

Original Article

COOP Adolescent Chart: Validity and Reliability in the Turkish Language

Emel Teksöz, PhD

Çukurova University, Health Sciences Institute Nursing Care Main Branch of Science, Master of Science, Adana, Turkey

Senay Cetinkaya, PhD

Assistant Professor, Çukurova University, Adana School of Health, Pediatrics Nursing Care, Lecturer, Seyhan, Adana, Turkey

Correspondence: Dr. Senay Cetinkaya, Assistant Prof. Çukurova University, Adana School of Health Pediatrics Nursing Care, Lecturer, Seyhan, Adana, Turkey
E-mail: senayg_202@hotmail.com, scetinkaya@cu.edu.tr

Abstract

Backgrounds: Primarily, actions to be taken for adolescents are providing secure and supportive environments, providing information regarding health, providing counseling and health services in order to aid their talent development.

Objective: This is a methodological research to test the validity and reliability of COOP Adolescent charts, a new scale that helps assessing the adolescent health, which would be used for the first time in Turkey.

Methodology: COOP Adolescent charts was created by Eugene C. Nelson and John H. Wasson who gave permission to test the validity and reliability of the instrument within the Dartmouth Project. The research was applied in Turkish on 698 students attending to 6th to 8th classes, each were 11 – 15 years old and selected upon stratified sampling among 14.233 adolescents; the study took place between 1st-31st December 2009 in Hatay – Turkey, test retest method was used with 1 hour interval.

Results: In terms of reliability, the results were highly satisfactory. First, the reliability coefficients were computed using Cronbach's Alpha, they were found to be sufficiently high: 0.7322 - 0.7765. The survey's item-total coefficients resumed values between 0.355 - 0.853, suggesting a well correlation with the scale. Later, we obtained high KMO index (0.838) that predicts suitable factoring for sampling adequacy. Finally, in factor analysis, the factor load of items was found to be greater than 0.50, and variance was calculated as 52.024%. This study hereby indicates that, COOP Adolescent Chart "the Turkish adaptation" has similarly high values in the following: item-total correlation, internal consistency, and correlation coefficient on similar scales, the score consistency produced by use of the test-retest reliability coefficient, and construct validity.

Conclusion: Thus, this measurement, which was adapted to Turkish language and developed receiving expert opinions and their approvals, is recommended for use on adolescents as validly and reliably as in the same way with the original version. This adopted measurement tool may validly and reliability be used on all adolescents just like in the original measurement tool.

Key Words: COOP Adolescent Chart, Validity - Reliability

Introduction

Adolescence is name of the process in which the individual transit from being child to being adult by means of physically, sexually, intellectually and psychosocially (WHO, 2010; Ersoy, 2006; Kliegman, Marcadante, Jenson & Behrman, 2006; Özmert, 2005; Behrman, Kliegman & Jenson, 2000; Behrman & Kliegman, 1996).

The adolescence age, according to The World Health Organization (WHO) reports is between 10 and 19 (WHO, 2010). The same reports show that there are 1.2 billion adolescents, making up the one fifth of whole planet population today, whereas, in Turkey, there are 12.736.986 adolescents accounted for (TÜİK, 2009). During adolescence, mortality risk shows a sudden increase. Knowing that adolescent health behaviors significantly vary depending on the life styles, personal characteristics are formed at this adolescence age (Kara, Hatun, Aydoğan, Babaoğlu & Gökalp, 2003). Therefore, individuals should be monitored carefully and supported well during this period (Özcan, Kurdak, Akpınar, Saatçi & Bozdemir, 2008).

Specifically designed surveys for clinical use in determination of functional statuses of adults and youths in primary health care, COOP Adolescent Charts were developed by Dartmouth as part of their "Primary Care Cooperative Information Project" to evaluate individual conditions such as physical fitness, emotional feelings, school work, social support, family communication, and health habits (Larson, Hays, & Nelson, 1992; Nelson, Landgraf & Hays, 1990; Nelson, Wasson & Kirk, 1987). COOP Charts were translated into 20 languages and the validity-reliability checks have been completed (Van Weel, Konig-Zahn, Touw-Otten, Van Duijn & Meyboom-de Jong, 1995).

This study was performed in order to check the validity and reliability of COOP Adolescence Charts so it might ensure data formation in Turkey in this field. Moreover, it will hopefully constitute a basis for hospitals and educational institutions so they

could treat the adolescents conceptually and physically as a whole.

Materials and Methods

This study is a methodological research as the validity - reliability scale of the COOP adolescence was checked. The research was done between 1st-31st December 2009 at the central primary schools located in Hatay City of Turkey (39:12:00 East Meridian; 36:52:00 North latitude). The target population of the research was the adolescents between the ages 11 - 15 (6th-8th class), who were attending primary schools in Hatay City. As per the statistical data obtained from the provincial directorate, there are a total of 38 schools in Hatay city centre and a total of 14.233 adolescents. Stratified sampling was performed in selection of the samplings. No standard scales are used for the assessment of the socio-economic situation in our country. Therefore Ministry of National Education observations have been used for socio-economic classification (Üner, Özcebe & Çetik, 2009). The schools have been stratified as low, medium and high income levels as to the socioeconomic classification. The distribution of schools were found as; 23 schools in the low Socio-economic Level (SEL) (6382 adolescents), 10 schools in medium SEL (5526 adolescents), 4 schools in high SEL (2325 adolescents) respectively.

Theoretical Sampling Magnitude table was used in determining the sampling magnitude of the research. In a population of approximately 20.000 the sampling magnitude was given as 642 at the level of 99% reliability with an error margin of (\pm) 5. (Özdamar, 2002; Özdamar, 1999). Accordingly, from a total of 14.233 adolescents who are educated in the schools within Hatay Center 698 adolescents were taken as sampling. Of the 698 adolescents who were selected via stratified sampling, 313 of them were low level, 271 of them were medium level and 114 of them were high level respectively.

The preliminary trial of the COOP Adolescent Chart test was performed in

October 2009 at Fevzi Çakmak Primary School of Provincial Ministry of National Education of Hatay City. The test was applied to 20 adolescents who were selected from the class lists randomly among the 6th, 7th, 8th classes.

The data of the preliminary application were not included in the research. COOP Adolescent Chart has a wide and easily applicable usage potential in clinical applications. The figures which are rated over 5 figures in the Likert Scale have been effective without diminishing the validity of the measurements or without establishing an effect that develops the responses. In addition 6 functional fields, particularly at the individual level, it is important that it just does not avoid unnoticed some important functions but instead it includes all of them. In addition to the revealing of the significant changes in the health condition of this scale, as it is sensitive to all changes, it is obvious that it will provide the best advantages in revealing the health problems (Wasson, Kairys, Nelson & Kalishman, 1995). The developers of the scale suggest examination by doctor as getting a score of 3 or more may indicate a health problem regarding the respective inquiry within the tables (Koot & Wallander, 2001).

Three persons were trained in order to assist in collecting data and they were trained on research theory and on the specific health terminology of the survey and afterwards were provided with experience by one by one implementation.

The schools were selected by random sampling by considering the access to the schools, survey applications, data procurement, and branch numbers. The surveys were applied to 6th-8th classes of İstiklal Primary School, İnönü Primary School and Private Ata College of Hatay Center.

The Survey Form has 14 questions determining the socio-demographical characteristics of the adolescents. The adolescents replied the questions approximately within 10 minutes. COOP

Adolescent Chart Scale has 19 questions related to the daily activities of the last 4 weeks, family status, school success, physical, emotional, social support, pain and general state of health (Nelson, Landgraf & Hays, 1990). The adolescents replied these questions in 20 minutes.

The validity-reliability check of the COOP Adolescent Chart were performed by giving again the same questions (re-test) to the same group in later time after the adolescent replied the survey and scale questions. After the first test finished re-test was performed after one hour of an interval. During the internal of one hour after the first test the height and the weight of the adolescents were calculated for BMI calculation.

The weight was calculated via a bathroom type scale which is sensitive by 0,1 kg and while the children were dressed; and the height measurements were done by a height ruler fixed on the wall with the shoes on, as heels joined, shoulders and hip leaning on the wall (Kliegman, Marcante, Jensen & Behrman, 2006; Behrman, Kliegman & Jensen, 2000; Behrman & Kliegman, 1996). The body mass index (BMI) is calculated as body weight/square of the height (Behrman, Kliegman & Jensen, 2000).

$$BMI = kg/m^2$$

Correspondence was made with the developers of the COOP Chart, namely Eugene C. Nelson and John H. Wasson (by e-mail) and they granted permission for the translation of the scale in Turkish and use it for research.

The scale was translated to Turkish by two linguists, which are independent from one another, than the content was checked by three expert lecturers of the subject for compatibility. Afterwards the translated text was re-translated into English by two persons having perfect knowledge of Turkish and English; and this translation was compared to the original scale.

The research was approved by the Mustafa Kemal University Medicine School Ethical Board of Researches. For the performance of

the research, written permissions were obtained from the Ministry of Education Provincial Directorate of Hatay City and from the parents of the adolescents and verbal permission was asked from the adolescents.

For the statistical analysis of the survey's data the chi-square test and one way ANOVA were used, for the compliance of the responses in the test to the normal distribution the Kolmogorov-Smirnov analysis method was used, for the reliability of the test the Spearman Correlation analysis was used, for the suitability of the scale for the performance the factor analysis by Kaiser-Meyer-Olkin and Bartlett analysis was referred to and for the validity of the test Competent Factor Analysis was applied. For the reliability of the first test the internal consistency coefficients (Cronbach's Alpha) were computed, these values were determined to be significant within the 0.50 and 0.90 interval.

The analysis which is accepted as the scale of the suitability of the Kaiser-Meyer-Olkin (KMO) sampling suitability measure was applied; and that being greater than 0.5 was accepted to be significant. The sphericity level, which indicates that there might emerge significant factors and variables from research data, (Bartlett's tests for sphericity) was computed; it was determined to be significant ($p < 0.001$). In statistical analysis $p < 0.05$ was accepted meaningful – statistically significant; the data was analyzed by using the software 11.5 (Statistical Package for Social Sciences).

Results

In our findings, 52.7% of the participants were males and 47.3% were females; the mean age was 12.00 ± 0.94 . According to their school classes, the adolescent distribution was like the following; 6th class - 263 (37.7%), 7th class - 219 (31.4 %) and 8th class - 216 (30.9%).

In terms of mother's educational backgrounds, 63 (9.0%) were illiterate, 274 (39.3%) were primary school graduates, 84

(12.0%) were secondary school graduates, 157 (22.5%) had finished high-schools and 105 (15.0%) were university or college graduates. 117 (25.3%) of the participants mothers were employed and 521 (74.7%) were not working anywhere. The relation in mothers' job, educational background, and difference of the schools was statistically significant ($p < 0.001$).

In terms of fathers educational backgrounds, 24 fathers (3.4%) had no school graduation, 225 (32.2%) were primary school graduates, 125 (17.9%) were secondary school graduates, 141 (20.2%) were high school graduates, 159 (22.8%) were university or college graduates, while 24 (3.4%) of them choose not to respond. A 90.5% ($n=632$) were employed and 66 (9.5%) were unemployed. The relation in fathers' job distribution, father's educational background, and difference of the schools was statistically significant ($p < 0.001$).

A 49.3% (344) of the adolescents' families affirmed that they had health insurance, while 109 (15.6%) disconfirmed having such, and 245 (35.1%) stated that they were not aware if they had one. In this matter, the relation between the schools was also statistically significant ($p < 0.001$).

Questions about the average number of the siblings in families yielded 3.00 (min=1, max=12), the order of participating adolescents among other siblings (birth-wise) was found to be 2.00 (min=1, max=12). The relation between the number of siblings, birth order, and schools was found to be significant ($p < 0.001$).

Height and weight of the adolescents were measured, and then body mass indexes (BMI) were computed. The average height was 153.00 cm (min=118, max=178), the average weight was found to be 70.00 kg (min=44, max=102). The lower SEL BMI average was found to be 30.00 ± 3.56 , medium SEL was found to be 30.52 ± 4.37 , and upper SEL was found to be 30.66 ± 4.55 . The difference between the height, weight, body mass index and the schools was not significant ($p > 0.05$).

The responses given by adolescents to the COOP Adolescent Charts questions, both in first and last test, regarding to “Family”, “Emotion”, “Health behaviors – I, and II”, “Pain”, “Social support”, “Physical activity”, and “School performance”, along with the analysis of these responds, all by gender are shown at Table 1.

The distribution of adolescent responses both in first and last test of COOP Adolescent Charts is shown at graphics I-VIII. The scale reliability values of the 19 items for COOP Adolescent Chart were found to be between of 0.7322-0.7765. At the total reliability test, the internal consistency / reliability coefficient was found to be at a fine level: $\alpha=0.7592$. There was found a correlation between the reliability for internal consistency of the articles of COOP Adolescent Charts, and the adolescent responses given at the first and the last tests, which had been assessed by use of the item - total correlation (Table 2). The item - total correlation coefficients of the survey produced values between 0.355 and 0.853.

A strong correlation was found between the responses regarding to the questions about “Family”, “Emotion”, “Pain”, “Physical activity”, “Health status – II”, “Headache”, “Abdominal pain”, “Weakness”, “Chest ache”, “Menstruation”, “Nutrition”, “Skin”, “Sexuality”, “Respiration”, “Attention”, and “Problems”, given by adolescents at the first and the last test. For the “Health status – I”, there was found statistically significant, but positively average correlation level was detected ($r=0.355-p<0.001$); as for the question regarding “School performance” a very strong statistically significant positive correlation was detected ($r=0.853- p<0.001$) (Table 2).

The correlation between the physical activity, school performance and emotion was found to be low ($p>0.05$). The

correlation between the “Emotion” and “Health status – II” was found also low. The highest correlation found was between “Pain suffering” and “expression of the emotions” (Table 3).

In order to determine the structure validity of the survey, factor analysis method was applied. The factor analysis was started with 19 items in the Turkish version, five of which had been of the “Likert type” questions. In the end, the KMO value came out high (0.838), which was applied to see data compliance regarding to principal component analysis. The Bartlett test that checks whether the data comes from a multi-variable normal distribution, was applied onto COOP Adolescent Chart data and turned out be significant (2096.961, $p=0.00$). The eigenvalue for the 19 item analyzed was found falling under 5 factors which were greater than 1. These 5 factors explain the 47.917% of the total variance of this survey (Table 4).

The five factors obtained through factor analysis, the variance revealing ratio related to these factors, and the factor load values indicating which items in the charts had related to which factors were shown. These five factors are revealed by questions, as per beginning from the first factor; “*headache, ache, abdominal pain, weakness, chest*”, the second one: “*attention, problem, emotion, nutrition, skin*”, the third: “*social, family, health - II, school*”, the forth: “*sexual health, health I*”, and the fifth one: “*physical, menstruation*”.

Because the factor load of “*chest and respiration*” questions in the first factor, “*school*” in the third factor, and “*menstruation*” in the fifth factor were below 0.50, they were taken out of the survey and factor analysis was repeated. The analysis result having 15 factors are shown in Table 5.

Table 1. Reviewing the First and Last Survey Responses According to COOP Adolescent Chart

FAMILY	"How frequently have you shared your problems, feelings and opinions with anybody from your family within the last four weeks?"					
	FIRST TEST			LAST TEST		
	M	F	p*	M	F	p*
All the time	58 (16.1)	75 (22.8)	$\chi^2 = 7.37$ $p = 0.117$	83 (22.8)	78 (24.1)	$\chi^2 = 2.94$ $p = 0.567$
Often	63 (17.5)	67 (17.3)		67 (18.4)	58 (17.9)	
Occasionally	100 (27.7)	87 (26.4)		92 (25.3)	80 (24.7)	
Seldom	63 (17.5)	40 (12.2)		39 (10.7)	46 (14.2)	
Never	77 (21.3)	70 (21.3)		83 (22.8)	62 (19.1)	
EMOTION	"How often did you feel worried, collapsed, out of place, down or heart-broken and blue within the last four weeks?"					
All the time	123 (34.0)	78 (23.9)	$\chi^2 = 29.184$ $p < 0.001$	134 (36.9)	87 (26.4)	$\chi^2 = 25.004$ $p < 0.001$
Often	79 (21.8)	65 (19.9)		79 (21.8)	87 (26.4)	
Occasionally	121 (33.4)	100 (30.6)		99 (27.3)	82 (24.9)	
Seldom	28 (7.7)	52 (15.9)		39 (10.7)	34 (10.3)	
Never	11 (3.0)	32 (9.8)		12 (3.3)	39 (11.9)	
HEALTH BEHAVIORS I	"How often did you perform certain deleterious behaviors such as smoking / chewing tobacco, consuming alcoholic products like beer and wine, having unprotected sexual intercourse within the last four weeks?"					
Never	328 (96.9)	317 (90.9)	$\chi^2 = 13.94$ $p = 0.007$	319 (87.6)	305 (93.6)	$\chi^2 = 10.91$ $p = 0.028$
Seldom	18 (5.0)	16 (1.8)		21 (5.8)	11 (3.4)	
Occasionally	13 (3.6)	2 (6.0)		20 (5.5)	6 (1.8)	
Often	0 (0.0)	1 (0.7)		3 (0.8)	1 (0.3)	
All the time	2 (0.6)	1 (0.3)		1 (0.3)	3 (0.9)	
HEALTH BEHAVIORS II	"How often do you perform two or more of the salubrious behaviors from taking exercise, healthy nutrition, sufficient sleeping or putting on crash helmet, etc?"					
All the time	118 (32.5)	102 (31.4)	$\chi^2 = 1.54$ $p = 0.819$	130 (36.2)	11 (36.8)	$\chi^2 = 2.41$ $p = 0.661$
Often	98 (27.7)	90 (27.0)		93 (25.9)	90 (27.7)	
Occasionally	77 (21.2)	63 (19.4)		91 (25.3)	75 (23.1)	
Seldom	43 (11.8)	38 (11.7)		19 (5.3)	25 (7.7)	
Never	27 (7.4)	32 (9.8)		26 (7.2)	25 (7.7)	

* Chi-square applied.

(Table 1) Continue

PAIN	"How often did you suffer from head-aches, back pains, cramps or abdominal pains within the last four weeks?"					
	FIRST TEST			LAST TEST		
	M	F	p*	M	F	p*
Never	113 (31.6)	82 (24.8)	$\chi^2 = 9.69$ $p = 0.046$	162 (44.8)	95 (29.0)	$\chi^2 = 21.07$ $p < 0.001$
Seldom	104 (29.1)	110 (33.3)		99 (27.3)	107 (32.6)	
Occasionally	108 (30.2)	88 (26.7)		74 (20.4)	84 (25.6)	
Often	24 (6.7)	34 (10.3)		21 (5.8)	26 (7.9)	
All the time	9 (2.5)	16 (4.8)		6 (1.7)	16 (4.9)	
SOCIAL SUPPORT	"Was there a person who had supported you within the last four weeks to relax and to bring you help when it was needed?"					
Yes, whenever needed	128 (35.5)	150 (45.9)	$\chi^2 = 13.07$ $p = 0.011$	121 (33.1)	157 (48.2)	$\chi^2 = 21.23$ $p < 0.0001$
Yes, most of the time	70 (19.4)	49 (15.0)		71 (19.4)	52 (16.0)	
Yes, sometimes	84 (23.3)	55 (16.8)		94 (25.7)	58 (17.8)	
Yes, from time to time	28 (7.8)	36 (11.0)		28 (7.7)	31 (9.5)	
No, there's been no-one	51 (14.1)	37 (11.3)		52 (14.2)	28 (8.6)	
PHYSICAL HEALTH	"What is the most difficult physical activity you had within the last four weeks which took 10 minutes minimum?"					
Very heavy	60 (17.0)	25 (8.1)	$\chi^2 = 17.84$ $p = 0.001$	62 (17.2)	26 (8.4)	$\chi^2 = 17.07$ $p = 0.002$
Heavy	60 (17.0)	40 (12.9)		67 (18.6)	55 (17.7)	
Mediocre	141 (40.1)	149 (48.2)		149 (41.3)	147 (47.3)	
Light	36 (10.2)	47 (15.2)		30 (8.3)	44 (14.1)	
Very light	55 (15.6)	48 (15.5)		53 (14.7)	39 (12.5)	
SCHOOL SUCCESS	"How have you performed in the school within the last four weeks in terms of school success?"					
I was pretty good	82 (22.5)	93 (28.6)	$\chi^2 = 4.64$ $p = 0.326$	83 (23.1)	93 (28.4)	$\chi^2 = 4.31$ $p = 0.365$
I've done alright	133 (39.5)	108 (33.2)		133 (37.0)	112 (35.2)	
Could be better	113 (31.0)	87 (26.8)		110 (30.6)	83 (25.4)	
Awkward	31 (8.5)	33 (10.2)		29 (8.1)	32 (9.8)	
Abysmal	5 (1.4)	4 (1.2)		4 (1.1)	4 (1.2)	

* Chi-square applied.

Table 3. Correlation table within COOP Chart Test and Re-tests

	FAMILY	HEALTH II	FEELING	HEALTH I	PAIN	SOCIAL	PHYSICAL	SCHOOL
FAMILY	1	-	-	-	-	-	-	-
HEALTH II	0,20**	1	-	-	-	-	-	-
FEELINGS	0,04	0,08*	1	-	-	-	-	-
HEALTH I	0,08*	0,07*	-0,00	1	-	-	-	-
PAIN	0,05	0,10**	0,36**	0,04	1	-	-	-
SOCIAL	0,26**	0,26**	0,19**	0,09*	0,15**	1	-	-
PHYSICAL	0,02	0,10**	-0,02	0,01	0,03	0,03	1	-
SCHOOL	0,11**	0,17**	0,08*	0,06	0,09**	0,19**	-0,06	1

Sperman correlation analysis. Correlation: 0.4 very good, 0.25-0.39 good, 0.25 bad. *p< 0.05, **p< 0.01

Table 4. Table for COOP Chart 1st Factor Analysis

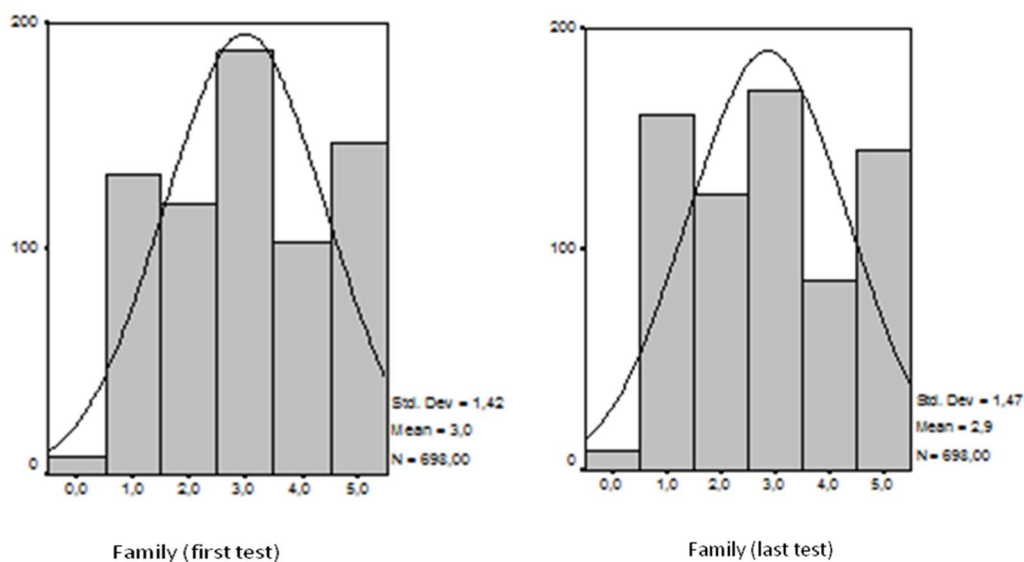
Factors	1	2	3	4	5
Variance Explanation Rate %	21,655	8,097	6,373	6,217	5,575
HEADACHE	0.734				
PAIN	0.681				
ABDOMINAL PAIN	0.671				
PROSTRATION	0.628				
CHEST	0.482				
RESPIRATION	0.405				
FOCUS		0.681			
PROBLEM		0.658			
FEELING		0.581			
NUTRITION		0.571			
SKIN		0.508			
SOCIAL			0.685		
FAMILY			0.665		
HEALTH II			0.570		
SCHOOL			0.454		
SEXUAL				0.705	
HEALTH I				0.616	
PHYSICAL					0.666
MENSTRUATION					0.450
KMO					0.838
Bartlett's Test of Sphericity				2096.961, p=0.000	
Explaining total variance					47.917
Rate %					
Cronbach's Alpha					0.7592

Table 5. Table for COOP Chart 2st Factor Analysis

Factors	1	2	3	4
Variance Explanation Rate %	25,732	9,998	8,284	8,011
FOCUS	0.778			
PROBLEM	0.703			
FEELING	0.607			
SKIN	0.571			
NUTRITION	0.561			
ABDOMINAL PAIN		0.742		
HEADACHE		0.737		
PAIN		0.697		
PROSTRATION		0.617		
SOCIAL			0.712	
FAMILY			0.704	
HEALTH II			0.620	
SEXUAL				0.725
HEALTH I				0.719
KMO				0.816
Bartlett's Test of Sphericity			1654.122, p=0.000	
Explaining total variance Rate %				52. 024
Cronbach's Alpha				0.7266

Table 6. Reliability and average values of factors

Factors	Cronbach's Alpha	Average	Standard Deviation
Factor 1	0.644	2.00	0.82
Factor 2	0.698	2.32	0.84
Factor 3	0.678	1.97	0.76
Factor 4	0.722	1.09	0.43

Graphic I. Distribution of the response in the first and the last test in the Family question

The greatest increase in the first and the last test in the family question has been the response with 3 points (sometimes) (Graphic I).

In Table 5 was shown the 4 factors obtained through factor analysis, the variance revealing ratio related to these factors, along with the factor loads indicating which items in the charts had related to which factors. The total variance revealed by four factors increased to 52.024%. These factors were revealed by questions, starting from the first one; “attention, problem, emotion, skin, nutrition”, the second one “abdominal pain, headache, pain, weakness”, the third factor “social, family, health II” and the last one “sexual, health I”. Mean values showing the level of a factor that was obtained by factor analysis, and the Cronbach’s Alpha values were determined; they are here available in Table 6.

Discussion

For the structure validity of the COOP Adolescent Chart factor analysis was performed. As a result to the component factor analysis 5 dimensions (factors) were found. The total variance that is explained by the five factors was 47.917%. The factors loads of the questions in the third and the fifth factors were below 0.50 and therefore these questions were removed out of the survey and factor analysis was repeated. The variance in which four factors were explained together increased to 52.024%. As a result to these analyses, it was verified that the four dimensions of the scale and the explained variance quantities are sufficient; and additionally it was verified that the component factor of each article with the article-sub test and article remaining correlation, is at the sufficient level. The “school success” subject which is one of the questions of the chart with figures as extracted from the survey is a relative concept from the point of individual evaluation. The factor load of the fact; that the adolescents may have acted nonobjective and may not have done a peculiar evaluation, may have come out low. For this survey which evaluates the state in the last 1 month a more objective question substitution may be suggested tended to the success at school. Perneger et al. in the validity and the reliability study performed for the COOP

Chart surveys among the Swiss population have found two fundamental sub-scales in the factor analysis “physical and emotional (mental) health”. (Perneger, et al, 2000). In a similar study Perneger et al. reported that the test is valid for the applied 1250 individuals except the question “social support” (Perneger, et al, 2000).

The factor load of all the articles, which were taken as per the last competent factor analysis of the COOP Adolescent Chart; was found to be over 0.50. In a similar study Kinnersley et al. reported that the COOP/WONCA has structure validity for 3 out of 6 charts; the score for reliability two weeks after have changed in a balanced manner between 55-73%, the scores for the sensitivity have changed in a balanced manner between 45-59% (Kinnersley, Peters & Stott, 1994).

The reliability coefficients of the applied survey which were computed with Cronbach Alpha were found to be between 0.7322-0.7765. As a result to the total reliability test of the survey, the internal consistency/reliability coefficient was $\alpha=0.7592$. Gilliland et al., in a validity test performed by them have found the correlation values between the values of 0.18-0.78 and the average was between 0.51 (Gilliland et al, 1998). This value has caused the average to decrease as the physical health values are low. In the study performed by Wilking-Shurmer et al. on the adolescents the physical health of girls established significant differences comparing to boys (Wilkins-Shurmer, Callaghan, Najman, Bor, Williams & Anderson, 2003). Correlation was found between the responses given by the adolescents to the first test and the final test to the questions in the COOP Chart Survey. The article-total correlation coefficients of the survey gained values between the values of 0.355 and 0.853. While for the Original COOP Chart tests experienced on 2000 old patients at four different clinics, the test re-test correlation was between the values of 0.78-0.98; the correlation in the patients with low income was found to be between the values of 0.73-

0.98. In the single test application this increased to 0.77 (Nelson, Wasson, Johnson & Hays, 1996) while the correlation was 0.62 for the adolescents in the re-test application. These values are close to the research results.

In the opinion and emotional sharing with the family there is not difference between the sexes ($p>0.005$) (Table 1). Ghandour et al. in their study performed on the adolescent girls in USA found a relation between receiving family and teacher supports and pain experiences (Ghandour, Overpeck, Huang, Kogan & Scheidt, 2004). In this study it was detected that the girls (15.9%) are more concerned and depressed comparing to the boys (7.7%) (Table 1). Arenas et al. found in the study made on the dialysis patients that, if the patients are with anxiety and depression, the most effected COOP Chart survey questions are the physical health and general health states (Arenas et al, 2007).

In this study, from the point of headache, back ache, cramps or stomachaches, it is stated that the girls (10.3%) experience more pain comparing to the boys (6.7%) (Table 1). Milde Bush et al. in the study performed on the 488 adolescents, found out that each adolescent experiences headache at least once a week and the pain prevalence was found to be 47% (Milde Bush et al., 2010). Ghandour et al. in the study performed among the adolescent girls in USA for pain, found the headache prevalence at least once a week or more as 29.1% ; stomachache as 23.6%, backache and the tired waking up mood as 30.6% (Ghandour et al., 2004)

From the point of social supports the girls (45.9%) stated that they seek support more whenever they feel necessary when compared to the boys (35.5%) (Table 1). As in this study, in the study performed by Kahraman and Polat it is reported that girls receive more social supports comparing to the boys (Kahraman & Polat, 2003). Under this question which is given under the heading School Success, the difference between the sexes has not been significant in the first and in the last test ($p>0.05$) (Table

1). As being similar to the research Wilking-Shurmer et al. in the similar studies performed on adolescents, they have not found a significant difference between the sexes regarding school success (Wilking-Shurmer et al., 2003) Özmert et al. in the study performed at the primary schools compared the school success not only regarding the sex but also as per the other socio-demographic particulars, and they stated that the physical and the environmental factors have an impact on school success (Özmert et al., 2005). In the question under the heading health behaviors II, from the point of exercise, safety belt usage, wearing helmet, nutrition and sleep, the answer was no among the girls by (9.8%) and among the boys the answer was no by (7.4%) (Table 1). The difference between the Kara and et al. in the survey they've performed among the high school students in Kocaeli City those who do not exercise was found to be 26.5% (68.6% girls, 31.4% boys), those who always use safety belt were 22.5% (52.2% boys and 47.8% girls), the bicycle riders who do not use helmet were 93.8% (boys 57.4%, girls 42.6%) (Kara and et al, 2003). It can be said that the results of this study is better.

The factor analysis of the results obtained at the level of a factor, and Cronbach's alpha values for the mean values given in Table 6 is examined, adolescents in the last four weeks and provides information on the case. High average values indicate the health of the adolescent is low and the low average values indicate that the adolescent's health is high. As it can be seen in the table 6 it is obvious that the health of the adolescents is high. From the point of priority regarding the importance, the highest adolescent health dimensions is in the factor 4 with an average of 1.09 (sexual, health I), the second order is of the factor 3 with the average of 1.97 (social, family, health II); the third place belongs to factor 1 with the average of 2.00 (attention, problem, emotion, skin, nutrition), the forth place belongs to factor 2 with an average of 2.32 (stomachache, headache, asthenia).

Conclusion and Practice Implications

As the conclusion, it is viewed that the Turkish adaptation of the COOP Adolescent Chart, has the point stability and the structure validity that is obtained by the high article total test coefficient, internal consistency, the correlation coefficient with similar scales, the test and re-test reliability coefficient results. For the adolescents' benefit a priority is to establish a safe and supportive environment, providing information about the subjects related to health, development of talents, providing counseling and health services. The result of the factor analysis, the variance explained together by four factors is 52.024%. The reliability coefficients computed by Cronbach Alpha are between 0.7322-0.7765 and the reliability coefficient is alpha $\alpha=0.7592$ ' dir.

There is a correlation between the responses in the first test comparing to the responses in the last test as responded by the adolescents to the COOP Chart survey questions and the correlation coefficients are between 0.355 and 0.853. Along with such values it is possible to say that the scale is at a sufficient level statistically and it is a consistent and reliable scale. This adopted measurement tool may validly and reliability be used on all adolescents just like in the original measurement tool.

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Table 2. Table for COOP Chart Test and Re-Tests General Correlation

<i>1TEST*1.RE-TEST*</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1.HEAD	r=0.625 p=0.000																			
2.ABDOMEN		R=0.617 P=0.000																		
3.PROSTRATION			r=0.610 p=0.000																	
4.CHEST				r=0.702 p=0.000																
5.MENSTRUATION					R=0.639 P=0.000															
6.NUTRITION						r=0.577 p=0.000														
7.SKIN							R=0.661 P=0.000													
8.SEXUAL								r=0.527 p=0.000												
9.RESPIRATION									r=0.598 p=0.000											
10.FOCUS										r=0.678 p=0.000										
11.PROBLEM											r=0.599 p=0.000									
12.FAMILY												r=0.601 p=0.000								
13.FEELINGS													r=0.567 p=0.000							
14.HEALTH I														r=0.355 p=0.000						
15.PAIN															r=0.541 p=0.000					
16.SOCIAL																r=0.707 p=0.000				
17.PHYSICAL																	r=0.669 p=0.000			
18.SCHOOL																		r=0.853 p=0.000		
19.HEALTH II																			r=0.586 p=0.000	