

Assess the psychometric properties of depression, anxiety and stress-21 for high school students in Shiraz

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Abstract: The aim of this study was to investigate the validity and reliability of depression, anxiety and stress-21 among high school students was. For this purpose, in an 1150 study of high school students to investigate the validity of the scale and in another study of 128 high school students participated for reliability. To evaluate the scale of the two concurrent validity and factor analysis were used. Through the concurrent validity of the scale coincides with the Beck Depression Inventory and Beck Anxiety Inventory was carried out 0.55 and 0.58 respectively correlation coefficient r was obtained. To study the reliability and validity scale two polls again to 0.69 and 0.88 reliability coefficients were obtained. As a result of factor analysis using varimax rotation based on screen test showed presence of depression, anxiety and stress on this scale, generally more than 42% of the total variance explained was the test. So, based on these results, Form 21-item scale depression, anxiety and stress eligible for use in psychological research and clinical activities for high school students was recognized.

Keywords: depression, anxiety and stress-21, validation, analysis of the factors, high school students in Shiraz

Introduction

Validity and reliability of the measurement accuracy and stability, and has two different meanings. A sense of reliability, stability and reliability of test scores over time. This means that if a test is run multiple times on a subject, his score is the same in all cases. The second meaning refers credibility to its internal consistency and test concept is that the question is to what extent cross-correlation with each other. Test the validity of the agreement between the scores of the trait or traits-a test to measure made it. The test may also lack the credentials are valid, but the test cannot be valid without valid. In other words we can say that reliability is a necessary condition for the validity of the credit alone does not guarantee the validity of the test. So far, to the extent that it presents a valid and reliable assessment of anxiety and depression, the two structures separated as far as possible, the research consists of three movements (Adhesive and Kumar (1967), Beck, Epstein and Brown (1988) and Lovibond (1995) was performed. Lovibond in 1995 as a means of depression, anxiety and stress (DASS) were prepared. Lovibonds began this work in 1979. Their aim was to create a scale to measure depression and anxiety, so that the full range of symptoms of anxiety and depression stem tested, has good psychometric properties and can be made the maximum separation between depression and anxiety. Initial research for the questionnaire 11 years. The original form of the scale was introduced in 1983 by Lovibond.

DASS scale was initially consists of two subscales, one measuring anxiety and depression that statements of each other in order to measure structures as the structures were in a unique way. Vague statements of the questionnaire were placed directly on either depression and anxiety were not structural, but as it had been in control. Whether there are vague statements were taken because the primary intention of the author was to create a tool that is very much capable of discriminating depression and anxiety. However, in the more advanced stages of studies that control statements, constitute a third category of participants characterized it, the excitement of the unknown. Other items were added to the item until the third scale, the mental pressure was (Lovibond, 1995). On the other hand, when the negative emotions and explain the concept

of psychological pressure to have a significant role, because stress can cause non-specific and specific response to the arousal of damage in the performance of lead chronic. Stress or an emotional state or emotional state of mind, the concept of stress reactions closely with anxiety. Therefore, the evaluation of these structures and to investigate the relationship between them is important in the study of negative affect. Lovibond point out that although the scale of anxiety and depression scale, but in its place is a standalone tool and coherent. This scale has two different forms. The main form has 42 questions, through which each of the structures mental (depression, anxiety and stress) are evaluated by 14 different question. But its short form contains 21 questions that every 7th question or construct a psychological measure (Lovibond and, 1995). DASS-42 scale the psychometric properties were evaluated in several studies. In initial studies, and Lovibond member on a sample of 717 students, DASS questionnaire and BAI and the BDI was administered. The correlation between the DASS-42 anxiety and anxiety 0.54 and the correlation between the DASS depression scale and the Beck Depression 0.58. Also, using exploratory factor analysis, the factor structure of the DASS examined and three-factor model with three factors correlated with each other to rotate wish that there were three DASS-represented, revealed. This model could explain phrases 41.3 % of the variance. In addition, information obtained from a sample of 717 patients were evaluated using confirmatory factor analysis and the results showed that three factor model, two-factor and three-factor, three-factor model can better comply with data be. Lovibond and to evaluate the psychometric properties of the scale Lovibond , it's on a non-clinical sample of 2914 people was conducted. Scale, Cronbach's alpha reliability for the subscales depression, anxiety and stress in an acceptable range, respectively, 0.91, 0.84 and 0.84 respectively. These numbers were coordinated with what was obtained in clinical populations (Lovibond, 1995). In a study of Chinese version of the DASS-21 test was conducted on 349 Chinese immigrants in Australia language. The results of the data reported by Lovibond using the English version of the test was conducted on 720 patients were evaluated. Factor analysis showed that the Chinese version of DASS scale able to distinguish between depression, anxiety and stress, respectively. But the size difference and the distinction between negative emotional symptoms, as compared to the English version of the DASS less. The Chinese version of the DASS power less distinction between the three scale compared with the normal group of Australian Chinese language Chinese language Hong Kong that were tested showed similar version. Overall load factor for all 21 items on the Australian model with the results of English language Chinese language and Chinese language Hong Kong is comparable (Tavuk, Lovibond, 1997). Factor structure, reliability and validity in the form of 21 question test on a sample of non-participants included 46 patients and patients based on the text of the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders a diagnosis of panic disorder (67 patients), social phobia (74), specific phobia (n = 17), OCD disorder (54 patients) and major depression (n = 46) identified was performed. The results of previous researches based on the ability to separate DASS depression, physical and psychological stress showed arousal. In addition, internal consistency and validity tests DASS-42 structures with the DASS-21 was obtained in an acceptable range (Anthony, billing, Cocos, men and swainsonii 1998). Crawford and Henry (2003), as well as other researchers who form 21-item scale depression, anxiety and stress in order to obtain normative data and psychometric properties on 1,771 men and women aged between 15/9 and 40/9 were studied. The researchers calculated the alpha factor of depression, anxiety and stress, respectively, 0/89,0/09 and 0/93. Report.

Imam review (2007), the Islamic University of Malaysia to examine the psychometric properties DASS, data from 850 university students were examined. For men, the average age of 22.13 (SD =2.27) and for women with an average age of 21.63 (SD =1.79) was.

Alpha coefficients for the subscales depression, anxiety and stress and the DASS-42 scale, respectively, 0.88 and 0.86 and 0.95 and to DASS-42 vary from 850 and these numbers are 0.79 and 0.70, 0.76 and 0.89 respectively. In solidarity with each other, from .to 0.81 DASS-21 tests and solidarity with each other, from 0.61 to subscales of DASS-42 was 0.67. The overall results showed that for the assessment of depression, anxiety and stress in the population of Malaysia DASS-21 reliable and valid tool. Iran Afzali, Delaware, Borjali and Mirzamani (2007), DASS-42 on 400 high school students in Kermanshah examined. Depression Scale, Beck Depression Inventory correlation of the test with 0.84 and relationship stress scale with a list of students' stress was 0.75. The alpha coefficients for factors of depression, anxiety and stress to 0.94 respectively, vary from 850 and 0.87 respectively. They then factor analysis and coordination of measures introduced by the authors to examine the factors that test values are particularly high, three-factor model demonstrated that the model can be a factor in the model introduced by the authors of the (Loviband) is the same.

In another study Asghari Moghaddam, forearm, Dibajnia and ZANGANEH (2008), DASS-42 to evaluate the psychometric properties on a non-clinical sample of 420 patients was conducted. In this study, the reliability

of the scale of the DASS through coefficients of internal consistency and test-retest coefficients was confirmed. In addition, the validity of depression and anxiety scales used to calculate the correlation between these two measures of the subjects' scores on the Beck Depression Inventory questionnaire anxiety was confirmed four system. Concurrent validity scales of depression, anxiety and stress by comparing the scores of a sub-sample taken from the general population ($n=315$) with the peer group of patients with psychological disorders ($n=130$) was confirmed. The results of this study suggest that depression, anxiety and stress qualified for use in psychological research and clinical situations with Iran. To assess the psychometric properties DASS-21 in Iran, Saman and barley (2007), on the 638 students at Shiraz University and Shiraz University of Medical Sciences, conducted this scale. The main components are two ways to scale their content and background risk factor analyzed and three factors of depression, anxiety and stress of this analysis were extracted. As for the convergent and divergent validity of the scale of the scale of public health and mental health were multidimensional questionnaire. The results of the retest and Cronbach's alpha reliability of this scale in such a way that the validity of this scale. Since the most common psychological and emotional problems in adolescence, depression, anxiety and mental pressure goal of the study was to evaluate the validity and reliability of depression, anxiety and stress-21 (DASS-21) among high school students in Shiraz is.

Method

Research Tools

Depression, Anxiety and Stress-21

It is an item self-report scale on depression, anxiety and stress, and by Lovibond and (1995) has been made. This tool is used increasingly in different environments. That is why it is more common to use a range of public. That is, this scale can be without any supervision and without bringing any charges related to the use of researchers (Crawford and Henry, 2003). Lovibond (1995), pointed out that although the scale of anxiety and depression scale DASS, but in place an independent and coherent. Depression subscale includes statements that create unhappiness, lack of self-esteem, hopelessness, worthlessness of life, lack of interest in matters of conflict, lack of enjoyment of life and loss of energy and empowerment measures. Anxiety in a statement that attempts to more physiological arousal, fear and anxiety subscales assess the situation in terms of stress because of the difficulty in achieving peace, nervous tension, irritability and restlessness will affect you. It should be noted symptoms of stress in the DASS scale shape, similar to the symptoms associated with generalized anxiety disorder (Anthony et al., 1998). Participants should read the statement, strongly expressed in the statement that the mark has experienced over the past week with a 4-point scale (zero to 3) the ratings. In this scale, zero means that the subjects raised in the desired mark over the past week, did not experience, the number one means that the said mark has been experienced over the past week, to some extent, number 2 means that the subject mark to a great extent has experienced over the past week and the number 3 means that the subject mark has experienced very high over the past week. Each of the three DASS-21 scale includes 7 items and the subjects in each of the three subscales with the terms thereof-is derived subscales and total of 21 items total score of the individual.

Beck Depression Inventory -2 (BDI-II)

The questionnaire, first in 1961 by Beck, Mendelssohn, Mook and Varba was introduced, in 1971, was revised and published in 1978 (Beck, Rush, Shaw and Imran, 1979). In 1996 to cover a wide range of symptoms and adjusting it with the DSM-IV, the test was substantially revised and the new version (BDI-II) by Beck, Steer and Brown were provided. This is a self-report questionnaire consisting of 21 items. Each item reflects a symptom of depression, which is graded based on 4 replies. Scores range from 0 to 63 is variable and higher scores of depression symptoms worse. Divided by Beck, 13-0 scores absence of depression, 19-14 mild depression, 28-20 moderate depression and 63-29 indicate severe depression (Marnot, 2007). In Iran, several studies have confirmed the validity and reliability of the BDI-II of which could be to study Rajabi, protecting and True (2001), pointed out that the internal consistency and construct validity of the questionnaire been studied been confirmed.

Beck Anxiety Inventory

This is a self-report questionnaire consisting of 21 items that measure anxiety by Beck (1988) has been made. The phrase reflects one of the symptoms of anxiety that is graded based on 4 replies. The participants in the questionnaire varied between zero and 63 and higher scores indicating more severe anxiety. Validity and

reliability of this scale is good. Internal consistency and test-retest reliability of the scale 0.92 to 0.75 and correlation of the scale with satisfactory Hamilton anxiety scale has been revised and is 0.75 (Beck, Steer and Garbin, 1988). Kazemi in Iran (2001), to assess discriminant validity of the test is the test result could very well be separated from the people uneasy and normal. The validity of the test by calculating Cronbach's alpha coefficient convenient and 0.78 reported.

Samples and Methods

To determine the validity of depression, anxiety and stress -21 (DASS-21) cluster sampling was used. To this end, the city is divided into four area school districts were based. High school students of both genders participated in this study. To provide for the study of each area high schools, a girls 'school and a boys' school were randomly selected from each school in every grade one class was randomly selected and all of these classes were the subjects of this study. In this study a total of 1150 students participated. Of these, 620 patients (53.9%) were female and 530 patients (1.46%) were male. A total of 407 subjects (35.4%) of high school, 364 (30.8%) of high school and 379 persons (32.1%) were in junior high school. To determine the reliability of depression, anxiety and stress -21 (DASS-21), 128 high school students performed within two weeks of the scale. The high school students from different grades were selected by random cluster sampling. For this purpose, the Second District 4 area of the city at random and in the area of Medical Sciences were selected randomly school. After talking with authorities from each school were randomly selected one class. All students in the selected classes participated in this study. The number of students in the first grade, second and third respectively with 32, 53 and 43, respectively.

Results

Credit scale

Validation of depression, anxiety and stress -21 (DASS-21) to re-survey methods and internal consistency were conducted for this purpose by the formula Pearson correlation coefficient and Cronbach's alpha was used.

Re-survey to validate the re-measurement scale, the number of 128 people, according to all the above, and then tested again within 2 weeks. Reliability for 0.69 questionnaire was significant that in 0.0001. In order to evaluate the results and comparison of two different implementation dependent t-test was used. As can be seen in Table 1. The results of first and second in terms of averages are very close together so that the implementation of the t-test a significant difference between the two tests did not show. T-test results in Table 1:

Table 1: Paired t-test to check the validity of scale dass-21 using

Indicators Test	Number of persons	Average	Standard deviation	Degrees of freedom	The obtained value of t	p
First test	128	39.72	15.44	127	2.47	n.s
Second test	128	37.08	15.62			

Internal consistency

Cronbach's alpha coefficient was used to assess the internal consistency of the scale. According to the results, Cronbach's alpha for the total scale, 0.88, respectively, which was very satisfying

Validity

To determine the validity of depression, anxiety and stress -21 (DASS-21) from two concurrent validity and factor analysis were used.

Concurrent validity

In order to review the implementation of concurrent validity and criterion related to the concurrent depression, anxiety and stress -21 (DASS-21), Beck Depression Inventory and Beck Anxiety Inventory was used.

At the same time in completing the questionnaire all students filled out questionnaires at random in order to allow the effects of the completed questionnaires be controlled. The results showed that the correlation coefficient between the scores of the two groups DASS-21 questionnaire and Beck Depression Inventory 0.55, which is significant in 0.0001 and also studied the correlation between scores on the questionnaire DASS- 21 and Beck Anxiety Inventory, which is equal to 0.58 is significant in 0.0001.

Analysis of factors

The present study to analyze the cause of depression, anxiety and stress -21 (DASS-21) from the principal components analysis was used. This method seeks to explain all of the variance of the variables. For ultimate solution to determine the factors that are likely to form the basis of the scale as well as its simple structure of varimax rotation was used. Before performing factor analysis, KMO and Bartlett tests were performed.

KMO was 0.89 times the amount that reflects the adequacy of the sample for analysis. Also in Bartlett test $X^2 = 1.62$ that at $P < 0.001$ significant. The factor analysis was performed. First, based on screen test revealed that the scale has 3 factors with eigenvalues greater than 1 is a meaningful and important. Special values for operating the first and third respectively 5.91, 1.70 and 1.29 is. The total variance explained by the first factor to test for third respectively with 28.14 %, 8.10% percent and 6.18%. These three factors together explained 42.43 % of the total variance test.

Using the matrix item loadings, loadings of each item were compared by three factors. The following items were a factor in which factor had the highest load factor. Selection criterion in the selection of items, have more than 0.35 times the factor was a factor. The results showed that 10 items of items 4, 13, 14, 15, 16, 17, 18, 19, 20 and 21 on the first factor are called stress. 7 statements also include statements of 3, 6, 8, 9, 10, 11 and 12 on the second factor was called depression. And finally 4 items includes items 1, 2, 5 and 7 on the third factor was anxiety.

Table 2

Indicators Factor	Factor	Equity	The percentage of explained variance	Density variance	Items
mental pressure	1	5.91	28.14	28.14	14-13-4-17-16-15-20-19-18-21
Depression	2	1.70	8.10	36.25	9-8-6-3-12-11-10
Anxiety	3	1.29	6.18	42.43	7-5-2-1

And many countries have made great use of it.

Results showed that the questionnaire is valid. In this study, the initial alpha 0.88 Lovibond in a direction. Imam Syed Sohail also studies (2007) at the Islamic University Malaysia reader.

According to many studies on the validity Concurrent validity was used in other countries. Consequently, the correlation coefficient between the two measures of depression, anxiety and stress -21 (DASS-21) and Beck Depression Inventory reported in this study, the primary outcome Loviband, also check Asghari Moghaddam and colleagues (2008) is similar. The result of the correlation coefficient between the two questionnaires, depression, anxiety and stress -21 (DASS-21) and Beck Anxiety Inventory reported in this study, the primary outcome of the review clause Levy and Levy paragraph in one direction.

Also in the study of internal consistency and validity of the analysis method to study the structural scale depression, anxiety and stress -21 (DASS-21) was used. As a result of this study showed that the scale of the 3 main factors that include depression, anxiety and stress was to have been formed. 3 factors found in this study with all studies including preliminary studies, Lovibond, Crawford and Henry (2003) and studies in Iran, such as chaos and barley (2007) is consistent.

In order to do that today DASS-21 scale in the world and also because of the varied performance this scale in clinical practice and research, it is recommended to validity and reliability of this scale in a clinical sample of adolescents to be done. Since the issue of the validity of a questionnaire limited to the issues raised in this study is not recommended especially predictive validity, sensitivity and specificity of this scale with groups of youngsters in future research by investigators, should be considered.

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