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Research Article

Reliability and Validity Study of the Turkish Version of Child and Adolescent Social Support Scale for Healthy Behaviors

Sevil Albayrak,^{1,*} Biriz Çakır,² Fatma Nişancı Kılınç,² Özge Vergili,³ Yurdağül Erdem¹¹ Department of Nursing, Faculty of Health Sciences, Kırıkkale University, Kırıkkale, Turkey² Department of Nutrition and Dietetics, Faculty of Health Sciences, Kırıkkale University, Kırıkkale, Turkey³ Department of Physiotherapy and Rehabilitation, Faculty of Health Sciences, Kırıkkale University, Kırıkkale, Turkey

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ABSTRACT

Purpose: The purpose of this study is to investigate adaptation, validity, and reliability of the Turkish version of the Child and Adolescent Social Support Scale for Healthy Behaviors (CASSS-HB).**Methods:** The CASSS-HB was translated using translation and back-translation. This was a methodological study conducted with 860 students (11–14 years old). Content and construct validity were assessed to test the validity of the CASSS-HB. Exploratory and confirmatory factor analysis of the scale was performed and the reliability of the scale over time (the test-retest method) was examined.**Results:** Psychometric analyses of the Turkish version of the CASSS-HB indicate high reliability and good content and construct validity.**Conclusions:** It can be seen that the items comprising the scale appear to be acceptably capable of measuring the variable of social support in terms of healthy behavior in children and adolescents. Healthcare professionals can thus use the scale for determining the degree of social support students of the ages 11–14 receive in terms of developing healthy behavior.© 2018 Korean Society of Nursing Science, Published by Elsevier Korea LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

The notion of social support is defined as any kind of personal, social, psychological, and economic assistance given to an individual from those in the individual's environment and includes forms of help such as honest and empathetic responses, interest, love, trust, appreciation, information, and financial aid [1]. Social support systems help individuals in three ways. The first of these is by distancing or reducing the effect of certain factors that may adversely affect the individual's life circumstances. The second is by increasing the individuals' ability to endure adverse conditions in life and thus contributing to improve the individual's state of health. Finally, social support systems help individuals by acting as partial or complete buffers against the effects of environmental stressors [2].

The period of adolescence is one of the most difficult times in an individual's life. Increased metabolic activity, somatic

developments, and psychological differences characterize adolescence, and in the absence of the ideal conditions that ensure the fulfilling of the special needs brought about by these transformations, these factors may adversely affect an individual's health [3]. According to Erikson, this period is a time in which the individual is required to attain emotional independence, develop social roles appropriate to one's gender, form a system of values unique to the individual, and make decisions regarding the realization of the roles dictated by society. The principal social elements in this period are the individual's peers, teachers, and parents [3,4]. In adolescence, the peer group overtakes the role of the family, and in the search for one's own identity, it is considerably important for the adolescent to feel accepted and appreciated by peers [3].

Adolescents develop positive or negative health behaviors under the influence of their families, teachers, friends, and schoolmates. Bokhorst et al [5] have reported in their study that families, teachers, and friends provide social support at different levels [5]. It has been determined that adolescents receiving social support experience a lesser degree of trauma after incidents of abuse outside of sexual abuse [6] and bullying [7] and that there is a correlation between feeling the effect of social support and not engaging in risky behaviors [8].

* Correspondence to: Sevil Albayrak, Ph.D, Department of Nursing, Faculty of Health Sciences, Kırıkkale University, Arpalık Çukuru Kayseri Yolu, Kırıkkale, Turkey.

E-mail address: sevilalbayrak@kku.edu.tr

* ORCID: <https://orcid.org/0000-0001-9787-5716>

Table 1 Naming the Factors Identified in the CASSS-HB and Internal Consistency Values Found in the Frequency and Importance Sections of the CASSS-HB.

Factors	Factor names	Frequency			Importance		
		Cronbach's alpha	Test–retest results (ICC) ^a	Item-total correlations ^b	Cronbach's alpha	Test–retest results (ICC) ^a	Item-total correlations ^b
Factor 1	My Parents	.92	.52	.60–.78	.90	.39	.52–.69
Factor 2	My Teacher	.96	.52	.69–.84	.95	.47	.63–.79
Factor 3	My Classmate	.97	.47	.78–.89	.96	.43	.78–.83
Factor 4	My Close Friends	.97	.40	.77–.86	.95	.34	.71–.81
Factor 5	Other people at my school	.98	.44	.83–.92	.97	.39	.82–.86
	Total score	.98	.57		.97	.58	

Note. CASSS-HB = Child and Adolescent Social Support Scale for Healthy Behaviors.

^a Intraclass correlation coefficient to evaluate relation between two measures.

^b $p < .001$.

In the study of obesity as well, it has been established that not only the failure to adopt healthy behavior by overeating and neglecting to engage in adequate physical activity but also being in environments (e.g., home, school, workplace) that do not support losing weight can contribute to weight gain. In fact, the term “obesogenic environment” was first used in this context by Swinburn et al [9] and has been defined as “the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations.” [9]. For this reason, it has been asserted that in developing effective environmental interventions related to obesity, it must first be understood how individuals and different groups interact with their environments in terms of engaging in physical activity and healthy food consumption [10]. Yayan and Çelebioğlu [11] have stated that an obesogenic environment contributes to an increased body mass index in adolescents and reduces body satisfaction but that, on the other hand, social support offered to promote positive healthy behavior has a corresponding positive effect on body mass index and body satisfaction [11].

The adolescent's environment needs to be regulated to ensure the development of the right health behavior. Because adolescents of the ages 11–14 years generally spend their time at school, acquiring good health behavior should be a part of school health activities, and nurses should cooperate in this with families, the school administration, and students. Many specialized professionals such as dieticians and physiotherapists work to improve health behaviors. Because school nurses, however, are in closer contact with pupils and their families, this group can play a key role in this respect.

Child and Adolescent Social Support Scale

The social support scale for health behaviors is unmatched in determining the degree of social support the child and adolescent population receives in terms of health behaviors. The scale may be used in the evaluation of eating behaviors and physical activities and especially in the assessment of obese children [12].

Social Support Scale for Students was first developed in 1994 as a doctoral thesis. The scale was revised by Malecki and Elliott [13], and then Malecki and Demaray [14] made use of the theoretical foundations of psychology and school psychology in 2000 [12–14] to draw up the Child and Adolescent Social Support Scale (CASSS); the scale has been used in various studies [15–18]. It has been applied to children and adolescent students enrolled in grades 3–12. Yardımcı and Başbakkal [19] conducted the validity and reliability studies of the scale in Turkey in 2009. They implemented the scale by working with 6th-, 7th-, and 8th-grade pupils. The Cronbach alpha coefficients for the subscales were found to be in the range of .87–.95. The Cronbach alpha coefficient for the overall

scale was .96 for the frequency section and .95 for the importance section. The test–retest coefficient for frequency was .80 and .72 for importance [19].

Demaray and Malecki [7] revised the scale in 2003 and used it in their studies. The scale, revised as the “Child and Adolescent Social Support Scale-revised” (CASSS-R), registered increases in total Cronbach alpha values relative to its previous version and in the subscales (excluding the school subscale) (total = .97, parents = .92, teachers = .96, classmates = .89, and close friends = .95) [7].

Menon and Demaray [4] preserved the main structure of the CASSS but made certain revisions, changing the name of the scale to “Child and Adolescent Social Support Scale for Healthy Behaviors (CASSS-HB).” This version remained true to the original scale but included the addition of items with reference to healthy behavior. For example, the statement “My teacher cares about me” was replaced by “My teacher cares about my health” [4].

To ensure that children are initiated into a healthy lifestyle from the beginning of their school years, it will be beneficial to prioritize the task of determining the social support they receive. Appropriate tools are consequently needed to determine if adolescents in Turkey receive social support in the context of health behaviors. The purpose of this study is to investigate adaptation, validity, and reliability of the Turkish version of the CASSS-HB.

Methods

Study design

This study was carried out to translate the English and adapt it into the Turkish language to enable its use among adolescents aged 11–14 years and to make it available for validity and reliability testing of psychometric measures.

Setting and sample

This study consisted of 13,531 pupils enrolled at 27 public middle schools operating under the Ministry of National Education and located in Kırıkkale, a city close to Turkey's capital, during the 2013–2014 academic year. Six schools were selected for the study sample using the simple random sampling method. An effort was made to reach all the students at the schools. However, because some students were absent at the retests and some of the data collection forms had been left incomplete, the study was ultimately carried out with 860 pupils. Of the students, 50.5% (434 students) were girls, 49.5% (426 students) were boys. Among the students, 20.0% were in the 5th grade, 24.0% were in the 6th grade, 29.0% were in the 7th, and 27.0% were in the 8th grades.

Ethical considerations

Permission for the validity and reliability testing of the scale was obtained from Vinita Menon and Michelle K. Demaray via email. Ethical approval was obtained from the Kirikkale University Ethics Committee (Approval No. 10/05 dated 25-Mar-2014), written permission from the Kirikkale Provincial Directorate of National Education and the students' families, while the students themselves were asked for their verbal consent. The study was sponsored by the Kirikkale University Scientific Research Projects Coordination Unit (No. 2013/49).

Measurements/Instruments

Data were collected from the students with the CASSS-HB. In addition, information about the classes and genders of the students was requested.

The CASSS-HB consists of two sections of responses in terms of “frequency” and “importance” made up of 60 questions each. Both sections include 5 factors under the headings of My Parents, My Teachers, My Friends, My Close Friends, and Other Employees at School (Table 1). Each factor has been divided into 12 questions. These factors are on a 6-point Likert scale and contain statements that are rated with respect to frequency such that 1 = never, 2 = almost never, 3 = sometimes, 4 = usually, 5 = almost always, and 6 = always. The total frequency score for the factors can be a minimum of 12 and a maximum of 72. The total score from the overall scale can be a minimum of 60 and a maximum of 360. As the score obtained from the factor increases, it can be said that the individual's perception of social support for healthy behaviors increases as well [12].

The second section is on a 3-point Likert-type scale defining how important each item is and is marked as 1 = unimportant, 2 = important, and 3 = very important. The importance score for each factor can be a minimum of 12 and a maximum of 36. In calculating the importance score, instead of basing the score on the total score, each of the factor scores are summed up separately. The factor totals indicate from whom (my parents, my teacher, etc.) individuals wish to receive more support [4,12].

The statements in the factor relate to emotional, helpful, informative, and appreciative behaviors. Examples of these are as follows: for emotional behaviors, “My parents show me that they care about my health”; for helpful behaviors, “My parents help me to do sports and acquire healthy eating habits”; for informative behaviors, “My parents inform me about the foods that are good for me”; and for appreciative behaviors, “My parents reward me when I do sports or eat healthily” [4,12].

Translation and content validity

The adaptation of the CASSS-HB was completed in a few steps. The first was the step in which a public health nursing expert, an individual fluent in English, and a physical therapy and rehabilitation specialist translated the original measure into Turkish. In the second step, after the appropriate revisions to the scale were made, it was this time translated back into English by a translator also fluent in Turkish. The instances of deviance from the original version were reviewed, and more revisions were made after a discussion of debatable points. In the third step, the original form of the scale and the Turkish version were reviewed and discussed by a Turkish language expert, six public health nursing experts, and three pediatric nursing specialists. The content validity index (CVI) was used to evaluate the opinions of the experts. In this, the experts assessed each scale item by rating it on a scale of 1–4. The scale ratings are as follows: 1 for “not appropriate”, 2 for “must be appropriately revised”, 3 for “appropriate but needs a small

revision”, and 4 for “very appropriate”. A CVI score of .80 and above signifies an evaluation of adequate content validity [20]. The experts evaluated each statement in terms of language and syntax, providing a rating of 1–4. In this study, a CVI score of .92 was found, indicating adequate content validity.

Data collection procedure

Before statistical analyses were performed for the scale, the forms obtained were used in a pilot evaluation that was applied to 20 students. In the pilot application of the scale, care was given to include both girls and boys of each of the ages between 11 and 14 years. After the pilot run, no need was seen for further revision. Then, the scale was applied on the sample. After data were collected, data were again obtained from the same students (860 students) 6 weeks later in a retest.

Data analysis

Three methods were used for reliability in this study. In this context, the following analyses were performed for internal consistency: item-total correlations were used for item reliability, an evaluation of Cronbach's alpha was made to determine homogeneity, and test–retest correlations were used to test the scale's reliability over time. An item-total correlation coefficient of above .30 was considered acceptable [20].

The Kaiser–Meyer–Olkin (KMO) test was used to assess whether the data set was suitable for performing factor analysis, and Bartlett's test was used to see whether the variables were correlated with each other. Exploratory factor analysis and confirmatory factor analysis were performed for construct validity in this study. The exploratory factor analysis and the confirmatory factor analysis were performed using the SPSS Version 21.0 (IBM Corp., Armonk, NY, USA) [21] and MPlus package program (Muthén & Muthén, Los Angeles, CA, USA), respectively.

In the confirmatory factor analysis performed to test the validity of the Turkish version of the scale, the condition of having a factor load above .40 in a particular item was examined. The fit indices were used to observe how well the model fits the sample. While $>.90$ was determined as acceptable and $>.95$, a good fit for the comparative fit index (CFI), in the root mean square error of approximation (RMSEA), $<.05$ was considered a good fit and $<.08$ was acceptable [20,22].

Results

Reliability

Item-total correlations, Cronbach's alpha, and the test–retest technique were used in assessing the reliability of the 60-item scale. It was determined that the scale's item-total correlations varied between .60 and .92 in terms of frequency and between .52 and .86 in terms of importance, with significance accepted $p = .001$. In the frequency section, the overall Cronbach's alpha was .98, whereas this value was in the range of .92–.98 in the frequency section. In terms of importance, the overall Cronbach's alpha was .97, but the coefficient was in the range of .90–.97 in the sub-domains of importance. The test–retest correlation used to examine the scale's reliability over time resulted in the finding that there was a “moderately strong correlation” in the overall scores, both in terms of the value of intraclass correlation coefficient (ICC) = .57 in frequency and the value of ICC = .58 in importance (Table 1).

Table 2 Factor Analysis Results for CASSS-HB Frequency and CASSS-HB Importance Section.

Factor ^a	Question	Factor load	Factor	Question	Factor load		
Factor 1	S1	.73	Factor 2	S13	.75		
	S2	.69		S14	.82		
	S3	.75		S15	.84		
	S4	.79		S16	.88		
	S5	.76		S17	.93		
	S6	.82		S18	.90		
	S7	.78		S19	.81		
	S8	.78		S20	.84		
	S9	.63		S21	.75		
	S10	.85		S22	.80		
	S11	.80		S23	.84		
Factor 3	S12	.73	Factor 4	S24	.86		
	S25	.89		S37	.79		
	S26	.91		S38	.86		
	S27	.89		S39	.84		
	S28	.93		S40	.87		
	S29	.81		S41	.83		
	S30	.89		S42	.89		
	S31	.84		S43	.88		
	S32	.85		S44	.87		
	S33	.85		S45	.89		
	S34	.78		S46	.85		
	S35	.75		S47	.83		
	S36	.82		S48	.85		
	Factor 5	S49		.86	Factor 5	S55	.89
S50		.89	S56	.91			
S51		.91	S57	.90			
S52		.94	S58	.90			
S53		.92	S59	.90			
S54		.92	S60	.90			
Factor ^b							
Factor 1	S1	.73	Factor 2	S13	.78		
	S2	.80		S14	.80		
	S3	.75		S15	.79		
	S4	.79		S16	.86		
	S5	.73		S17	.84		
	S6	.78		S18	.86		
	S7	.71		S19	.75		
	S8	.77		S20	.78		
	S9	.53		S21	.72		
	S10	.78		S22	.80		
	S11	.74		S23	.81		
	S12	.75		S24	.83		
Factor 3	S25	.89	Factor 4	S37	.83		
	S26	.90		S38	.82		
	S27	.84		S39	.79		
	S28	.88		S40	.77		
	S29	.82		S41	.77		
	S30	.84		S42	.80		
	S31	.78		S43	.85		
	S32	.85		S44	.82		
	S33	.76		S45	.82		
	S34	.80		S46	.80		
	S35	.73		S47	.82		
	S36	.80		S48	.88		
	Factor 5	S49		.81	Factor 5	S55	.91
		S50		.89		S56	.89
S51		.89	S57	.87			
S52		.92	S58	.88			
S53		.87	S59	.88			
S54		.88	S60	.88			

Note. CASSS-HB = Child and Adolescent Social Support Scale for Healthy Behaviors.

^a Frequency.

^b Importance.

Validity

Content validity

The experts did not give any statement a score of 1. The statements that were given a score of 2 were appropriately revised. Because the CVI score was above .80, content validity was accepted.

Table 3 Goodness of Fit Test Results (Frequency and Importance) (N = 860).

	χ^2	SD	χ^2/SD	p	CFI	SRMSR	RMSEA
Frequency	6919.12	1480	4.67	<.001	.97	.02	.06
Importance	2893.39	1480	1.95	<.001	.99	.02	.03

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; SD = standard deviation; SRMSR = standardized root mean square residual; χ^2 = chi-square.

Construct validity

Two types of factor analysis, exploratory and confirmatory, are used to test construct validity [20]. The present study made use of the two types of factor analysis.

Exploratory factor analysis

The KMO test was used to determine whether the sample was big enough to ensure correlation reliability. While values close to 1 indicate adequate sampling and values below .50 are unacceptable, a KMO value of .98 was found for the frequency section of the CASSS-HB. Bartlett's test of sphericity performed for the frequency section of the CASSS-HB indicated statistical significance ($p < .001$). A KMO value of .98 was found for the importance section of the CASSS-HB. Furthermore, Bartlett's test of sphericity indicated statistical significance ($p < .001$). As a result of the factor analysis performed on the frequency section of the scale, it was determined that the items assembled in 5 factors. The factor loads of the items are shown in Table 2. Approximately 76.0% of total variance was explained in the identified factors.

As a result of the factor analysis performed on the importance section of the scale, it was determined that the items assembled in 5 factors. The factor loads of the statements are shown in Table 2. Approximately 90.0% of total variance was explained in the determined factors.

Confirmatory factor analysis

According to the results of the confirmatory factor analysis (Table 3), there was a high goodness of fit between the model and the data. Because chi-square was $p < .001$, this was statistically significant. This however could have been related to the large number of participants in the sample because a chi-square value that does not indicate a good fit index is closely related to the number of participants; fit becomes better as the number of participants increases. To correct the dependency of the chi-square value to the degree of freedom, the value was divided by the degree of freedom, and because the value obtained was less than 5 (4.67), this was an indication that the model fits the data. A value of .97 on the CFI, another indicator of fit, is an indication of a good fit between the model and the data. A value of less than .08 (.02) on the standardized root mean square residual (SRMSR) index, which yields goodness of fit related to standardized discrepancies of the model, also indicated a good fit. RMSEA was found to be .06 for frequency, indicating an acceptable fit between the model and the data [20,23,24].

The χ^2/SD value of less than 5 (1.95) in the importance section of the CASSS-HB and the CFI value of .99 were an indication of good fit between the model and the data. A value of less than .08 (.02) on the SRMSR index, which yields goodness of fit related to standardized discrepancies of the model, also indicated a good fit. Similarly, the RMSEA value of .03 indicated a good fit for the model [20,24].

When all of the values related to goodness of fit are considered, it can be said that the model constructed was of adequate fit, and for this reason, the construct validity of the frequency and importance parts of the CASSS-HB could be assessed with 5 subscales.

Discussion

This study investigated the suitability of the CASSS-HB for application in the Turkish language. The evaluation started with translation work and evaluations from experts in the field. A test–retest process was carried out, and the correlations between factors were assessed. The results attained were discussed in the light of previous studies.

The correlation between the scores obtained by the students was found to be significant and acceptable in terms of the main scale and all of its subscales. This outcome indicates that there is a high level of reliability between scores obtained through applications of the scale at different times. To evaluate reliability over time, the interval method of test–retesting was used [23,25], and 4–6 weeks were skipped between the two measures. In the assessment of the data obtained in the pretests and posttests, Pearson's correlation analysis was used to examine the correlation between the two measures. Looking into Cronbach's alpha coefficient, which shows the internal consistency of the items in the scale, it was found that the coefficient was calculated as quite high in all the results. When Cronbach's alpha values were compared using the original data of the scale in the subscales and overall [4,15], results similar to or higher than the present study had been observed.

Exploratory factor analysis: The aim of an exploratory factor analysis performed to determine construct validity is to find out whether or not a scale measures intended constructs. Eigenvalues are examined in the factor analysis to determine how many factors can be tied to the scale items or variables. Factors are accepted as valid if their eigenvalues are more than 1. At the same time, to determine the number of factors that can be accepted, the rate of explained variance is also used as a criterion in factor analysis. If the scale items explain 66% or more of total variance in the construct, they are accepted as valid. An exploratory factor analysis was performed in this study, and the scale was found to be of adequate validity.

Sousa and Rojjanasrirat [26] have reported that performing a confirmatory factor analysis is essential in the cultural adaptation of scales. They assert that the sample used in confirmatory factor analysis must consist of at least 300–500 persons but state no upper limit for this requirement [26]. In the present study, a confirmatory factor analysis to evaluate goodness of fit was carried out with data collected from 860 students. Various analyses are performed toward this aim. A model is accepted as good when a value of 2 or less results from dividing the chi-square value by the degree of freedom; when the result is 5 or below, the model is accepted as having an acceptable goodness of fit. When the RMSEA value is equal or less than .08 and the *p* value is less than .05, this indicates a good fit; when it is equal to or less than .10, this indicates a poor fit. An SRMSR value less than .10 indicates good fit. Values equal to or higher than .90 on the CFI, nonnormed fit index, and the goodness of fit index show good fit [20,24]. The goodness of fit results obtained from testing the validity of the model corresponding to the theoretical construct of the CASSS-HB showed that there was a good fit between the model and the data. Because the chi-square value was higher than the number of parameters in the model, it may be considered to be high. This is to be expected. The value is thus divided by degree of freedom so that its dependency on degree of freedom can be corrected. The value obtained by dividing the chi-square value by the degree of freedom is a goodness of fit criterion that is frequently used to make a more accurate assessment [20]. The value obtained in this study by dividing the chi-square value by the degree of freedom is below 5.

In a study by Yayan and Çelebioğlu [27], it has been reported, as in the present study, that the scale can be used in Turkish. Yayan and

Çelebioğlu however have deviated from the original by demonstrating that the section on “People in my school” could be replaced with a section on “My Parents” separated into mother and father components [27]. Persons other than teachers who are included in the section “People in my school” may or may not have an influence on students in different schools. At the same time, when students do not receive an adequate amount of social support from their families, this may require meeting with both the mother and the father. The “Parents” section in the scale could, on the other hand, be used without separating it into mother and father components.

One of the important roles of a nurse is to promote health-improving behavior in healthy individuals. Among these health-improving behaviors are adopting an adequate and balanced diet and regular exercise and avoiding habits such as smoking, which are all better maintained when an individual receives social support [28]. Nurses may reach out to adolescents and their families in this context through school health services. Measuring instruments that facilitate the analysis of findings and provide guidance will ensure that health-care professionals make objective evaluations.

Conclusion

The scale has been used in various studies and has been reported as an applicable instrument by Cullum and Mayo [12]. According to the results of this study and considering the high levels of the values obtained from the test–retest method and the calculations of the internal consistency coefficient, as well as all of the values related to the goodness of fit between the model and the data which indicate a good fit, it can be said that the scale has construct validity.

In conclusion, the items comprising the scale appear to be acceptably capable of measuring the variable of social support in terms of healthy behavior in adolescents. Because the measure was used in a group with ages ranging from 11 to 14, it may be advised to delete the word “Child” (C) from the name of the scale and call it ASSS-HB. Health-care professionals, including nurses, may use this instrument to determine the social support that is received in the context of developing healthy behaviors.

Conflicts of interest

The authors have no conflict of interest to declare.

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