

A study on construction, validation and determination of normalization of adolescents depression scale

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ABSTRACT

This paper presents an empirical investigation to construct, to validate and to determine normalization factors associated with adolescents depression scale. The study is performed among 750 randomly selected guided and high school students, 364 male and 386 female, who live in city of Zanjan, Iran. Validity of Beck Depression Inventory (BDI), Validity of Simpson-Angus Scale (SAS) and divergence validity of the Coopersmith self- esteem coefficients are 0.72, 0.37 and -0.71, respectively. Result suggests that adolescents' depression test is a reliable and valid tool for assessing depression, with utility in both research and clinical settings, counseling centers. In addition, the results of correlation test indicate there are some meaningful differences between depression levels of female and male students. In fact, our survey indicates that female students have more depression than male students do (F-value = 33.06, Sig. = 0.000). In addition, there are some meaningful differences between depression levels in various educational levels (F-value = 8.59, Sig. = 0.000). However, the study does not find sufficient evidence to believe there is any meaningful correlation between educational backgrounds and gender.

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1. Introduction

During the past few years, there have been tremendous efforts on construction, validation and determination of normalization of adolescents depression scale (Zuckerbrot et al., 2007). Gotlib et al. (1993), for instance, examined the nature, specificity, and stability of cognitive dysfunction in male and female depressed, remitted, and psychiatric control adolescents. They performed factor analysis of a diverse set of measures yielded two factors, labelled Negative Cognitions and Attributional Style. They reported that scores on both these factors were associated with a current diagnosis of depression. Their results also stated that there could not be complete recovery of cognitive functioning with diagnostic remission of depression. In addition, in this survey they reported the

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depressed and psychiatric control adolescents did not differ with respect to their scores on the Attributional Style factor. Brage and Meredith (1994) investigated how family strengths, self-esteem, parent-adolescent communication, loneliness, gender and age interrelated, and how this interaction impacted depression in adolescents in a survey accomplished on adolescents who were attending public schools in United States. They developed a causal model to explicate the relationships among the variables hypothesized to influence adolescent depression and analyzed the data based on path analysis via the LISREL VII program. Results demonstrated a good fit of the model to the data. In their survey, loneliness and self-esteem maintained a direct impact on adolescent depression. Self-esteem influenced indirectly on depression through loneliness. In addition, their survey indicated that age directly and indirectly could influence depression through loneliness while gender was substantially associated with depression through self-esteem. Finally, they reported that family strengths indirectly influenced depression through self-esteem.

2. The proposed study

This paper presents an empirical investigation to construct, to validate and to determine normalization factors associated with adolescents depression scale. The study is performed among 750 randomly selected guided and high school students, 364 male and 386 female, who live in city of Zanjan, Iran. The sampling technique was based on choosing two schools from each region, one for girls and the other for boys, randomly. In addition, in each region, we selected one guided and one high school for each gender. In summary, the study selected 191 and 173 male students who were enrolled in guided and high schools, and 184 and 202 female students who were enrolled in guided and high schools, respectively. The proposed study uses three questionnaires including Beck Depression Inventory (BDI) (Beck, 1961), Simpson-Angus Scale (SAS) (Zung, 1971) and Coopersmith self-esteem (Coopersmith, 1981, 1989). Validity of BDI, SAS and Coopersmith self-esteem coefficients are 0.72, 0.37 and -0.71, respectively.

In our study, we first designed a questionnaire consists of 50 questions in Likert scale and distributed among 52 students randomly, and repeated the process after 30 days and since the questionnaire contained 4 questions with weak internal consistency, we decided to remove them and repeated the survey based on 46 questions. We have also performed a final survey and decided to remove one single question leaving us to have 45 questions. The proposed study tries to answer the following questions,

1. Does the questionnaire have sufficient validity?
2. Does the questionnaire have sufficient credibility?
3. Is there a significant difference between female and male depression scales in terms of different educational levels?
4. What are the essential factors associated with depression scale?
5. What are the normalization scales?
6. Does the overall questionnaire have sufficient validity?

To answer these questions, the proposed study of this paper uses different statistical tests including correlation ratios and factor analysis. In order to validate the questionnaire of the survey, we use Cronbach alpha. In our survey, Cronbach alphas were 0.92 and 0.72 in preliminary stage and 30 days after the preliminary stage for 52 questions, respectively. In addition, Cronbach alpha has been calculated as 0.93 in final stage, which validates the overall questionnaire.

3. The results

In this section, we present details of our findings to answer different questions of the survey. We first present correlation ratios between the questionnaire of the survey and other questionnaires. Table 1 demonstrates the summary of some basic statistics associated with questionnaire and correlation ratios with BDI, SAS and Coopersmith self-esteem.

Table 1
The summary of some basic statistics and correlation ratios

Test	Mean	Std. Dev.	N	ρ	Sig.
Teenagers' depression	70.33	22.49	52	0.712	0.000
BDI	6.58	5.78			
Teenagers' depression	70.33	22.49	52	0.377	0.000
SAS	32.38	6.68			
Teenagers' depression	70.33	22.49	52	-0.71	0.000
Coopersmith self-esteem	37.85	7.42			

As we can observe from the results of Table 1, there is a positive and strong correlation between the questionnaire and BDI test, a mild and positive correlation between the questionnaire and SAS test and finally and negative and strong correlation between questionnaire and Coopersmith self-esteem. These numbers are consistent with our expectations and validate the questionnaire of the survey.

The proposed study of this paper uses analysis of variance (ANOVA) test to find out whether there is a meaningful difference between depression levels of female and male students. Table 2 demonstrates the summary of our results.

Table 2
The summary of ANOVA test

Source of changes	SS	df	MS	F	Sig.
Gender	22911.40	1	22911.40	33.06	0.000
Educational level	29754.50	5	5950.90	8.59	0.000
Inter-correlation	3667.60	5	733.50	1.06	0.382
Error	511457.40	738	693.0		
Total	569617.40	749			

The results of Table 2 clearly show that there are some meaningful differences between depression levels of female and male students. In fact, our survey indicates that female students have more depression than male students do (F-value = 33.06, Sig. = 0.000). In addition, there are some meaningful differences between depression levels in various educational levels (F-value = 8.59, Sig. = 0.000). However, the study does not find sufficient evidence to believe there is any meaningful correlation between educational backgrounds and gender.

The next question of the survey is associated with important factors influencing depression and the study uses factor analysis (FA) to accomplish this task. Table 3 demonstrates the summary of FA before and after varimax rotation. In addition, Fig. 1 demonstrates Scree plot of different factors.

Table 3
The summary of factor analysis

Factor	Before rotation			After rotation		
	Eignvalue	% of Variance	% Cumulative	Eignvalue	% of Variance	% Cumulative
1	11.81	26.25	26.25	6.75	15.00	15.00
2	1.81	4.03	30.28	3.15	7.01	22.01
3	1.49	3.30	33.58	2.49	5.54	27.55
4	1.42	3.16	36.74	2.38	5.30	32.85
5	1.32	2.93	39.68	2.25	4.99	37.84
6	1.19	2.65	42.32	2.02	4.48	42.32

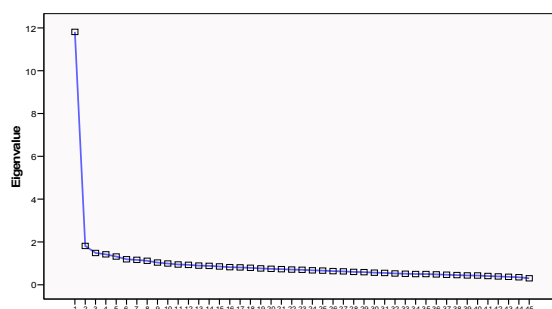


Fig. 1. The Scree plot

Based on the results of Table 3 and Fig. 1 we understand that there is only one major factor associated with depression.

4. Conclusion

In this paper, we have presented a new questionnaire for measuring depression level among students who were enrolled in guided schools or high schools in city of Zanjan, Iran. The study tried to construct, to validate and to determine normalization factors associated with adolescents depression scale. Validity of Beck Depression Inventory (BDI), Validity of Simpson-Angus Scale (SAS) and divergence validity of the Coopersmith self-esteem coefficients have been computed 0.72, 0.37 and -0.71, respectively. Result suggests that adolescents' depression test is a reliable and valid tool for assessing depression, with utility in both research and clinical settings, counseling centers. In addition, the results of correlation test have indicated that there were some meaningful differences between depression levels of female and male students. In fact, our survey indicates that female students had more depression than male students did (F-value = 33.06, Sig. = 0.000). In addition, there were some meaningful differences between depression levels in various educational levels (F-value = 8.59, Sig. = 0.000). However, the study did not find sufficient evidence to believe there was any meaningful correlation between educational backgrounds and gender.

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