

## Psychometric properties of the Persian Version of Youth anxiety measure for DSM-5 (YAM-5) in nonclinical sample

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### Summary

**Aim of the study:** The purpose of this study was to investigate the psychometric properties Youth anxiety measure for DSM-5(YAM-5) in nonclinical sample.

**Materials and Methods:** This was a descriptive cross-sectional study. The statistical population of this study included all elementary and middle school students in Shiraz during 2017-18, among which 400 persons were selected with random cluster sampling and who participated in the research by completing the children's and adolescent's anxiety scales and child behavior checklist. A total of thirty students were selected for re-test reliability that was performed four weeks later. In order to examine the agreement between the child-parent form, fifty parents of students were randomly selected from this population. Data were analyzed using SPSS22 and Amos 18 software.

**Results:** The results showed that the five-factor structure of YAM-I and YAM-II is acceptable with data. The correlation coefficient of YAM-I with internalization and externalization problems was equal to 0.50 and 0.18 respectively; and that of YAM-II was 0.36 and 0.16, respectively. The YAM-I agreement for a parent was 0.67; and agreement of YAM-II child with parent was 0.89. Cronbach's Alpha of YAM-I and YAM-II was 0.84 and 0.78 respectively. The reliability of YAM-I retest was 0.98 and for the subscales it was between 0.90 and 0.95. The reliability of YAM-II retest was 0.96 and for the sub-scales it was between 0.94 and 0.96.

**Discussion:** The Youth anxiety measure for DSM-5 has good psychometric properties in nonclinical sample.

**Conclusion:** The YAM is a valid and reliable questionnaire to be utilized in future research

**Youth Anxiety Measure for DSM-5, anxiety disorder, children and adolescents**

### INTRODUCTION

Anxiety disorders are disorders whose common characteristics are extreme fear and anxiety and behavior abnormalities associated with these symptoms. Fear is an emotional response to a real danger or imminent threat, while anxiety is a sense of anticipation of future dangers [1]. Anxiety disorders are one of the most com-

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mon psychiatric problems in children and adolescents [2-8]. In order to measure the anxiety symptoms of children and adolescents, questionnaires such as State-Trait Anxiety Inventory for Children [9], Revised Children's Manifest Anxiety Scale [10], Fear Survey Schedule for Children-Revised [11], Spence Children's Anxiety Scale [12], Screen for Child Anxiety Related Emotional Disorders [13], and Multidimensional Anxiety Scale for Children [14], anxiety disorders interview schedule for DSM-IV – child and parent versions [15] and revised child anxiety and depression scale [16] were made. However, due to changes in DSM5, anxiety disorders is conceptualized as obsessive-compulsive spectrum, post-traumatic disorder and analysis, to address all issues associated with anxiety disorders. Selective mutism and Separation Anxiety Disorder are added to the category of anxiety disorders, and panic disorder and agoraphobia can be individually coded. Obsessive-compulsive disorder and post-traumatic stress disorder are also separated from anxiety disorders. As a result, the category of anxiety disorders includes Separation Anxiety Disorder, selective mutism, Social Anxiety Disorder, panic disorder, and Generalized Anxiety Disorder [17].

Given the recent changes in DSM, using a short screening tool to identify adolescents at risk for anxiety disorders is necessary. Muris et al [18]. developed a new self – and parent-reporting questionnaire to measure the symptoms of anxiety disorders in children and adolescents based on the current classification system (DSM5). An international panel of child anxiety specialists and clinical experts was formed to make a scale, which included two parts: the first part contained 28 questions and major anxiety disorders such as Separation Anxiety Disorder, selective mutism, Social Anxiety Disorder, panic disorder and Generalized Anxiety Disorder. The second part contained 22 questions focused on the fears and agoraphobia. In general, the face validity of this new scale was good; most of the questions were successfully linked to the anxiety disorder being intended and assessed. Considerable

exceptions were in the case of selective mutism that was repeatedly considered as symptoms of Social Anxiety Disorder and some specific phobia questions existed, especially natu-

ral, situational, and other environments. The primary study of the scale in a non-clinical sample (132 persons) and a referral clinical sample (64 cases) of children and adolescents showed that the scale was readily completed by these individuals. In addition, evidence of its psychometric quality was found, so that internal consistency was good for both parts and scales. The child-parent agreement seemed satisfactory and evidence of scale validity was found [18]. In another study, Garcia Lewis, Saez Castillo and Fantaz Rodriguez (2017), in a study, investigated the psychometric properties of YAM-I in 505 Spanish teenagers aged 13 to 17 years. The results showed that this property scale has an appropriate structural validity and internal reliability [19]. Moreover A research conducted by Simon & et al (2017) in a community sample indicated that YAM has good internal consistency, test-retest reliability, concurrent and construct validity [20]. According to the literature review of the evaluation of symptoms of anxiety disorders in children and adolescents based on DSM changes, there is no questionnaire based on DSM5 in Iran. So the aim of this study was to investigate the psychometric properties of this questionnaire in a non-clinical sample of students in order to be applied in future researches in the clinical population in two areas of clinical and research activities.

## MATERIAL AND METHODS

The present study was descriptive cross-sectional. First, he was contacted by one of the authors of the Youth anxiety measure, and the license was required for translation and validity and reliability. Subsequently, the measure was translated independently by four researchers and one specialist in English, and in then, a joint version of these translations was obtained and it was given to an English expert for the reciprocal translation. The disagreement between the editions was resolved by the team of researchers and the final version was prepared and after explaining the purpose of the research, satisfaction of the subjects and observance of the ethical principles of the questionnaires were implemented. This research was registered by Ethics committee Shiraz university of medical sciences.

For the convergent and divergent validity of the questionnaire of children and adolescents' anxiety, a Child Behavior Checklist (CBCL) which evaluated internalization and externalization problems was used. It was assumed that there was a significant positive and negative correlation between the questionnaire and the internalization and externalization of the Child Behavior Checklist, respectively. The statistical population of this study included all elementary and middle school students in Shiraz, who studied in the academic year of 2017-18. For factor analysis, Kamery, Cass and Nizly have proposed a sample of 300 people [21] However, the higher the number, the more reliable the results will be. Accordingly, 400 of these students were selected with random cluster sampling and participated in the research. The sampling method was done in such a way that two districts were randomly selected from among the four district of Shiraz, and from among these areas, four schools and from each school, one class was selected for each grade. A total of 30 students were selected for re-test reliability that was performed four weeks later. In order to examine the agreement between the child and parent form, 50 parents of students were randomly selected from this population. Data were analyzed using SPSS22 and Amos 18 software. Descriptive statistics such as mean and standard deviation, Cronbach's alpha, Pearson correlation and confirmatory factor analysis were used.

### Questionnaires

*Youth anxiety measure for DSM-5(YAM-5)*: This scale was developed by Muris(2017) aimed at measuring the symptoms of anxiety disorders in children and adolescents based on DSM5, the final version of which consists of 50 questions. The first part contains 28 questions which measures the major anxiety disorders and the second part consists of 22 which measures specific fears and agoraphobia. Morris et al. in a study showed that the Cronbach's alpha of YAM-I in the non-clinical and clinical population was 0.93, 0.92, respectively, and for YAM-II, it was 0.86 and 0.86, respectively. The results also showed a good agreement between the child and parent version of the questionnaire. The results of

the validity showed an appropriate correlation of YAM with a structured clinical interview of childhood disorders and Child Behavior Checklist([18].

*Child Behavior Checklist (CBCL)*: This checklist was designed by Achenbach (22-24) and has two sections of skills and emotional behavioral problems. The section of skills of this questionnaire includes two subscales of activity and social. The section of its behavioral problems includes 113 questions, which are graded on a Likert scale of zero to two. The section of behavioral problems includes eight subscales of confinement, physical complaints, anxiety-depression, social problems, thinking problems, attention problems, delinquent behaviors and aggressive behaviors. Its reliability was obtained by Cronbach's method by Achenbach from 0.46 to 0.96 [22-24]. Yazdkhasti & Arizi(2011) obtained Cronbach's Alpha of the child's form as 0.82. Structural validity through the correlation of subscales of the section of the behavioral-emotional problems with the overall score of this section in the form of children was obtained as 0.51 to 0.85 and the correlation of skills' subscales as 0.64 to 0.87. In the present study, the section of behavioral problems of the child's version have been used [25].

### RESULTS

The sample size of this research was four hundred students that 377 persons filled Questionnaires (174 males, 185 females and 18 Not completed). The sample ranged in age from 12 to 18 with mean age of 15.10 (SD = 1.35) and Sixth to tenth grade.

Model fitting indicators of YAM-I were obtained after the application of nearly 65 corrective indicators. The corrective indicators proposed by the software were 100, of which, after the application of 65, the model gained the required fitting ( $\chi^2/df = 1.58$ , RMSEA = 0.03, GFI = 0.92, CFI = 0.92, and IFI = 0.93). Based on the results of fitting indicators, the YAM-I measurement model is verified.

Model fitting indicators of YAM-II were obtained after the application of nearly 55 corrective indicators. The corrective indicators proposed by the software were 55, of which, af-

ter the application of 18, the model gained the required fitting ( $\chi^2/df = 1.53$ , RMSEA = 0.03, GFI = 0.93, CFI = 0.91, and IFI = 0.91). Based on the results of fitting indicators, the YAM-I measurement model is verified.

To assess convergent and divergent validity, the internalization and externalization of the Achenbach checklist was used. The results of the correlation coefficient of YAM-I with internalization and externalization were 0.50 and 0.18, respectively (the sample was 374 persons and the significance was 0.001); the correlation coefficient of YAM-II with internalization was 0.36 and with externalization it was 0.16 (sample of 374 per-

sons and significance of 0.001 and 0.002, respectively). higher correlation of between YAM-I and YAM-II with internalization and subscales compared with externalization showed that YAM has validity. convergent and divergent validation are presented in Table 2. The YAM-I agreement for a child and parent was obtained as 0.67 and YAM-II for a child and parent as 0.89 (the sample size was 47 persons). Since the sample size was low, nonparametric test spearman correlation coefficient was also performed. Result showed that The YAM-I agreement for a child and parent was obtained as 0.68 and YAM-II for a child and parent as 0.85

**Table 1.** result of test – retest reliability and cronbach's alpha of YAM-I and YAM-II

Cronbach's alpha	Test – retest reliability		Cronbach's alpha	Test – retest reliability	
0.84	0.98	YAM-I	0.78	0.96	YAM-II
0.61	0.93	Separation anxiety disorder	0.53	0.96	Specific phobia— animal type
0.55	0.90	Selective mutism	0.51	0.94	Specific phobia— blood–injection–injury type
0.59	0.94	Social anxiety disorder	0.47	0.95	Specific phobia— natural environment type
0.70	0.95	Generalized anxiety disorder	0.57	0.95	Specific phobia— situational type/ Agoraphobia
0.66	0.94	Panic disorder	0.38	0.96	Specific phobia— other type

**Table 2.** the results of convergent and divergent validation of YAM-I and YAM-II

	YAM-I	p	YAM-II	p
CBCL-internalizing	0.50	.0001	0.36	.0001
Anxious/Depressed	0.47	.0001	0.38	.0001
Withdrawn	0.39	.0001	0.21	.0001
Somatic complaints	0.29	.0001	0.20	.0001
CBCL-externalizing	0.18	.0001	0.16	.0002
Rule breaking behavior	0.07	0.148	0.02	0.668
Aggressive behavior	0.21	.0001	0.21	.0001

Cronbach's alpha of YAM-I was 0.84 and for the subscales it was obtained from 0.55 to 0.70. The lowest alpha was obtained for selective mutism and the highest alpha for Generalized Anxiety Disorder. The alpha of YAM-II was 0.78 and for the subscales it was obtained from 0.38 and

0.57. The lowest alpha was obtained for the others and the highest alpha was obtained for situation. The retest reliability of YAM-I was obtained as 0.98 and for the subscales from 0.90 and 0.95 (30 persons). The lowest retest was obtained for selective mutism and the highest retest for Gen-

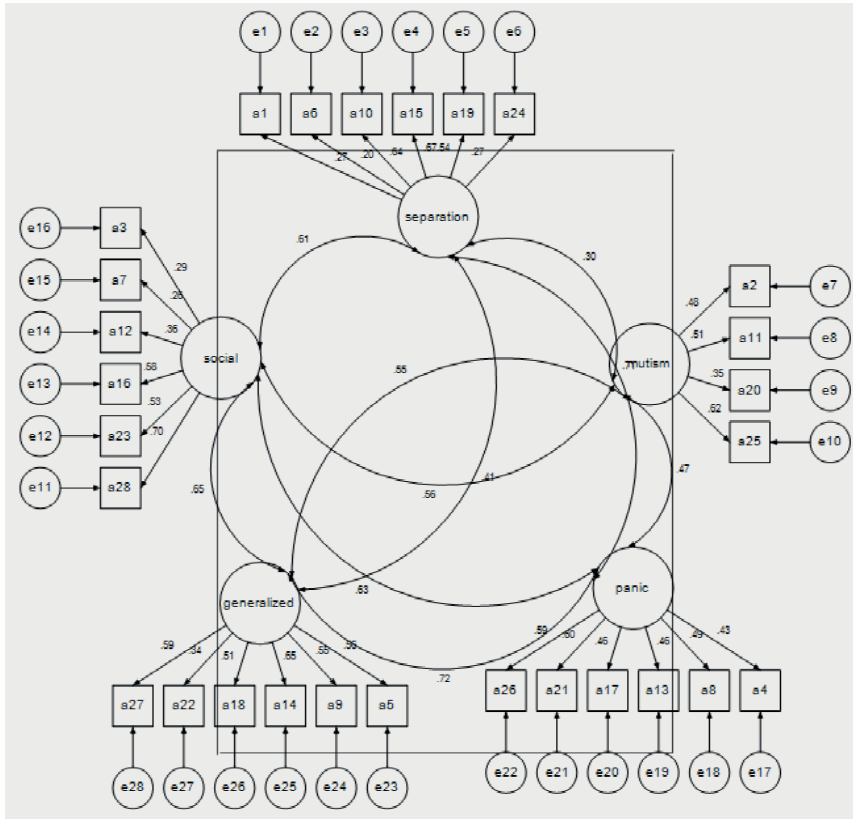


Figure 1. Major anxiety disorders(YAM-I) model test results

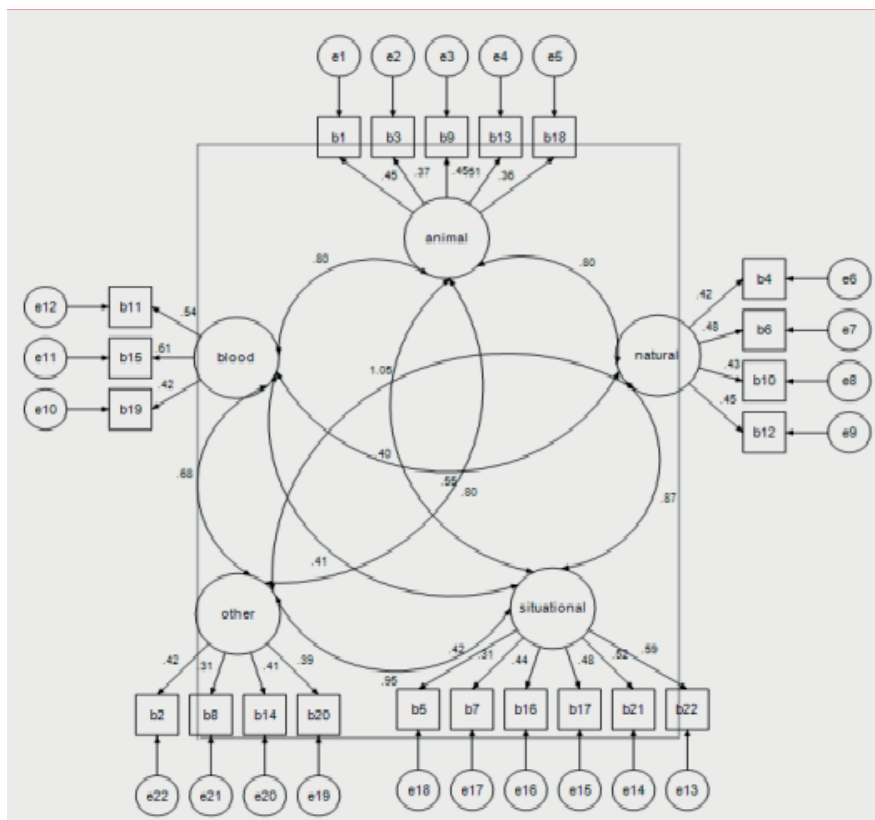


Figure 2. Phobia disorders(YAM-II) model test results

eralized Anxiety Disorder. The retest reliability of YAM-II was 0.96 and for the sub-scales from 0.94 to 0.96. The lowest retest was obtained for blood and the highest retest for animals and others (29 persons). Since the sample size was low, nonparametric test spearman correlation coefficient was also performed. The retest reliability of YAM-I was obtained as 0.96 and for the sub-scales from 0.82 and 0.93 (Panic disorder =0.82, Selective mutism =0.88, Separation anxiety disorder=0.90, Generalized anxiety disorder =0.92, Social anxiety disorder = 0.93). The retest reliability of YAM-II was obtained as 0.93 and for the sub-scales from 0.88 and 0.96 (situational type/Agoraphobia= 0.88, natural environment type=0.95,, other type =0.93, animal type and blood-injection-injury type=0.96).

## DISCUSSION

The purpose of this study was to investigate the psychometric properties of anxiety disorder questionnaire. The results showed that the five-factor structure version of the major anxiety disorders and specific phobia and agoraphobia with data is acceptable. This finding is consistent with the DSM5 and Muris and et al[18], and Simon and et al(20). It is important to note that in the present study, in contrast to the research of Muris, factor analysis has been used. Based on the assumptions of the disorders in DSM5 and YAM, five major anxiety disorders and phobia and agoraphobia have been confirmed by Emos software. In another study, Garcia Lewis et al [19]. showed that YAM-I has a six-factor structural validity, so that Separation Anxiety itself involves two separate factors. Regarding the nature of the multidimensional disorder of the Separation Anxiety and the newness of YAM, we need to further investigate its factor structure in clinical and non-clinical samples in further researches in order to determine the number of factors and so the necessary agreement about the number of factors is made among the researchers. The results of the convergent and divergent validity of the questionnaire are in line with the findings of Muris et al[18], Garcia and et al[19] and Simon et al[20]. Comparison of YAM-I correlation coefficient in current research and Muris with internalization problems was equal

to 0.50 and 0.31, respectively, and with externalization problems 0.17 and 0.23, respectively.

The results of YAM-II also show a good validity in three studies[18-20]. However, in the present study, a much higher sample and a non-clinical sample were used. Garcia Lewis et al. showed that there is a good correlation between YAM-I and social anxiety scales. The agreement between the original version of the child's anxiety disorder and the parent in the present study and Muris were 0.67 and 0.69, respectively, and for the section of specific phobia and the child-parent agoraphobia it were 0.89 and 0.70, respectively. A higher parent-child agreement on phobia symptoms is not surprising as compared to anxiety because fear is an objective matter while anxiety is subjective and internal and it is natural that there is a higher agreement between the parent and the child about these symptoms.

Cronbach's alpha is also consistent with the study of Muris et al [18], Garcia et al [19] and Simon et al[20], so that the Cronbach's alpha of YAM-I was 0.84 in the current study and in Muris et al research 0.93 in the non-clinical sample and 0.92 in the clinical sample. Interestingly, the lowest Cronbach's alpha in both studies was obtained for selective mutism, which is related to the nature of this disorder and the wide-ranging debates that exists between specialists in the disorder. The YAM-II alpha in this study was 0.78 and Muris et al was 0.86 in the clinical and non-clinical samples. Cronbach's alpha was also 0.84 in Garcia's research. Although Cronbach's alpha is appropriate for the total scores of YAM-I and YAM-II, alpha is not acceptable in subscales. This may be due to the small number of subscale questions. Because fewer questions causes the alpha to decrease. Future research can help determine the reliability of YAM-I and YAM-II

The retest reliability of YAM-I was 0.98 and for the subscales it was obtained from 0.90 to 0.95. The lowest retest was obtained for selective mutism and the highest retest for Generalized Anxiety Disorder. The retest reliability of YAM-II was obtained as 0.96 and for the sub-scales from 0.94 to 0.96. The lowest retest was obtained for blood and the highest retest for animals and others (29 persons). Given the fact that YAM and Garcia builders did not use retest reliability, there is no way to check the alignment or non-alignment with these studies. The present study is the first

study to demonstrate the reliability of this retest for YAM. Future researches can use a more extended sample and a longer period of time to examine the retest reliability of this YAM.

One of the limitations of this research is the use of non-clinical samples. A student sample has been used in this research and caution should be made in generalizing its results to other examples, including general and clinical populations. Also, to measure the retest reliability, a sample of 30 people has been used, and future researches can check the reliability of the retest using more samples. Also, the use of a questionnaire has limitations that may affect research results. Future researches can examine the convergent and concurrent validity of this questionnaire by using other questionnaires and use more extensive samples. Despite the limitations, The important clinical application of research is that YAM is short screening questionnaire that can be useful in measuring level of anxiety in future research and interventions.

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