

Validation of the Adult Domain-Specific Hope Scale in Iranian Postgraduate Students

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Article information	Abstract
<p>Article history: Received: 27 Aug 2011 Accepted: 19 Oct 2011 Available online: 16 Oct 2012</p> <hr/> <p>Keywords: Hope Standardization Reliability Validity Exploratory Factor Analysis Confirmatory Factor Analysis</p> <hr/> <p>*Corresponding author at: Department of Psychology, Islamic Azad University, Hamadan Branch, Hamadan, Iran. E-mail: mahmadi_1362@yahoo.com</p>	<p>Background: The aim of the present study was to investigate psychometric properties and the Standardization of Simpson's Hope Scale (1999) in Iranian university students.</p> <p>Materials and Methods: In this descriptive-survey research, 1000 students with age range of 18 to 34 and with the mean age of 23.9±5.13 were selected via the categorical cluster sampling method from different universities. Then they answered the Snyder's Hope Scale, Oxford Happiness Scale, the Ahwaz Hardiness Scale, the Beck Hopelessness Inventory, Riff's Psychological Well-being Scale, as well as Sympon's (1999) Hope Scale (with little change).</p> <p>Results: Coefficients of Cronbach's alpha (0.94), split-half (0.85), convergent validity with Hardiness (0.40), Happiness (0.64), Psychological Well-being scales (0.47), divergent validity (Beck Hopelessness, -0.25) criterion validity (Snyder's Hope 0.55) were calculated, which were significant at $p < 0.01$ level. The exploratory factor analysis showed that the 40-item Hope Scale for adults is saturated with five factors (social, academic, family, occupational, and leisure hope) that explain 56% of the scale's variance. Second-order confirmatory factor analysis indicated that the five mentioned factors are well loaded on a principal factor, and therefore, the six-factor model was well fitted with the data (AGFI=0.93, RMSEA= 0.037, NFI=0.98).</p> <p>Conclusion: The results showed that this test has high reliability and validity and can be used in other studies.</p>

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Introduction

Mental health is defined "as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" [1] Despite more than 50 years after the founding of the Mental Health Committee in this organization, the knowledge about the issue and its dimensions is too low [2]. In other words, despite the emphasis of the above definition on positive issues, health professionals are often so concentrated on the problems of people that they forget the needs and abilities of healthy people. Meanwhile, health psychology tends to scientifically study the optimal functioning of human beings and to discover and promote the factors that allow individuals and societies to move toward flourishing and transformation. This movement in psychology research domain has created a new task for psychologists to focus their attention on mental health resources and to go beyond the study of diseases and disorders. Health psychology deals with the problem how humans complete themselves, rather than simply to reduce a number of problems that they suffer [3].

The increasing tendency of psychological studies toward new researches in the field of health, mental health and psychological well-being predictors has led to the expansion and deepening of its boundaries. Furthermore, the measurement of people's mental strengths and capabilities and the measurement of structures that have been proposed in the area of positive psychology require some tools. With a quick look at test development processes in different areas of psychology, we realize that when producing psychological theories and strategies for the measurement of individual differences in humans, the scientists first focused on human weaknesses. For this reason, researchers selected variables such as depression, anxiety, aggression, and desperation for measurement. But today, similar measurement tools and techniques can be used to assess human abilities. This research line that had become a familiar name to researchers in last few years, under the title of "positive psychology," refers to positive characteristics such as hope [4], joy and optimism [5], spirituality and faith [6] and is expedited through the publishing of the Positive Psychology Special Issue in the first volume of 2000 in "American Psychologist" journal. One of the basic human abilities

that have been studied in this area is “hope.” It was in the context of positive psychology that Snyder et al. conceptualized hope and designed its measurement tools [7].

Snyder et al. [8] consider hope as “a cognitive set that is based on the sense of accomplishment derived from agency, goal-directed energy, and pathways; or in other words, planning to achieve goals.” Therefore, goal-oriented hope or thinking is composed of two interconnected components: pathways thinking and agency thinking. “Pathways thinking” reflects the capacity of the individual to produce cognitive pathways to achieve his/her goals, and “agency thinking” is the thoughts that individuals have defined their abilities and capabilities to reach their goals through selected pathways. By combining agency and pathways, one can achieve the goals and if there are any of these two cognitive elements, goal achievement will be impossible [9]. There are many researches that suggest the relationship between a high level of people hope and success in sports activities, academic achievement, improved physical and mental health, and the effectiveness of psychotherapy methods in treating disorders [10, 11].

According to Snyder et al. [12] in the recent years, psychologists look to the hope construct as a psychological point and believe that this construct is able to greatly help grow and develop mental health. Hope has two cognitive (expecting happening of some events in the future) and emotional components. The emotional component can predict future events and results in an increase in positive mental health [13]. Research findings had revealed that people who have high levels of hope show higher self-esteem, better academic performance, and greater commitment to the activities which lead to health. Adults who have high levels of hope look upon others as a source of support and bases upon which they can rely [14]. Also, these individuals believe that they can adjust themselves with challenges that they may encounter in their lives and experience greater happiness and life satisfaction [15]. They can also develop this internal discourse in them that, “I can finish this work; I shall not fail and will not be disappointed.” They see more achievements than defeats [14].

Formal measurement of hope was started according to the hope theory through the construction and validation of the Adult Dispositional Hope Scale [8]. Some problems were clarified during the last decade: 1- hope is important “here and now;” 2- children have different levels of hope; and 3- the thoughts may be focused on specialized areas of life. So, different scales were built for hope such as the Adult Dispositional Hope Scale, the Children Hope Scale, the Adolescent Hope Scale, and the Adult Domain-Specific Hope Scale.

Besides the five mentioned tools for measuring hope, there’s the hope interview, which is a narrative approach to measure hope [16].

Despite extensive studies conducted by Western psychologists on hope, its components, and its impact on various aspects of life, and despite the great emphasis of

Islam on the role of hope in the life quality of people, we are witnessing extreme research poverty in this area in Iran. One of the main reasons for this research poverty is the lack a useful tool for evaluating hope. On the other hand, obtaining valid and reliable research results requires a tool with strong theoretical and valid psychometric properties. Thus, to evaluate every construct, the appropriate tool of this construct should be made based on scientific principles. Therefore, this study seeks to select and standardize an appropriate tool to measure hope. In this regard, after studying the content and psychometric properties of various scales of hope, the Domain-Specific Hope Scale was selected for this study, due to its higher comprehensiveness and good reliability and validity in foreign researches.

Materials and Methods

This is a research and development study in terms of purpose and descriptive-survey in terms of data collection method (research design).

The statistical society of the present study consisted of all undergraduate students of Iran in the academic year of 2010-2011. The studied sample included 1000 university undergraduate students of provincial capitals universities of Iran, which were selected through a categorical cluster sampling (university, faculty, department, major, year of entry). Therefore the nation’s universities were divided into 5 regions; North, South, West, East, and Central, and one university was randomly selected from each region (due to linguistic, ethnic, cultural similarities of each geographic region, one university can be a good sample for each geographical area). The selected universities were Gilan University in the north, Persian Gulf University in the south, Boo-Ali Sina University in the west, Sistan and Baluchestan University in the east, and Tehran University in the center. (It should be noted that the mother universities in provincial capitals which were affiliated to the Ministry of Science, Research and Technology were chosen). After the selection of the studied university, the desired sample was selected regarding to the separation of gender and field of study, and maintaining students' proportion of the university and choosing the class as the element of sampling.

The sampling method was as follows; after visiting every university of the relevant province and obtaining the statistics of students of Humanities, Technical-Engineering, and Basic Sciences faculties, a sample was selected based on the number of students per faculty in order to raise the generalize ability of the results to the entire population. After determining the number of samples that would be selected from each faculty, some classes were randomly selected from different classes of the faculty, and then in coordination with relevant authorities and permission of the respectful professors, the questionnaires were distributed in selected classes among all the people who were willing to respond. It should be noted that from total distributed questionnaires, only 832 questionnaires were completed and the remaining were incomplete, which were excluded from the data analysis

process. The Adult Domain-Specific Hope Scale or DSHS, was created based on Snyder's work on hope and the 12-item scale that Snyder made to measure hope, except that this scale measures more specifically the six domains of social, academic, family, romantic relationships (which has been eliminated in this study due to the culture dependence), occupation, and leisure activities [17].

Subjects are asked to rate the importance and their satisfaction in six areas of life (social, academic, romantic relationships, family, occupation, and leisure activities domains) on a Likert's scale (from zero to 100). Within each of the six domains, the subjects were asked to rank the range that each item applies to them, on an 8-degree scale from 1 to 8 (1=totally wrong and 8=totally right). Separate scores of each domain were obtained by adding the scores of 8 items within each domain (8 to 64). The Hope Scale total score was a number between 48 and 384, calculated through the sum of the scores of the 48 items.

At first, the researchers translated the English sample to Persian, and then edited it with the help of an expert in the field of Persian literature; to make the translation clearer more and fluent, they used common Persian phrases. Subsequently, with the help of an English language professional, the Persian version was translated back into the original language in order to evaluate the possibility of any change in the original text; finally, the English translated text was given to two professors of the English language department to check matching with the original text. For testing the content validity, the scale was given to some expert professors. Each member received a copy of the test translated form and a copy of the ranking form, and were asked to show the extent of consistency of each question with its purpose for which it is extracted, by using a 5 degree spectrum (from 1 low to 5 high) in order to correct them if the agreement of jury was low for some questions. Almost all judgments about content validity of test questions were positive.

The DSHS has an adequate internal consistency with overall alpha of 0.93 and main subscales alpha ranging from 0.86 to 0.93. Principal components factor analysis was confirmed the existence of six distinct domain-specific subscales.

The following findings are based on the Simpson validity study with 343 participants. The DSHS score correlation of the family domain and the scores of perceived social support from family and perceived social support from friends subscales of social support scale of Prosiando and Heller were positive and 0.64 and 0.46, respectively [17]. In addition, the DSHS overall score is negatively correlated with the Loneliness Scale-Revised. Finally, as it was assumed, the DSHS overall score and the Beck Depression Inventory (BDI) had an inverse relation of 0.45 [17]. Academic hope should have little relationship with friend support, job satisfaction, and loneliness, and Simpson confirmed this hypotheses relevant to discriminant validity in his research [17].

In order to analyze the data statistical indices of Pearson correlation, and Cronbach's alpha and split-half coefficients, exploratory factor analysis (with the help of

SPSS-16 software), second-order confirmatory factor analysis (using the software LISREL) were used. It should also be mentioned that before factor analysis, all questions were investigated regarding the assumption of normality and any question with significant deviation was eliminated from the normal distribution.

Results

The data of this study were analyzed in two parts. In the first part, for the preliminary study of the Hope Scale structure, the exploratory factor analysis was conducted, and in the second part, the data were analyzed using confirmatory factor analysis (Table 1). Before performing factor analysis, in order to delete improper options when a question was deleted, the correlation of questions with the total test as well as alpha increase criteria was used. However, no question was eliminated.

A review of the adequacy of the sample size (KMO) (0.93) and the index of Bartlett's test of sphericity ($p < 0.01$ and $df = 780$) implied that the necessary criteria for the factor analysis were met. To extract the factors, principal component analysis method was used. Also, to rotate the factors regarding to the conceptual construct of hope and the correlation of its subscales, oblique promax rotation method was used.

Based on the research assumption, i.e. the five-factor structure of the Hope Scale, in order to perform factor analysis, the construct of factors was limited to five factors in the original questionnaire. To estimate the factor loading, only questions with factor loadings of 0.40 or higher remained in the model and the rest were excluded (Table 2). A review of factor loadings showed that every single question had a high factor loading on the desired factors and had no high loading on any of the other factors. Scree chart review (Fig. 1) showed that the Hope Scale is saturated with 5 factors that account in total for 56% of the scale variance. Therefore, exploratory factor analysis suggests a repeat of the foreign factor construct of the Hope Scale in Iranian examples. It should be noted that the minimum and maximum factor loading in the total questionnaire were 0.50 and 0.93, respectively, which were much higher than the acceptable minimum (0.30).

Table 2 depicts the rotated factor matrix pattern of the hope subscales questions. Those questions with factor loadings above 0.40 were selected. It should be noted that the first factor in the above table is family hope, the second factor is leisure hope, the third factor is academic hope, the fourth factor is social hope, and the fifth factor is occupation hope. In order to perform confirmatory factor analysis, since all of the statements had a high factor loading on relevant factors, and had a low loading on other factors, the same exploratory factor construct was used for this step.

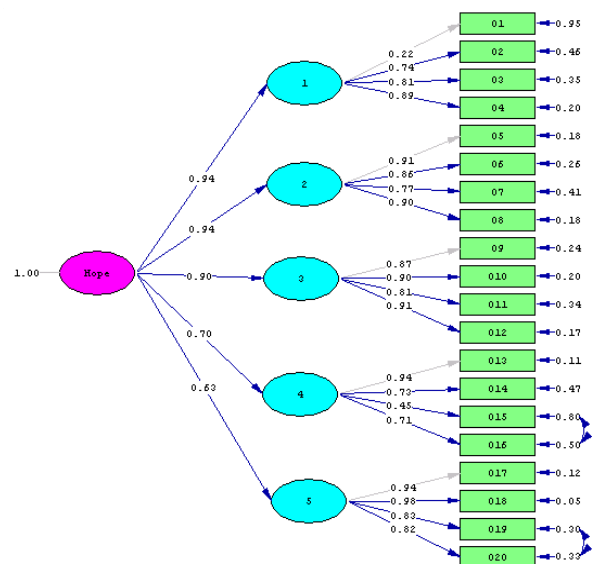
Table 1. Statistical characteristics of the participants

Gender	Frequency	Percent	Age Mean±SD	Hope Mean±SD
Female	454	73.8	4.61±22.41	36.45±249.17
Male	385	26.2	6.20±24.46	47.25±27.248
Total	849	100.0	5.14±23.99	88.47±57.244

Table 2. Promax rotated factor matrix of hope components

Factors Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor5
22	0.93				
21	0.89				
20	0.89				
23	0.81				
19	0.75				
18	0.73				
24	0.63				
17		0.90			
34		0.86			
39		0.85			
33		0.84			
35		0.82			
46		0.73			
40		0.71			
38		0.56			
37					
16			0.84		
13			0.82		
10			0.79		
17			0.76		
9			0.74		
15			0.71		
14			0.70		
11			0.53		
30				0.90	
29				0.85	
31				0.76	
32				0.68	
28				0.62	
25				0.60	
26				0.59	
27				0.55	
1					0.80
4					0.70
3					0.69
6					0.68
7					0.67
8					0.66
2					0.55
5					0.50

bottom, are social hope, academic hope, family hope, leisure hope, and occupation hope. Also, the latent factor at the left of the figure is the fundamental and general factor of hope.



Chi-Square=265.63, df=163, P-value=0.00000, RMSEA=0.037

Figure 2. Second order factor analysis of the Hope Scale

A review of the standardized factor loadings and the relevant *t* quantities showed that all coefficients of the path were significant and there was no need to remove any of the questions. Hence, the indices of model's goodness of fit were evaluated (Table 3).

Table 3. Model's goodness of fit indices

SRMR	NFI	CFI	AGFI	RMSEA	χ^2	df	indexes
0.027	0.98	0.95	0.93	0.037	265.63	163	

The indices of the model's goodness of fit (Table 3) show goodness of fit of the six-factor model with data. The ratio of Chi-square to degrees of freedom is less than 2 in efficient models and whatever closer to zero will be better. This value was less than 2 here. The root mean square error of approximation (RMSEA) and standardized root mean residual (SRMR) are less than 0.05 in good models, which also indicate the goodness of fit of the model here. As for the normed-fit index (NFI), the comparative fit index (CFI), and the adjusted goodness of fit index (AGFI), whatever closer to 1 they are, the better and in good models, they are more than 0.90. As seen in the table, all these indices are also indicating the fitness of the model. Cronbach's alpha, split-half, divergent and convergent validity coefficients of the scale are depicted in the following table.

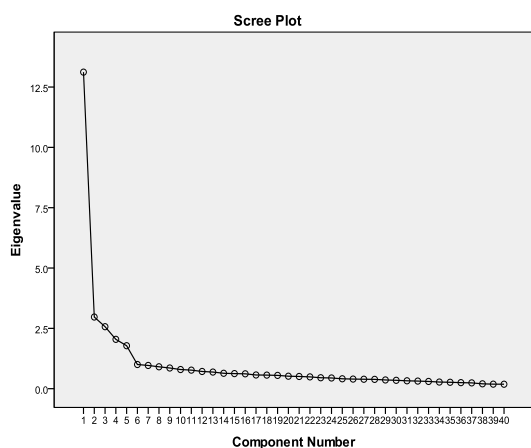


Figure 1. Scree plot

For this reason, and since the hope subscales are correlated with each other, second-order confirmatory factor analysis was used. Thus, 6 factors were considered. In other words, the five desired factors gathered on a general latent factor. Figure 2 shows the considered factors. In this figure, the five subscales, from top to

Table 4. The psychometric characteristics of the Hope Scale

T scores	Rank (%)	f	Raw scores	T scores	Rank (%)	f	Raw scores
48.51	21.2	17	40	31.18	0.1	1	11
49.17	23.4	18	41	32.51	0.2	1	13
49.84	27.3	42	42	33.84	0.4	1	15
50.51	30.2	24	43	35.18	0.5	1	17
51.17	32.1	15	44	35.84	0.6	1	18
51.84	34.8	22	45	36.51	0.9	2	19
52.51	38.3	29	46	37.18	1/0	1	20
55.17	42.4	34	47	37.84	1.6	5	22
55.84	46.8	39	48	37.51	2.1	4	23
56.51	51.0	34	49	37.18	2.4	3	24
57.17	56.0	41	50	38.51	2.7	2	25
57.84	61.2	43	51	39.18	2.9	2	26
58.81	64.4	26	52	39.84	3.4	4	27
59.17	68.5	34	53	40.51	4.4	6	28
59.84	72.8	35	54	41.71	4.5	3	29
60.50	77.0	34	55	41.84	5.1	5	30
61.17	80.6	30	56	42.51	5.9	6	31
61.84	83.3	22	57	43.17	6.8	8	32
62.50	86.8	29	58	43.84	7/6	6	33
63.17	90.1	27	59	44.51	9.4	15	34
63.84	92.8	22	60	45.17	11.0	13	35
62.50	95.4	21	61	45.84	12.6	13	36
65.17	97.4	17	62	46.51	14.9	19	37
65.84	98.8	11	63	47.17	17.1	18	38
66.50	100	10	64	47.84	19.1	17	39
		820					total

** $p < 0.01$

Table 5. Raw scores, percentile rank, and T scores in the subscale of academic hope

Indexes	Scales	Coefficient
Cronbach's alpha	-	**0.94
Split half	-	**0.85
Criterion validity	trait hope	**0.55
Convergent validity	Hardiness	**0.40
Convergent validity	Happiness	**0.64
Convergent validity	Psychological well-being	**0.47
divergent validity	Hopelessness	**0.25

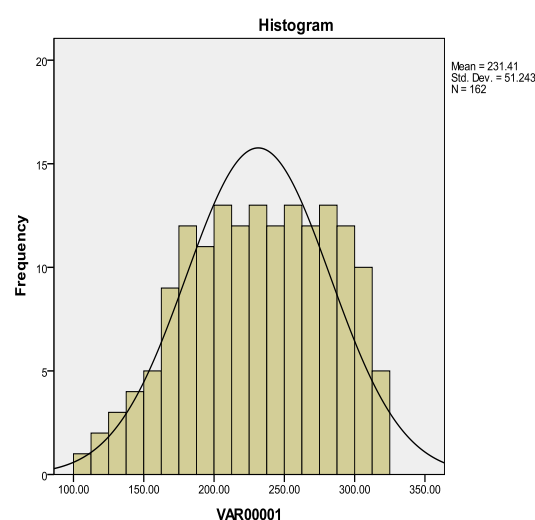
As seen in table 4, Cronbach's alpha and split-half coefficients of the Hope Scale were obtained as 0.94 and 0.85, respectively, which indicates the high internal consistency of the test. Cronbach's alpha coefficients of the social, academic, family, occupation, and leisure hope subscales were 0.85, 0.83, 0.94, 0.81, and 0.92, respectively.

Also, to estimate the criterion, convergent, and divergent validity of the previous tools including the Oxford Happiness Scale [18], the Hope Scale [2], the Ahwaz Hardiness Scale [19], Riff's Psychological Well-Being Scale [20], and the Beck Hopelessness Inventory [21] were used. The obtained coefficients (Table 4) indicate criterion, convergent, and divergent validity of the Hope Scale. The Cronbach's alpha coefficients of the above tools which were used to assess the criterion, convergent, and divergent validity of the Hope Scale, which were obtained as the following table on the studied sample in the present study.

The standardization of the hope test: since the mean of score differences in the male and female students was not significant in the Hope Scale and its subscales, the

researcher has provided the same normal tables for the two groups.

Table 5 depicts the raw scores, percentile rank, and T standard scores of all students in the academic hope subscale (due to the high volume of tables only this example is shown here). Also, the normal curve of subjects in total score of Hope Scale is shown here (Table 3). As seen in figure 3, the distribution of the hope test total scores is almost normal among students.

**Figure 3.** The natural curve of the total scores of the subjects' hope

Discussion

The purpose of this study was to examine the psychometric properties and standardization of the Adults Hope Scale. Previous researches on standardization of the specific domains of the Hope Scale belong to Simpson's constructive studies on scale [17]. In the study conducted by Simpson on a sample of 384 students, the mean of the total score was 302.88 (SD=36.03); and for social hope, academic hope, romantic relationships hope, family hope, occupation hope, and leisure hope, the scores were obtained as 50.20 (SD=9.04), 49.38 (SD=9.24), 43.66 (SD=12.10), 52.32 (SD=10.12), 53.657 (SD=8.25), and 53.66 (SD=7.09), respectively [17]. The mean and standard deviation of the total scale in this study were 246.07 and 38.36, respectively. These indices were 50.52 (SD=8.14), 47.72 (SD=10.86), 51.54 (SD=10.74), 48.26 (SD=10.32), and 47.88 (SD=9.64), for social hope, leisure hope, family hope, occupation hope, and academic hope subscales, respectively. There is not much difference in subscales scores between Simpson's sample and the sample of the present research, but the difference in the total scores is high. The main reason for this difference is the elimination of one subscale (romantic relationships) from the Farsi form due to cultural differences.

In Simpson's study, the principal component factor analysis showed the existence of 6 distinctive subscales [17]. As noted, in the present study, one of the subscales was removed due to culture dependency. The results of

exploratory and confirmatory factor analysis in the Iranian sample confirmed the existence of 5 other subscales of the Simpson's sample. Each single question of the five subscales had high loading only on the relevant factor loadings and had weak factor loading on the other factors. Thus, the finding of Simpson were also repeated in the present study. The results are presented in figures 1 and 2. The Specific-Domain Hope Scale (DSHS) in Simpson's study had adequate internal consistency with a total alpha of 0.93 and subscales alpha ranging from 0.86 to 0.93. In the Iranian sample, Cronbach's alpha of the total scale, despite eliminating of one subscale, was 0.95 and for other subscales ranged from 0.82 to 0.92 [17].

The DSHS score correlation of the family domain and the scores of perceived social support from family and perceived social support from friends subscales of social support scale of Prosiando and Heller were positive and 0.64 and 0.46, respectively. In addition, the total score of the DSHS had negative correlation with the Loneliness Scale-Revised by Okla, Peplaw, and Katrina [17].

Finally, as it was assumed, the DSHS total score and the Beck Depression Inventory (BDI) had an inverse relation of 0.45. Convergent validity of the Hope Scale in the present study was obtained by the Ahwaz Hardiness Scale, the Oxford Happiness Scale, and Psychological Well-being Scale as 0.40, 0.64, and 0.47, respectively, and divergent validity was obtained by the Beck Hopelessness Inventory as -0.25; and all were significant at $p < 0.01$ level. Another finding of this study was the lack of significant difference between the mean scores of male and female students in the Hope Scale and its subscales, thus similar tables were provided for all students to determine and compare the hope scores. Overall findings indicated that the Adult Hope Scale (with slight modification) has a good validity and reliability in the Iranian sample.

This point is also true for the individual subscales. According to the mentioned points, this scale can be used to measure hope in Iranian adults. However, since the sample of this research was restricted to 5 of the nation's universities due to vastness of Iran and the limited research time and grant, it is recommended that researchers investigate the characteristics of the test in different cities and various samples in future studies. Also, considering that one subscale has been removed from the Farsi form, it is suggested that in future studies,

if possible, another dimension or aspect be added to the scale, such as the spiritual and religious dimensions of hope which are proportional to the Iranian local culture.

Finally, some points should be noted: as it has been suggested by written historical and anthropological descriptions, hope is a global structure and all people of all ages valued the role of hope in their life [9]. But the definitions of hope vary within a culture and among different cultures, and the assumption that hope is seen and defined the same in all groups is wrong. Since cultures have different values where hope lies within, the intercultural application of hope requires further investigation. For example, in Islamic culture, the issue of dread and trust are clear examples of hope not usually covered in other cultures.

Trust in God is another obvious example of hope in Islamic culture. Waiting for Faraj (advent) is another example of hope in Shi'a culture. Therefore, future researchers should not limit themselves to the hope components of Western scales, but should also consider their specific cultural factors. Therefore, same as eliminating a subscale from the Hope Scale due to cultural limitations, new Iranian-Islamic cultural components can be added to it. Thus, it is suggested that in future studies, if possible, another dimension or aspect be added to the scale, such as the spiritual and religious dimensions of hope, which are compatible with Iran's native culture.

Regarding the results of the research, one can say that the Simpson Hope Scale has an appropriate validity and reliability in the student community of Iran and it can be used to measure students hope, and is applicable by researchers for future studies

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Authors' Contributions

All authors had equal role in design, work, statistical analysis and manuscript writing.

Conflict of Interest

The authors declare no conflict of interest.

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