what it is supposed to measure. For the cross-cultural adaptation of the DASS-21, a methodology was adopted to test its measurement properties and equivalence in the new cultural context.

Initially, the DASS-21 was translated to Portuguese from Portugal by a mental and psychiatric health nursing specialist and by a bilingual English teacher, resulting in version 1. Both versions, i.e. the original and 1, were sent by e-mail to a bilingual Portuguese who lived in the USA and produced version 2 of the DASS-21.

Then, version 2 was back-translated to English, that is, using the inverse method<sup>(8)</sup>, by another bilingual mental and psychiatric health nursing specialist. The back-translated version was sent to

the original author, who suggested changes in items 4 and 10. These suggestions were accepted, resulting in version 3.

Consensual validation<sup>(8)</sup> was realized by four mental and psychiatric health nursing specialists fluent in English, who assessed and compared the different versions in terms of semantic, idiomatic and conceptual equivalent of the items' contents. When no consensus could be reached about the suggestions, the highest number of agreements among the judges was preferred. This resulted in the definitive version.

A pretest was realized with a sample of five persons during psychiatric consults, who did not reveal any difficulty to understand the contents of the statements.

Reliability, criterion and construct validity were assessed<sup>(9-10)</sup>. Reliability corresponds to the degree of congruence at which the attribute is measured. Thus, internal consistency was analyzed through the correlation between the item and the scale total it theoretically belongs to and Cronbach's alpha for each scale. Criterion validity was assessed through the correlation between the DASS-21 and another equivalent measure, that is, concomitant validity. Construct validity was assessed through exploratory factor analysis of principal components with orthogonal varimax rotation<sup>(9-10)</sup>. To complement factor analysis, we analyzed the correlation between the items and the total score for each subscale. This analysis serves as a good structural validity argument, which indicates that the items measures the construct of the scale it belongs to and not another. A good validity for the item shows that the item's correlation with the scale it belongs to is substantially higher than correlation with the scale it does not belong to<sup>(7)</sup>.

## Instruments

The DASS-21<sup>(1)</sup> is a set of three four-point Likert subscales for self-reporting. Each subscale consists of seven items, aimed at assessing the emotional states of depression, anxiety and stress.

Participants are asked to mark the extent to which each statement applied to him/her during the last week. There are four possible answers in terms of severity or frequency, organized in a scale from 0 to 3. The result is obtained by adding up the scores of the items for each of the three subscales.

The depression subscale assesses symptoms like *inertia; anhedonia; dysphoria; lack of interest/*

*involvement; self-depreciation; devaluation of life and discouragement.* The anxiety subscale evaluates *excitation of the autonomous nervous system; musculoskeletal effects; situational anxiety; subjective anxiety experiences.* Finally, the stress subscale assesses *difficulty to relax; nervous excitation; easy perturbation/agitation; irritability/exaggerated reaction and impatience.*

The *Hospital Anxiety and Depression (HAD) Scale*<sup>(11)</sup>, used in this study as a concurrent validation criterion, was developed to obtain an instrument to measure the severity of anxiety and depression in a non-psychiatric environment. Validation studies of this instrument for the Portuguese language have been published<sup>(12-13)</sup>.

Items 1, 7 and 11 of the anxiety subscale assess *tension, unrest and agitation*, while item 5 looks at *concern*. The remaining three items (3, 9 and 13) seem to lie closer to the *autonomic anxiety* construct.

This four-point self-report Likert scale consists of 14 items, seven of which assess anxiety and seven depression. Each statement is answered by underlining how the person has felt during the last week. Answers are ranked on a scale from 0 to 3 and the result of each dimension is obtained by adding up the answers to the items in each subscale.

## Sample and data collection

Before the start of data collection, the research project was approved by the Ethics Commission of a Psychiatric Hospital in the District of Coimbra, Portugal.

The DASS and the HAD were applied to a sample of 101 persons who attended external consults at that Psychiatric Hospital between April 2<sup>nd</sup> and June 22<sup>nd</sup> 2004.

People who accepted to participate were asked to sign the free and informed consent term. The necessary conditions were offered to allow each participant to answer, with the necessary help of the researcher or a nurse responsible for the service, in order to clarify any doubts.

Selection criteria: People who came for psychiatric consults on Tuesday mornings, until reaching a sample of 100. Another criterion was that all statements should be answered. Nine questionnaires that did not attend to this criterion were eliminated, so that ten other participants had to be included.

## RESULTS

### Study sample characteristics

Thus, the study was carried out with 101 young, adult and elderly persons, with a minimum age of 17 and maximum of 80 years (mean 45.41 years and standard deviation 12.57 years). Most participants (63.37%) were women. In terms of civil status, 69.31% were married, 21.78% single, 6.93% divorced and 1.98 % widowed. With respect to education, 52.48% had four years, 18.81% between 5 and 9 years, 16.83% between 10 and 12 years and 11.88% higher education.

### Reliability study

As expected, the DASS-21 revealed strong internal consistency, without problem items and with corrected values for correlation between each item and the score of the subscale it theoretically belongs to ranging between 0.31 and 0.78 and between each item and the score of the 21 items between 0.42 and 0.83. Cronbach's alpha was 0.90 for depression, 0.86 for anxiety, 0.88 for stress and 0.95 for the total of the three subscales.

### Construct validation

Factor analysis of principal components with Varimax rotation<sup>(9-10)</sup> did not clearly evidence the three-factor solution, as proposed by the original author. Although, using the criterion of retaining factors whose own values were higher than 1, and although the items distributed the respective factor loads across three factors, we did not find a conceptual identity that corresponded to the original classification in any of these factors. As to the stress subscale, items 8, 11, 12, 14 and 18 saturate between 0.59 and 0.80 in factor 1, but item 6 saturates in factor 2 (0.50) and item 1 saturates in factor 3 (0,69). Items 7, 15, 19 and 20 of the anxiety subscale saturate between 0.57 and 0.73 in factor 1, but the remaining three items distribute the respective factor loads across the other two factors. Finally, in the depression subscale, five items display their highest factor load, between 0.48 and 0.73, in factor 2. However, item 5 saturates in factor 3 (0.60) and item 13 in factor 1 (0.66).

Given that these results demonstrate a three-dimensional structure and considering the fact that,

in factor analysis, nine items of the anxiety and stress subscales saturate in the same factor, we selected a forced orthogonal solution for two factors, suppressing the factor loads under 0.30, which explain 29.51 and 29.04%, respectively, that is, 58.55 % of total variance, as observed in Table 1.

Table 1 - Main component matrix\* after Varimax rotation, forced for two factors (F1 and F2) and (corrected) Correlation matrix\*\* of DASS-21 items with total dimensions, considering two dimensions, anxiety/stress and depression. (n=101)

Items	F 1	F2	Anxiety Stress	Depression
D 3: Did not manage to have any positive feeling		(0.712)	0.614	0.732
D 5: It was difficult for me to take initiative to do things	(0.441)	(0.442)	0.584	0.666
D 10: I felt that there was nothing that could make me move ahead (have positive expectations)	(0.320)	(0.800)	0.708	0.852
D 13: I felt sad and depressed	(0.588)	(0.506)	0.727	0.752
D 16: I did not manage to feel enthusiastic about anything		(0.780)	0.653	0.807
D 17: I felt I was not worth very much as a person	(0.355)	(0.729)	0.668	0.853
D 21: I felt my life had no meaning whatsoever	(0.361)	(0.743)	0.701	0.832
A 2: I realized that my mouth was dry	(0.495)	(0.316)	0.538	0.499
A 4: I felt difficulty to breathe (e.g.: very fast breathing or lack of air in the absence of physical effort)	(0.451)	(0.467)	0.608	0.574
A 7: I felt tremors (in my hands or legs for example)	(0.792)	(0.304)	0.762	0.642
A 9: I was concerned about situations in which I could panic and play a ridiculous role		(0.733)	0.634	0.692
A15: I almost panicked	(0.660)	(0.452)	0.746	0.700
A 19: I felt the beating of my heart even when I was not making any physical effort (e.g.: accelerated heartbeat or heartbeat failure)	(0.831)		0.656	0.473
A 20: I was afraid without any good reason	(0.545)	(0.469)	0.682	0.612
S 1: I felt difficulties to calm down/release pressure	(0.431)		0.412	0.394
S 6: I tended to have exaggerated reactions in certain situations	(0.368)	(0.574)	0.602	0.605
S 8: I felt very nervous	(0.609)	(0.560)	0.775	0.748
S 11: I felt I was agitated	(0.692)	(0.439)	0.776	0.678
S 12: I felt difficulties to relax	(0.742)	(0.427)	0.799	0.707
S 14: I was intolerant when anything stopped me from doing what I was doing	(0.620)	(0.313)	0.644	0.526
S 18: I felt I was very irritable	(0.695)	(0.522)	0.831	0.753
<b>% Cumulative explained variance</b>	<b>29.507</b>	<b>58.543</b>		

\* Kaiser-Meyer-Olkin: 0.923; Bartlett's sphericity test - Approximate Chi-square: 1493.426; p: 0.000.

\*\* Assuming bivariate normal distribution

The first factor groups items belonging to the anxiety and stress dimensions of the original version. Item 6 from the stress subscale and item 9 from the anxiety subscale, which assess *exaggerated reaction* and *situational anxiety*, respectively, were excluded from this group, because their main weights were 0.57 and 0.73 in the second factor. Other problem items are 4 and 20 in the anxiety subscale, which assess *autonomic nervous system excitation* and *subjective anxiety experiences*, as well as items 8 and 18 in the stress subscale, which assess *nervous excitation* and *irritability*. Although these items' main factor weight lies in factor 1, which groups items that theoretically assess anxiety and stress, they saturate with values higher than 0.30 in factor 2, with weight differences in each factor lower than 0.20. This raises questions about the discrimination of these items in the factor assessing those constructs.

The second factor joins items belonging to the depression scale, with factor weights ranging between 0.51 and 0.80. However, item 5, which assesses *inertia*, presents identical factor weights in the two factors. Despite saturating in the factor that groups depression items (0.51), item 13, which assesses *dysphoria*, presents its main factor weight (0.59) in the factor that theoretically groups anxiety and stress items. The remaining items in this group present a difference larger than 0.20 between the weights of each factor, which testifies in favor of their discrimination in the depression factor.

Considering both groups, i.e. depression and anxiety/stress, the correlation between the items and the score of each was calculated. As shown in Table 2, except for items 6 and 9, presenting a similar correlation with the two scores, the correlation of the remaining 19 items is higher with the scores of each considered group. This varies between 0.67 and 0.85 for depression, and between 0.41 and 0.83 for anxiety/stress. However, these differences, all lower than 0.20, do not evidence the discrimination of the items in the factors proposed by the original author.

Concurrent validation

The Hospital Anxiety and Depression (HAD) scale was used as a concurrent validation criterion. It revealed good internal consistency with correlation between the item and the total score of the corrected subscale, between 0.35 and 0.66 for depression and between 0.31 and 0.63 for anxiety. Cronbach's alpha

corresponded to 0.82 for depression, 0.80 for anxiety and 0.89 for the total of the two subscales. Data in Table 2 show moderate and strong correlation values between the two concepts under analysis. Correlation is higher among total scores (0.74), but high values are also found among the various scores of the subscales, in relation to which a stronger correlation was found between the HAD anxiety and the DASS-21 anxiety and stress than with the DASS-21 depression. Furthermore, the HAD depression is more strongly correlated with the DASS-21 depression than with the DASS-21 stress. These results evidence a certain degree of convergence/divergence between theoretically equivalent/different concepts.

However, the correlation between the HAD depression and the DASS-21 depression is slightly lower than between the former and the DASS-21 anxiety, not evidencing the expected divergence between theoretically different concepts. This fragility deserves further discussion.

The intercorrelations between the DASS-21 dimensions reveal high and positive values, varying between 0.80 and 0.85. These values are even higher, that is, equal or superior to 0.94, among the three DASS-21 subscales and the total score of the three subscales' 21 items. The correlation between anxiety and stress is higher than between anxiety and depression, but this difference is hardly significant.

Table 2 - Correlation matrix between scores of each DASS-21 and HAD subscale. (n=101)

DASS Dimensions	DASS Depression		DASS Anxiety		DASS Stress		DASS Anxiety/ Stress		DASS - Total	
	r	p	r	p	r	p	r	p	r	p
HAD - Depression	0.611	0.00	0.625	0.00	0.543	0.00	0.607	0.00	0.632	0.00
HAD - Anxiety	0.663	0.00	0.716	0.00	0.700	0.00	0.736	0.00	0.736	0.00
HAD - Total	0.691	0.00	0.727	0.00	0.673	0.00	0.728	0.00	0.741	0.00
DASS - Depression	-	-	0.807	0.00	0.822	0.00	0.846	0.00	0.936	0.00
DASS - Anxiety	-	-	-	-	0.853	0.00	0.964	0.00	0.941	0.00
DASS - Stress	-	-	-	-	-	-	0.961	0.00	0.945	0.00

Descriptive scale values

The following values were obtained for the subscales depression, anxiety and stress: minimum

0 and maximum 21; mean 11.06; 9.02 and 11.84 and standard deviation 6.12; 5.65 and 5.46, respectively. Although the mean value for anxiety is lower than for depression and stress, the three constructs under analysis did not display any substantial differences in terms of mean values or dispersion.

## DISCUSSION

In order to assess the quality of the DASS-21, the results of this study will be discussed and compared with those from other scale versions. In this study, the values found for Cronbach's alpha certify the reliability of the scale and are comparable with values found in other studies using the DASS-21<sup>(3-5)</sup>, which found: depression (0.94; 0.92 and 0.93); anxiety (0.87; 0.81 and 0.86) and stress (0.91, 0.88 and 0.91) and also with results from studies that used the Portuguese version of the DASS-42<sup>(6-7)</sup>, with the following Cronbach's alpha, respectively: depression (0.96 and 0.93); anxiety (0.77 and 0.83) and stress (0.94 and 0.88). The results found by the original author<sup>(1)</sup> should also be taken into account, which were, respectively for depression, anxiety and stress: 0.91, 0.84 and 0.90; and 0.81, 0.83 and 0.81, the latter referring to the seven items of each subscale of the DASS-42 that make up the DASS-21.

From a structural viewpoint, the two-factor solution reveals better data organization, although for one of the seven items in the depression subscale and for two of the 14 items in the anxiety/stress subscale, the main weight is located outside the dimension that groups the respective items. Moreover, one of the seven items in the depression subscale and four in the anxiety/stress subscale are problematic, as they saturate in both factors.

These findings differ from the results of studies using the DASS-21 in English<sup>(3-4)</sup> and in Spanish<sup>(5)</sup>, which support a three-factor structure.

Studies of the DASS-42 in English<sup>(14-15)</sup> indicated some discrepancies in the items from the anxiety and stress subscales, which simultaneously saturated in the two factors. The same happened in a study that used a Dutch version<sup>(16)</sup>, without discrimination in relation to the two factors the items belong to.

Discrepancies were also found in the two studies that used a Portuguese version of the DASS-42. In the first<sup>(6)</sup>, the authors initially eliminated items 23, 30, 40 and 41, as their main factor weights were located outside the dimensions they theoretically belonged to. Nevertheless, in the solution presented by the authors, items 7, 20, 28, 36 and 9 from the anxiety subscale saturate outside the factor, the first four saturating in depression and item 9 in stress. The second study<sup>(7)</sup> indicated that about half of the items in each of the factors also saturated in another factor, mainly in stress. Five items in the depression subscale and four in the anxiety subscale exhibited a factor load above 0.40 in the stress factor. In two of these four, the factor weight was higher outside the respective factor. As to the stress subscale, four items also saturated in the other two factors, with values above 0.40, two of them in depression and two in anxiety. The weight of one of them was higher in the anxiety factor.

Finally, the study by the original author<sup>(1)</sup> revealed three factors that explain 41.3% of variance, clearly lower than in this study. All items saturated in the factor they theoretically belonged to, except for item 30, whose factor weight was higher in the stress factor than in anxiety. Confirmatory factor analysis results in the same sample indicated that the three-factor model demonstrated better adjustment than the two factors. However, in the two-factor model, the anxiety and stress subscales were organized in one single factor, which is compatible with our results. Anxiety is considered one of the affective components of the stress process, together with other emotions like anger and fear, which may appear when the individual does not manage to respond to the stimuli he is subject to<sup>(17)</sup>.

In our study, we intercorrelated the DASS dimensions, revealing high and positive values, which reveal a very strong association between the scores of these instrument's subscales, ranging between 0.81 and 0.84. Although the correlation between anxiety and stress is higher than between anxiety and depression, the difference is small.

This correlation demonstrates the concomitant presence of depression, anxiety and stress symptoms, an aspect that can justify the reduced clarity of construct analysis results, which did not evidence a three-factor structure as discriminated in the original scale.

In comparison with other results<sup>(1,3,5,7)</sup>, the factor intercorrelations were, respectively: depression-anxiety (0.54; 0.46; 0.71; 0.58); anxiety-stress (0.65; 0.72; 0.73; 0.66) and depression-stress (0.56; 0.57; 0.79; 0.60). Although in general, correlation levels are higher between anxiety and stress than between anxiety and depression, the extent of this difference is small. The strength of the relation presented in a study with the Spanish version<sup>(5)</sup> approximated the results found in our study.

Concurrent validity, assessed in our study through the relation between the DASS-21 and the HAD, also deserves further discussion. The correlations between the dimensions and the total scores of the two subscales are highly positive, with 0.74 as the highest value between the totals of the two scales, as expected. High correlations were also expected between theoretically equivalent concepts, and lower values between theoretically different concepts. However, this association is not fully evidenced, given the reduced extent of some differences. In some cases, higher correlation values were found among theoretically different constructs than among theoretically similar one, like between HAD depression and DASS-21 anxiety (0.63) and between the former and DASS-21 depression (0.61), which may show that we are facing different points in the same continuum or common characteristics of the two symptoms.

A study using the Portuguese version of the DASS-42 and the HAD<sup>(6)</sup> found low correlations between the DASS-42 depression, anxiety and stress and the HAD depression (0.21, 0.13 and 0.14), and moderate between the dimensions of the DASS-42 and the HAD anxiety (0.50, 0.42 and 0.57), in which the low correlation between the two depression scales stands out (0.21). These results do not speak in favor of the instrument's concurrent validity as, in some cases, higher correlations were found between theoretically different constructs than between theoretically similar ones.

In a study using the Spanish version<sup>(5)</sup>, the anxiety subscale of the DASS-21 presented a stronger correlation with the Beck Anxiety Inventory (BAI) than with the Beck Depression Inventory (BDI), while the opposite happened with the depression subscale. Despite a higher correlation among theoretically equivalent constructs, correlation values are still quite significant among theoretically distinct concepts

(always higher than 0.62), as illustrated by the fact that the stress subscale presented a higher correlation with the BDI (0.74) than with the BAI (0.62).

Another concurrent validity study with an English version of the DASS-21<sup>(3)</sup>, using the BAI, BDI and State-Trait Anxiety Inventory-T (STAI-T) found higher correlations among theoretically similar concepts than among theoretically different ones. However, the STAI-T presented a higher correlation with depression than with anxiety or stress. Thus, authors indicate that the STAI-T may contain items that assess depression together with anxiety.

Scales' concurrent validity is generally evaluated by examining the extent of these instruments' correlations with measures assessing theoretically equivalent constructs. The discrimination of the items in the factors they theoretically belong to is also a sign that they assess different concepts. Like in other studies using the same scale, our results did not evidence great distances among the three concepts and even showed that anxiety and stress can be grouped in the same construct and, also, that some items do not discriminate each concept, and even saturate in the factor they do not belong to theoretically.

In fact, our study did not produce any empirical evidence of anxiety, depression and stress being distinct phenomena. Data support the conviction that the concepts under analysis can be different points in the same continuum; alternative manifestations of a diathesis; or heterogeneous syndromes, which are associated because they share some symptom subtypes.

The tripartite model<sup>(2)</sup> indicates that anxious and depressed persons share a basic structure, which is negative affection or general distress. These are responsible for the strong association between anxiety and depression measures, based on which the original authors<sup>(1)</sup> created the stress subscale, which can sustain that the latter assesses a general distress factor, as supported by a set of empirical studies<sup>(18-19)</sup>.

Another explanatory model that is at the same time cognitive, motivational and relational, conceives stress as part of a broader topic: the study of human emotions. In fact, the stress concept has become increasingly complex<sup>(20)</sup>.

In view of this model, anxiety, as one existential emotion, is a reaction to threats posed to our identity as persons in the social context we live in. They refer to who we are, what we want and what

we believe in. Anxiety emerges in a relational theme in which the individual is confronted with uncertainty and/or with an existential threat. Although the basic threat that underlies anxiety is existential - and, consequently, symbolic and vague - we can experience anxiety when we have to face actual danger. Then, this danger turns into the materialization of existential threats. Depression, on the other hand, is emotional, but it is not a specific emotion. And, together with other emotions, it is provoked by unfavorable living conditions. Depression is frequently theorized as the result of a big loss, which provokes a feeling of despair, of no longer feeling that life is worth it. In this perspective, various emotions can be experienced in depression, depending on the phase of the mourning process a person is going through and on what happened in the production of the loss. Thus, depression is accompanied by emotions like anxiety, anger, guilt and shame. Anxiety in depression occurs because the loss threatens our identity and makes us insecure about the future.

In this analysis model, stress is an emotional state produced when an individual assesses (internal or external) requirements as causes of damage, threat or challenge and as not having the necessary resources to face them. Thus, emotions are released in the primary (requirement assessment) as well as in the secondary evaluation (coping assessment), in which the three concepts - stress, emotion and coping - constitute a conceptual unit. In this context, emotions are the main organizing concept, as it includes stress and coping.

## CONCLUSION

In terms of internal consistency, the correlation scores between the items and the subscale they theoretically belong to and Cronbach's alpha values guarantee the reliability of the scale. The correlation between theoretically similar constructs testifies in favor of the validity of the scale. However, substantial correlations were also found between theoretically different constructs.

The three-factor structure proposed by the original author is not clearly revealed, as the organization of anxiety and stress items is more adjusted to one single factor. From a structural point of view, two items in the anxiety/stress subscales and two more in the depression scale present a higher factor load outside their factor.

Despite these results, the Portuguese version of the DASS-21 revealed properties that certify its quality to assess emotional states, accompanied by limitations inherent in its capacity to assess the three constructs, i.e. depression, anxiety and stress, separately. Anyway, the legitimacy of the stress subscale as an independent measure is more discussible than that of the depression subscale, as most depression items discriminate in the factor.

Future studies should look at the structural question, with a view to guaranteeing if the instrument can assess the three factors separately. However, these results may not invalidate the use of three-factor scales as clinical issues may entail the need to consider them separately.

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