



## **DEVELOPMENT OF THE HOPE SCALE FOR SECONDARY SCHOOL STUDENTS: VALIDITY AND RELIABILITY STUDIES OF SCALE<sup>1</sup>**

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### *Abstract*

*This study aims to develop a measurement tool that evaluates the hope of secondary school students and also to conduct the validity of this measurement tool. The scale was designed as a 5-point Likert-type scale. Study group comprised of 307 students aged 10-15 ( $m_{age}=12.70$ ,  $SD=.075$ ), of whom are 150(48.9%) of whom were females and 157 were males (51.1%). Exploratory Factor Analyses and Confirmatory Factor Analysis were used in order to test the validity of the scale developed for this study. In addition, internal consistency analysis were used in order to evaluate the reliability of the scale. As a result of the factor analysis study, the Secondary School Students Hope Scale (SSSHS) consisted of 25 items and 3 factors. Study findings revealed that this measurement tool can be used for Turkish secondary school students as a valid one.*

Keywords: Hope Scale; secondary school students; validity; reliability

When the word “hope” is mentioned, one contemplates the essential concept of developing positive expectations for the present and the future. “Hope” is defined as the process by which the individual contemplates on his/her goals, along with the motivation to take action and the means of

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<sup>1</sup> This study was presented as an oral presentation at the “9<sup>th</sup> World Conference on Learning, Teaching and Educational Leadership” on 26-28 October 2018 in Rome, Italy.

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achieving those goals (Synder, 1995; 2002, *cited in* Kemer & Atik, 2005). When literature on “hope” is reviewed, a study conducted on high school students by Özmen et al. (2008) found that adolescents living in urban environments are hopeful about the future, although the ratio of those without hope is not low, and the children of families with lower socioeconomic status experience less hope. The findings of the review reveal that hopelessness can be important in determining the state of subjective well-being. Sağkal and Türnüklü (2017) identified no significant difference between the experiment and control groups in terms of levels of hope in a peace training program applied to high school students. In their study of students at secondary level, Akuysal Aydoğan, and Deniz (2012) found no significant difference between self esteem and levels of hope in terms of the grade (6th, 7th and 8th) or gender (female, male) variables, and established that a positive correlation exists between self-esteem and levels of hope in students at secondary level. In their study of high school students, Kemer and Atik (2005) identified a significant difference in the levels of hope with respect to the level of social support from the family and the region of residence, whereas there was no significant difference in terms of gender. In a study conducted on college students by Aras (2011), it was concluded that the highest level of distribution was observed in the hope sub-dimension in statistics produced on hopelessness and the sub-dimensions of emotions and expectations for the future, loss of motivation and hope. In their study conducted on high school students, Cihangir Çankaya and Meydan (2018) found that the hope variable is a significant precursor of the happiness level of adolescents. In their study, Sarı and Tunç (2016) established that the autonomy, purpose in life and self-acceptance dimensions of psychological well-being in college students can be important in both retaining the required level of motivation to achieve their goals and identifying alternative paths to achieving their goals when faced with challenges. Dursun and Aytaç (2012) identified a significant difference between the levels of hopelessness and continuous concern of university students about finding job and job priorities, and level of hopelessness and continuous concern about gaining experience from work. Significant differences were also found between the levels of anxiety and hopelessness in students related to gender. Tümkaya, Aybek, and Çelik (2010) found that male students have higher levels of hopelessness. Adolescents coming from outside Adana have been found to display greater submissive behaviors and hopelessness than those from Adana.

It is observed that ones' level of hopelessness is linked significantly to age. It is identified that adolescents coming from families with lower income exhibit higher levels of hopelessness. The number of family members is identified as an effective variable only in hopelessness. It is observed that hopelessness increases as the number of family members increase. It has been established that a significant, yet weak, a correlation exists between hopelessness and submissive behavior. Erci, Yılmaz, and Budak (2017) identified a positive correlation between self-care capability and hope in elderly people, and that elderly people with a high self-care capability have hopes for the future. In their study of postgraduate students, Uzun Özer and Tezer (2008) identified a significant difference between the students with low hope level and those with high hope level in terms of only positive emotions. Cihangir Çankaya and Canbulat (2017) found that secure attachment to mother and secure attachment to father variables in primary education 4th, 5th and 6th grade students are a significant precursor of the hope variable. In their study conducted of primary, secondary, high school and college students, Tarhan and Bacanlı (2016) emphasized that the hope factor is not about waiting passively, as it is necessary to make an effort to achieve one's goals, and that particularly in the face of challenges, it is important that the individual has self-confidence and maintain his/her efforts.

In addition, hope-related scale development studies have been conducted for college students and students at secondary level (Akman & Korkut, 1993; Atik & Kemer, 2009; Karaca & Kandemir, 2016). Furthermore, studies have been conducted on the concept of hope in schizophrenia (Şahin Altun & Olçun, 2018). In their study involving patients with cancer, Aslan et al. (2008) concluded that in the process of overcoming cancer, it is important to maintain a positive prognosis, meaning a level of hope that enables the condition to improve and to plan nursing approaches accordingly. Hope has also been emphasized as an issue in the impact of war on children (Özdemir, 2017). As can be understood from the above explanations, the concept of hope has an important role for the individual to show his/her potential in the continuity of life and to put up with life.

### **Objective**

In conclusion, the concept of hope has an important role for the individual to show his/her potential in the continuity of life and to put up with

life. As can be seen from the above-mentioned studies, although there are some tools to assess hope, the number of studies into the scale studies aiming at assessing hope of students from a variety of educational backgrounds and levels is inadequate. For this reason, developing a scale for the secondary school students, who are in the early stages of their lives, is the main objective of this study. Conducting validity and reliability studies for this scale is considered beneficial for the relevant literature.

## **Method**

### *Participants*

In the first phase of this study, a literature study was conducted by the researcher. In the second phase, three psychological guidance and counselling experts were consulted regarding their opinions about Secondary School Students Hope Scale trial form and then a 27-item scale was developed. In the third phase, the trial form was implemented on the study group in order to carry out factor analysis. It was implemented on a total of 307 students aged 10-15 ( $m_{age}=12.70$ ,  $SS=0.07$ ), of whom are 150 females (48.9%) (mean age 20.58) and 157 males (51.1%) (mean age 20.26) studying at Şehitler Secondary School, Ataturk Secondary School, Şehit Aydın Çopur Religious Secondary School, Dede Korkut Secondary School, Namık Kemal Secondary School, Tupras Secondary School, Mehmet Emin Elementary School in Kırıkkale. 11 of the participants are in the 5th grade (3.6%), 128 are in the 6th grade (41.7%), 94 are in the 7th grade (30.6%) and 74 are in the 8th grade (24.1%) students.

### *Instruments*

*The Development of Secondary School Students Hope Scale (SSSHS):* 27 items were written down in order to measure the four factors which had been determined earlier. All the statements included in SSSHs are flat statements covering attitude to secondary school students' hope. The scale was developed in order for individuals to reveal information about themselves basing on Likert-type scale (Tezbaşaran, 1996). The answers are designed as a five-item Likert-type scale, being "Totally Agree" (5 points), "Strongly Agree" (4 points), "Undecided" (3 points), "Strongly Disagree" (2 points), "Totally Disagree" (1 point).

### *Procedure*

SSSHS draft was implemented on students in a classroom environment as a group. Prior to the implementation, the students were informed of the aim of the study and they were assured that their responses would be kept secret.

### *Data Analysis*

Data analysis was carried out through SPSS 21.0 package programmes. The upper limit of the margin error was determined as 0.05. Content Analysis was conducted in order to form the themes of SSSHs. In the frame of construct validity, Exploratory Factor Analysis (EFA) was carried out for the data gathered from the study group in order to determine to what extent the items are included in the four factors (Büyüköztürk, 2003; Sümer, 2000).

## **Results**

This section covers the findings regarding the validity of SSSHs.

### *Findings regarding the Validity of SSSHs*

Exploratory Factor Analysis (EFA) and Principal Component Analysis (PCA) as a factoring technique were conducted in order to examine the factorial structure of SSSHs (Kline, 1994). While the factorial structure was being examined there was no limitation to the number of factors and the minimum eigen value was determined as 1.00 in the first analyses. Prior to the factor analysis, Kaiser-Meyer-Olkin (KMO) coefficient and Barlett Sphericity were carried out in order to determine the appropriateness of the data. KMO value was found as .935 and the result of Barlett test ( $\chi^2=3317.221$ ;  $p<.00$ ) was meaningful. After that, Exploratory Factor Analysis (EFA) was conducted through using Varimax Rotation and Principal Component Analysis. The results revealed that 27 items of SSSHs were grouped under four factors and the explanation of variance regarding the scale was found 51.716 %. The factor loadings of the subscale items gathered from the factor analysis are given in Table 1.

Table 1. Factor Loadings of Secondary School Students Hope Scale

Items	Factors			
	Factor I	Factor II	Factor III	Factor IV
1.	0.754			
7.	0.725			
5.	0.645			
10.	0.639			
2.	0.612			
26.	0.597			
9.	0.537			
4.	0.510			
6.	0.493			
3.	0.457			
11.	0.448			
24.		0.787		
22.		0.734		
16.		0.603		
14.		0.564		
25.		0.529		
17.		0.522		
8.		0.505		
15.		0.496		
12.			0.651	
20.			0.638	
18.			0.479	
13.			0.460	
21.				0.746
19.				0.702
27.				0.654
23.				0.593
Percentages of Variance				
Explanation	18.945	15.443	10.122	7.207
Total Percentages	18.945	34.387	44.509	51.716

As a result of the Exploratory and Confirmatory Factor Analyses, the Secondary School Students Hope Scale consisted of 27 items and 4 factors. The Exploratory Factor Analysis revealed that factor loadings explained 51.716 % of the variance of the scale. The factor loadings of factor I consisting of 11 items varied between .448 -.754 and explained 18.945 % of the variance. The factor loadings of factor II consisting of 8 items varied between .496-.787 and explained 15.443% of the variance. And, the factor loadings of factor III consisting of 4 items varied between .460-.651 and explained 10.122 % of the

variance. And, the factor loadings of factor IV consisting of 4 items varied between .593-.746 and explained 7.207 % of the variance. If the measurement of the factor loading is .45 or over it means it is a good measurement, however, this value limit can be decreased to .30 since there are few items in the analysis (Büyüköztürk 2005). Moreover, this tool is a valid one peculiar to a sample group bearing the characteristics of Turkish culture. After that, Exploratory Factor Analysis (EFA) was conducted so as to test the factorial structure of SSSHS. It was assumed that hope is explained by four factor and with this in mind the data gathered from the study group was tested to determine whether it would fit this assumption. In other words, this above-mentioned test was carried out in order to determine whether the proposed model fits the data. The aim of the model is to explain the change in the measurement variables and covariance. The nature of the model structure may change according to the choice of the indicators and the findings and comments may also be affected according to the order of the indicators. In fact, the study and the comments depend on the appropriate studies into the latent variables (MacCallum, 1986; MacCallum & Austin, 2000). Hope statistics can be grouped under three headings; namely, Chi-Square Goodness of Fit, Goodness of Fit and Comparative Fit Indices. In Chi-Square Goodness of Fit, if the fit between the data and the model is perfect, the gathered value should be close to “0” and the p value should not be meaningful. If  $\chi^2$  degrees of freedom are relatively bigger, then the model is rejected. If  $\chi^2$  degrees of freedom are not meaningful or smaller, then the model is accepted (Anderson & Gerbing, 1988; Marsh, Balla, & McDonald, 1988; Sümer, 2000). GFI and AGFI rank first in Goodness of Fit Index. GFI values vary between 0 and 1 and values .90 and over are considered as a good adjustment. Absolute fit indices, which are developed on the basis of the degree of error, are also used. The main absolute fit indices are called Root Mean Square Residuals (RMS) and Root Mean Square Error of Approximation (RMSEA). It is expected for both values to be around “0” which means there should be minimum error between the observed and produced matrixes. The values which are equal to 0.05 or less signal a perfect fit. However, the values which are equal to 0.08 and less are also acceptable values by considering the complexity of the model. Comparative Fit Index (CFI) ranks first in incremental fit indices. CFI value varies between “0” and “1”. In CFI, the values equal to 0.90 and over are considered as a good fit. The values of Normed Fit Index (NFI) and Non-Normed Fit Index (NNFI), which are

developed as an alternative to CFI, vary between “0” and “1”. The values equal to .95 and over signals a perfect fit; however, the values between .90 and .94 are considered as an acceptable fit (Anderson & Gerbing, 1988; Bentler, 1990; Marsh, Balla, & McDonald, 1988; Rice, Ashby, & Slaney, 1998; Sümer, 2000). The calculations made concerning the fit indices reveal that the proposed model has been proved. The Model is given in Table 2 and the indices regarding this analysis are given in Table 3.

Table 2. The Chi-Square Goodness of Fit Test of secondary school students Hope Scale

The Chi-Square Goodness of Fit Test	Degree of Freedom	p	P value
12051.70	318	.000	<.05

Table 3. The Fit Indices of secondary school students Hope Scale

Fit Indices	Goodness of Fit Values	Acceptable Limit of Goodness of Fit
Root Mean-Square Error Of Approximation (RMSEA)	0.052	<.08
Standardized RMR	0.067	<.08
Comparative Fit Index (CFI)	0.98	>.90
Bentler-Bonett Normed Fit Index	0.95	>.90
Bentler-Bonett Non-Normed Fit Index	0.98	>.90
Bollen (Incremental Fit Indeks, IFI) Fit Index	0.98	>.90

The Confirmatory Analysis indicated that hope index values verify the model developed for this study. It was found that the Cronbach Alpha of the four hope subscales were respectively .92, .89 and .93. Therefore, it can be argued that the Secondary School Students Hope Scale, which was developed in order to measure secondary school students' hope levels, is a valid and a reliable measurement tool. It should be taken into consideration that hope index values are at a high range. Moreover, this tool is a valid and reliable one peculiar to a sample group bearing the characteristics of Turkish culture.

*The Findings regarding the Reliability of SSSHS - Internal Consistency*

The reliability of the scale was calculated by utilizing the data gathered from the 27 items proved valid according to the factor analysis procedure. Cronbach Alpha related to subscales of SSSHS was calculated according to the results of the implementation carried out on the study group consisting of a total of 307 students. Cronbach alpha coefficients related to the subscales of SSSHS were found .886 for factor I, .858 for factor II, .690 for factor III and



.620 for factor IV. Item-total correlations and Cronbach alpha internal consistency coefficients are given in Table 4.

Table 4. Item-total correlations and Cronbach Alpha Internal Consistency Coefficients regarding the Subscales of SSSHs

	Items	Item-total Correlations	Cronbach Alfa
Factor I	Item 1	0.600	0.890
	Item 2	0.534	0.891
	Item 3	0.582	0.890
	Item 4	0.617	0.889
	Item 5	0.541	0.891
	Item 6	0.593	0.890
	Item 7	0.539	0.891
	Item 9	0.587	0.890
	Item 10	0.649	0.888
	Item 11	0.537	0.891
	Item 26	0.652	0.889
Factor II	Item 8	0.618	0.890
	Item 14	0.655	0.889
	Item 15	0.668	0.889
	Item 16	0.553	0.891
	Item 17	0.634	0.889
	Item 22	0.540	0.891
	Item 24	0.542	0.891
Factor III	Item 25	0.504	0.892
	Item 12	0.382	0.895
	Item 13	0.674	0.888
	Item 18	0.562	0.890
Factor IV	Item 20	0.487	0.892
	Item 19	0.084	0.903
	Item 21	0.009	0.904
	Item 23	0.003	0.905
	Item 27	0.047	0.903

If the measurement of the factor loading is .30 or over it means it is a good measurement, however, this value limit can be decreased to .30 since there are few items in the analysis (Buyukozturk, 2005). When the item-total correlation is .30 and/or higher than this value, it is generally known that this value distinguishes individuals effectively, when it is between .20 and .30 the items are subjected to a test and needs to be corrected if there is an obligation, and if it is below .20 the items should not be tested (Buyukozturk, 2005).

Therefore, item-total correlation of items 21 and 23 was left out of the test because it was .009 and .003 respectively.

Table 5. Item-total Correlations and Cronbach Alpha Coefficients regarding the Subscales of SSSHS

	Item-total Correlations	Cronbach Alfa
Factor I	0.534-0.652	0.886
Factor II	0.504- 0.668	0.858
Factor III	0.382-0.674	0.690
Factor IV	0.003-0.084	0.620

### Conclusions

In this study, the factor analysis and construct validity were carried out for the Secondary School Students Hope Scale, which is developed so as to assess students' hope levels. In a study involving college students, Akman and Korkut (1993) found that the Hope Scale has a mono dimensional structure in Turkish culture, in contrast to its original version. In the present study, the concept of hope was shaped as a four dimensional structure. This may be attributed to the changes in perception of the concept of hope depending on the changes occurred in Turkish society over time. It can be argued that the scale is both valid and reliable assessment tool when the findings of this study are considered. It should be considered that the goodness of fit coefficients are at a high level.

#### Limitations

The study is limited to the sampling units which are studied on in this study. Since all the stages, regarding the development of Hope Scale, conducted on secondary school students, it is necessary to carry out reliability and validity analyses again before conducting studies on other sample groups rather than secondary school students. It is thought that new studies on Hope Scale will highly contribute to the hope development of individuals.

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