

Development of the Persian Version of the Integrative Hope Scale: A Review of Psychometric Indices

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Abstract

Introduction: The purpose of the present study was to prepare a Persian version of the Integrated Hope Scale along with examining its reliability and validity.

Methods: In order to do so, 230 Master's and Ph.D. students of the Tarbiat Modares University were selected, 10 participants for each item (total: 23 items). The convenience sampling method was used in the study, and participants filled out the translated version of the Integrated Hope Scale (IHS), General Health Scale (GHS), and the Positive and Negative Affect Schedule (PANAS). Factor analysis, face and content validity, as well as the convergent and divergent validity were used to assess the overall validity of the questionnaire.

Results: Results of the factor analysis, that was performed using the parallel analysis method, confirmed that there were four factors in the scale: trust and confidence, lack of vision, positive orientation towards the future, and social communication and personal values. These four factors were similar to those in the original scale. The split-half method showed that the reliability of the scale was 0.83, and the internal consistency index (Cronbach's alpha) indicated that the validity of the total scale was 0.72 and that of the subscales ranged from 0.74 to 0.84.

Conclusion: Based on these results, it seems that the IHS enjoys good validity and reliability and has the necessary adequacy to be used in future studies.

Keywords: Factor analysis, Hope, Reliability, Students, Validity

Introduction

With the development of positive psychology, psychological issues have been considered from another perspective and factors such as happiness, optimism, creativity, meaning in life, social support, hope, and the use of methods based on these factors in treatment and prevention interventions have become very important [1].

The hope construct is one of the concepts taken into account in the same vein. Hope has different definitions. According to Lazarus, hope is an emotion that is aroused when one visualizes a meaningful goal for the future and leads to a strong desire for creating conditions different from the current ones [2, 3]. Hope is an important protective factor against challenges and threats. According to Erikson, hope is this personal belief developing in early childhood that the world is organized in a regular, rational, and friendly way for people [4].

In addition, according to some researchers, hope is a reflection of achieving goals that have been evaluated as uncertain but at the same time possible [5]. Hope is an internal process dependent on experiencing meaning and becoming aware of possibilities. This awareness releases energy, activates thoughts and feelings, and provides people with meaningful and targeted choices to increase their expectation of positive consequences [6].

Therefore, hope or purpose-oriented thinking consists of two related components: "the paths of thought" and "the sources of thought." "The paths of thought" reflect the individual's capacity to generate cognitive paths to achieve goals, and "the sources of thought" are the thoughts that individuals have defined about their abilities and capabilities to follow their selected paths and achieve their goals. Goals can be achieved by combining sources and paths of thought. Therefore, if either of these two cognitive elements is absent, achieving goals will be impossible [7]. There is considerable research evidence showing that there is a relationship between the amount of hope and success in sports activities, academic achievements, physical and mental health, and benefits that can be acquired through psychological interventions [8, 9].

The study by Grewal and Porter showed that hopeful people had more secure attachments, received better nutrition and care, enjoyed sufficient social support to adapt to problems and had fewer family conflicts. Neglected children had no one to teach them hopeful thoughts. Under such conditions, the caregivers' performance was not a source of will and protection for the children and destroyed targeted thoughts in them [10].

In addition, hope is a positive expectation for the future and a positive attitude towards causal events and acts as a shield against the effects of stressful events in life on physical, psychological and behavioral health [11].

Research findings [12,13] showed that those who had higher levels of hope had more self-esteem, did better academically, and were more committed to engaging in activities that resulted in greater health and well-being. Adults who enjoy high levels of hope see others as sources of support and reliable footholds. They also believe that they can adapt to the challenges that they may encounter in their lives, experience higher levels of happiness, and are more satisfied with their lives. They can engage in this self-discourse: "I can finish this task; I must not fail or lose hope." They also concentrate more on their successes than on their failures.

Given that hope is a future-oriented concept, increasing the value of the future for individuals has a positive effect on their levels of hope. In addition, there is a relationship between hope and orientations to the future and plans for academic success [14]. Moreover, optimism and future temporal orientation are also positively correlated with hope [15].

According to Morse and Doberneck, hope is an answer to a threat that leads to adjusting the target goal, being aware of the cost of not achieving the goal, planning to set a realistic goal, evaluating, selecting and using all internal and external resources and support that will help to achieve the goal, and re-evaluating and revising the program

while working and trying to achieve the desired goal [16].

Snyder defines hope as a source of power with three components: goals, strategies for achieving them (methods), necessary motivation to use these strategies (active force). In fact, the three main constructs of the Snyder's Hope theory include goals, pathways (plans to achieve the goals), and agency (goal-directed energy) [12].

Dufault and Martocchio identified six dimensions of hope (affective, cognitive, behavioral, affiliative, temporal and contextual). Due to the conceptual overlapping of these dimensions with each other, Herth categorized them into three dimensions: cognitive-temporal, affective-behavioral, and affiliative-contextual. The cognitive-temporal dimension refers to the "understanding that the desired result is probable". The affective-behavioral dimension refers to the "sense of confidence in beginning the programs" to achieve the desired goals. These two dimensions are similar in content to the concepts of the pathways and agency in Snyder's theory. However, the third dimension (the affiliative-contextual dimension) does not overlap with that in Snyder's theory and refers to "the recognition of the mutual relationship between the self and the others and between the self and the soul." This dimension illustrates the relationship between the individual and the spiritual dimension and includes the items related to perceived social support, understanding of spiritual support, and a sense of meaning and belonging [17, 18,19].

We can conclude that hope is a construct that includes many variables such as time, goals, control, communication, and personal attributes; and the existing scales for measuring hope do not often cover all these variables.

Schrank, Woppmann, Sibitz & Lauber designed and introduced the Integrative Hope Scale (IHS) based on the hope scales introduced by Miller, Herth, and Snyder. This scale has 23 items including the elements of trust and confidence, lack of vision, positive orientation towards the future, and social communication and personal values [20].

In this paper the process of preparation of the Persian version of IHS is described and the psychometric properties of the scale is examined in an Iranian sample.

Method

This cross-sectional study attempted to develop a valid and reliable Persian version of the IHS by collecting information from the sample population and from the answers they gave to the scales employed in this research.

In order to determine the validity and reliability of the IHS, the English version was translated into Persian and edited with the help of a Persian

Literature specialist. Then, the Persian translation was translated back into the original language with the help of an English Language specialist to detect any changes in the original text. At the end, this scale together with PANAS and the depression subscale of the General Health Questionnaire (GHQ) were completed by the sample group.

The split-half and internal consistency (Cronbach's alpha) methods were used to investigate the reliability. The methods of measuring content validity, face validity, construct validity (factor analysis), convergent validity and divergent validity were used to evaluate the validity. The positive affect scale was used to assess convergent validity, and the negative affect scale and the depression subscale of the GHQ to assess divergent validity.

The available population for this study consisted of the students who were studying at the Tarbiat Modares University during the academic year 2016-17. By using the convenience sampling method, 230 students (142 female and 88 male students with an average age and standard deviation of 27.13 and 4.99) were selected to take part in the research. The sample size was determined, based on the number of items in IHS, 10 respondent for each item [21].

The research scales were as follows:

Integrated Hope Scale (IHS)

This scale has 23 items, and the respondents provide their view about the items using a 6-point Likert scale. The overall score ranges from 23 to 138. The IHS was developed in 2010 by Schrank, Woppmann, Sibitz & Lauber. It is a combination of Miller's Hope Scale, the Herth Hope Index, and Snyder's Hope Scale. It initially consisted of 60 items, but this number eventually decreased to 23 by using factor analysis. The IHS includes four main factors: trust and confidence, lack of vision, positive orientation towards the future, social communication and personal values. This scale was first used on a sample of 489 people among the general Austrian population. The overall mean of the scale was 93.83 with the standard deviation of 12.83. The means and standard deviations of the trust and confidence, the lack of vision, the positive orientation towards the future, and the social communication and personal value were 27.81 ± 4.03 , 15.10 ± 5.39 , 20.01 ± 2.90 , and 19.06 ± 3.33 , respectively. The validity of the scale was 0.92 using Cronbach's alpha. Cronbach's alpha for the subscales were 0.85 for trust and confidence, 0.95 for lack of vision, 0.80 for positive orientation towards the future, and 0.85 for social communication and personal values. The convergent validity of this scale with Snyder's Hope Scale was 0.39-0.62, 0.81-0.64 with Herth Hope Scale 0.64-0.81, and with Miller Hope Scale 0.73-0.93. Its divergent validity had the negative correlation of -0.68 with the Allgemeine Depressions Skala. The IHS had a positive correlation (0.56) with a prediction of the quality of life in future [22].

The Positive and Negative Affect Schedule (PANAS)

This 20-item scale is a self-measurement tool developed to measure the Positive Affect (PA) and the Negative Affect (NA) dimensions. Each subscale has 10 items and the items are answered using a five-point scale with scores of 1 (very slightly) to 5 (extremely). The reliability of PA and NA using Cronbach's alpha and test-retest has been reported 0.83, 0.82 and 0.65 and 0.68, respectively. In confirmatory factor analysis, the two-factor model has been the best fitting model [23].

General Health Questionnaire (GHQ)

The 28-questions form of the GHQ was developed by Goldberg and Hiller to detect and identify mental disorders in health centers and in different situations [24]. The questionnaire includes four subscales of physical symptoms, anxiety and insomnia, social dysfunction and severe depression and ten psychological problems [25]. Among the 28 items in the GHQ, items 22 to 28 assess the symptoms of depression. The validity and reliability of the Persian version of the questionnaire have been confirmed in various studies [26, 27]. The coefficient of reliability was 0.96 for the whole GHQ and 0.94, 0.90, 0.89, and 0.78 for the subscales of symptoms of depression, anxiety and insomnia, physical problems and social dysfunction, respectively [26]. Taghavi examined the reliability of the questionnaire using the three methods of test-retest, bisection and Cronbach's alpha and obtained the coefficients of 0.70, 0.93 and 0.90 for them, respectively [27].

It should be noted that only the subscale of depression consisting of 7 items was used in the present study.

Results

In this study, the parallel analysis method was used to analyze data and to determine the number of factors. Parallel analysis is more accurate compared to other methods. In this method, the average eigenvalues of the random correlation matrices are compared with the eigenvalues of the real data correlation matrices. In this way, the observed eigenvalue is compared with the second random eigenvalue, etc. Factors corresponding to those real eigenvalues that are higher than the average (95th percentile) of the parallel average random eigenvalues are to be extracted, whereas those real eigenvalues that are lower than or equal to the parallel average random eigenvalues are considered as the sampling error [28].

Normality of the items was evaluated using the Kolmogorov-Smirnov test and, given that the items were not normal, exploratory factor analysis was applied using the Principal Axis Factoring (PAF) method. Results of the exploratory factor analysis showed that the KMO coefficient for this analysis was 0.887, which was higher than 0.7 and indicated that the data was suitable for the factor analysis [29]. The significance of the correlation matrix of the research

data was studied using the Bartlett's test. The coefficient obtained from this test, 1990.872, was significant ($P < 0.0001$). The results provide assurance that the factor analysis model can be used for the results [29]. Factor analysis conducted on the scale using the parallel analysis method, and the scree plot (figure 1), confirmed the existence of four factors.

As shown in table 1, the real eigenvalue of the fifth factor is lower than its random eigenvalue. Therefore, the fifth factor is rejected and the scale has four factors. These factors together explain 54.33% of the total variance of the scale. Since the explained variance level is more than 50%, it can be said that the 4-factor construct is a desirable one [29]. Factor 1 (trust and confidence; with nine items and the eigenvalue of 7.41), factor 2 (lack of vision; with six items and the eigenvalue of 1.84), factor 3 (positive orientation towards the future; with four items and the eigenvalue of 1.82), and factor 4 (Social relations & personal value with four items and the eigenvalue of 1.40) explained 32.23, 8.03, 7.94, and 6.11 percent

of the variation, respectively.

Results of the factor analysis indicate that the scale has a desirable validity. Table 2 shows the items and their factor load. The criterion for selecting each item for each of the factors was factor load of greater than 0.3.

For further evaluation, the validity of the IHS was calculated using the correlation coefficient between the score for each of the scale factors and the total score for the scale and the correlation coefficients between each factors.

According to the data presented in Table 3, there is an acceptable correlation between the factors in the scale and the total score and a weak correlation between the factors in the scale. This indicates the convergent and divergent validity of the factors.

To assess the convergent and divergent validity of the factors in the scale, their correlation with the depression subscale of the GHQ and with PANAS were obtained. Results are presented in Table 4.

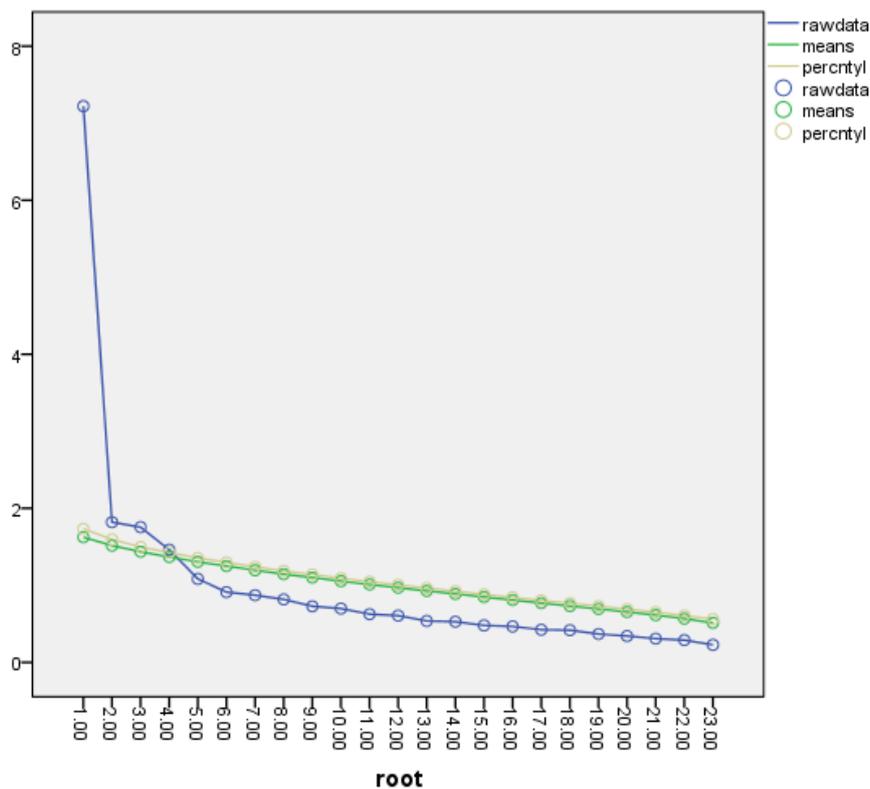


Figure 1. Scree plot

Table1. Eigenvalues of the real data, the mean and the percentile 95 of eigenvalues of the random data, and the percentage of variance

Factor	Actual eigenvalues	Means of simulated eigenvalues	95 percent simulated eigenvalues	% of variance
1 Trust & confidence	7.22	1.62	1.73	32.23
2 Lack of perspective	1.82	1.51	1.59	8.03
3 Positive future orientation	1.75	1.43	1.49	7.94
4 Social relations & personal value	1.46	1.36	1.42	6.11
5 -	1.08	1.30	1.35	4.62

Table 2. Questions of scale and their factor load

Row	Questions	Factors & their factor load			
		Trust & confidence	Lack of perspective	Positive future orientation	Social relations & personal value
1	I have deep inner strength	0.62			
2	I believe that each day has a potential	0.66			
3	I have a sense of direction	0.42			
4	Even when others get discouraged, I know I can find a way to solve the problem	0.62			
5	I feel my life has value and worth	0.71			
6	I can see possibilities in the midst of difficulties	0.59			
7	My past experiences have prepared me well for my future	0.59			
8	I've been pretty successful in life	0.66			
9	I have a faith that gives me comfort	0.54			
10	It is hard for me to keep up my interest in activities I used to enjoy		0.33		
11	It seems as though all my support has been withdrawn		0.36		
12	I am bothered by troubles that prevent my planning for the future		0.62		
13	I am hopeless about some parts of my life		0.36		
14	I feel trapped, pinned down		0.40		
15	I find myself becoming uninvolved with most things in life		0.40		
16	There are things I want to do in life			0.36	
17	I look forward to doing things I enjoy			0.30	
18	I make plans for my own future			0.42	
19	I intend to make the most of life			0.44	
20	I feel loved				0.37
21	I have someone who shares my concerns				0.42
22	I am needed by others				0.38
23	I am valued for what I am				0.32

Table 3. Correlation between each factor and the other factors

Row	Factor	Trust & confidence	Lack of perspective	Positive future orientation	Social relations & personal value	Integrative hope scale
1	Trust & confidence	1				
2	Lack of perspective	-0.322**	1			
3	Positive future orientation	0.329**	-0.300**	1		

4	Social relations & personal value	0.234**	-0.212**	0.223**	1
5	Integrative hope scale	0.819**	-0.45**	0.711**	0.692**

* $p < .01$. ** $p < .001$

Table 4. Convergent and divergent validity

Row	Scale	Trust & confidence	Lack of perspective	Positive future orientation	Social relations & personal value	Integrative hope scale
1	GHQ	-0.469**	0.450**	-0.296**	-0.467**	-0.356**
2	Positive affect	0.568**	-0.311**	0.401**	0.419**	0.491**
3	Negative affect	-0.297**	0.441**	-0.168*	-0.320**	-0.162*

* $p < .01$. ** $p < .001$

According to this table, all four factors have desirable divergent and convergent validity with the subscale of depression and positive affect.

In order to verify the reliability of the test, the internal consistency and the split-half methods were used. One of the common methods for internal consistency is Cronbach's alpha coefficient with an optimal value of higher than 0.70 [30]. In the present study, the coefficient obtained for the factors of trust and confidence, lack of vision, positive orientation towards the future, and social communication and personal values and the total score for the scale were 0.835, 0.741, 0.841, 0.750 and 0.720, respectively. This indicates that the factors and the whole scale have a desirable reliability.

The coefficient of reliability (θ) was also used to verify the reliability of the factors using the following formula, which was found to be 0.90.

$$\theta = [p / (p - 1)] [1 - (1 / \lambda_1)]$$

In addition, the split-half method was used to examine the reliability of the scale. In this method, the total items is divided into two parts and the correlation between the odd and even items is calculated. The obtained correlation between the two halves of the scale was 0.71 and significant ($P < 0.01$). This correlation was then put in the Spearman-Brown formula and the reliability of 0.83, which is appropriate and desirable, was obtained.

Discussion

In the present study, the parallel analysis method was used to analyze the construct validity of IHS. Based on the results of this analysis, the 4-factor construct is the most appropriate one for the IHS, and the obtained factor structure in the present study is similar to that found by Schrank et al. [20]. These factors include trust and confidence, lack of vision, positive orientation towards the future, and social communication and personal values.

The first factor, trust and confidence, is the dominant factor and explains 32.23% of the variance. The other three factors that explain 22.1% of the variance are minor factors. These four factors showed a strong correlation with the overall scale in the test.

The items on the trust and confidence factor are related to spirituality and confidence in one's own

abilities. Similar to the Austrian sample [20], this factor explains a high percentage of variance in the Iranian sample, and indicates the importance of this factor and its relevance to the hope structure. Other factors are similar to the original scale.

The construct, convergent and divergent validity were used in this study. Kerlinger believes that the most important indicator confirming construct validity is harmony between the factor structure of a scale with its theoretical structure and that factor analysis is a suitable method for evaluating construct validity [31]. Considering the factors derived from the factor analysis such as KMO for the adequacy of the scale correlation matrix in the factor analysis, Bartlett's sphericity test, the eigenvalues higher than one for the factors, the percentage of variance explained by each of the factors, and the number of components in the scree plot, it can be stated that this scale has a desirable construct validity. The depression subscale of the GHQ and the PANAS were used to investigate convergent and divergent validity. Results indicated the desirability of the convergent and divergent validity of the scale.

In a study, Sharpe, McElheran and Whelton examined the psychometric properties of the IHS among a Canadian population. Their results showed bifactor scale and confirmed the convergent and divergent validity of this scale with the PANAS [32].

Considering the relationship between the hope and positive emotions, Lopez and Snyder believe that hope increases the life satisfaction by creating positive emotions. This positive emotion facilitates problem solving and appropriate decision-making, especially under critical situations [33]. In fact, hope can make it easier to deal with life problems and upgrade treatment and quality of life [1].

As mentioned before, the subscales of depression and negative affect have a negative correlation with the factors of the IHS, which indicates the desirable divergent validity of this scale. This has been investigated in various studies including those by Arnau, Rosen, Finch, Rhudy and Fortunato who investigated the relationship between hope and negative emotions [34].

According to Hannah, hope is an important factor in understanding despair, depression and suicide. Hopeful individuals want to live because they

consider the future to be good, know themselves capable of controlling their lives, have the ability to control stress and negative emotions, find living conditions can be changed, and consider the future to be positive instead of deciding to kill themselves to be free from the future [35]. Snyder also argues that hopeful people deal with stressful situations more actively and use more and better coping strategies [36].

Although at the first glance, there are many different cultural and social factors in an eastern country such as Iran, the results, described in the present study shows that the Persian version of the IHS can be an appropriate and valid tool to use in studies on Iranian communities.

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