

The Reliability and Validity of Adolescent Health Promotion Scale in Turkish Community

Türk Toplumunda Adölesan Sağlığını Geliştirme Ölçeğinin Geçerlik ve Güvenilirliği

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SUMMARY

Introduction: Health-promoting lifestyles of adolescents are closely related to their current and subsequent health status. However, few studies in Turkey have examined health-promoting behaviors of adolescents. The purpose of this study was to examine the reliability and validity of Adolescent Health Promotion Scale that was translated into the Turkish language.

Materials and Method: In study, item analysis, exploratory factor analysis, and reliability measures of the scale, were assessed based on the responses of 358 students.

Results: Factor analysis yielded a six-factor instrument that explained 38.48% of the variance in the 40 items. The Cronbach's alpha reliability coefficient for the total scale was calculated 0.86, and ranged from 0.50 to 0.74 for the subscales.

Conclusion: The results indicated that the Turkish version of the Adolescent Health Promotion Scale is a reliable and valid tool for use among Turkish students. (*Journal of Current Pediatrics* 2011; 9: 14-22)

Key words: Adolescent health promotion scale, health behavior, validity, reliability

ÖZET

Giriş: Adölesanların sağlığı geliştirici yaşam biçimi davranışları, adölesanların şuan ki ve sonraki sağlık durumları ile doğrudan ilişkilidir. Ancak Türkiye'de az sayıdaki çalışmada adölesanların sağlığı geliştirme davranışları incelenmiştir. Bu çalışma, Türkçe'ye çevrilen Adölesan Sağlığını Geliştirme Ölçeği'nin geçerlik ve güvenilirliğini araştırmak için yapılmıştır.

Gereç ve Yöntem: Çalışmada ölçeğin madde analizi, açıklayıcı faktör analizi ve güvenilirlik ölçümleri 358 öğrencinin yanıtları üzerinden hesaplandı.

Bulgular: Faktör analizinde 40 madde için varyansın %38,48'ini açıklayan altı faktör elde edilmiştir. Cronbach alfa güvenilirliği ölçeğin tamamı için 0,86 ve alt ölçekler için 0,50-0,74 aralığında hesaplandı.

Sonuç: Sonuçlar, Adölesan Sağlığını Geliştirme Ölçeği'nin Türkçe uyarlamasının Türk öğrencilerinde kullanım için geçerli ve güvenilir bir ölçüm aracı olduğunu gösterdi. (*Güncel Pediatri* 2011; 9: 14-22)

Anahtar kelimeler: Adölesan sağlığını geliştirme ölçeği, sağlık davranışı, geçerlik, güvenilirlik

Introduction

Adolescents are often thought as a healthy group. Nevertheless, many adolescents do die prematurely due to accidents, suicide, violence, pregnancy related complications and other illnesses that are either preventable or treatable. Many more suffer chronic ill-health and disability (1).

The significance of ways of living for health and well-being is well known (2). Adolescence is a period of childhood with rapid developmental changes. During adolescence, experimentation with taking adult roles, relationships and responsibilities can put adolescents at risk. Key health challenges during adolescence are quite different to those during childhood and include injuries,

sexual and reproductive health, unhealthy behaviors linked to the use of substances and to diet and physical activity, and mental health (3). Early intervention to encourage healthy lifestyles has very significant potential for improving public health and for reducing the long-term need for healthcare services. Health-promotion intervention should not only target individual adolescents, since their health behavior develops within a social framework comprising the family, groups of peers, school classes, and other social contexts in which adolescents spend most of their time (4). According to WHO policies, programmers and health service systems should be in place to work towards the following targets: healthy lifestyle development; prevention of risky behaviors; youth-friendly health services for reproductive health, including contraception, the prevention of unwanted pregnancies and the prevention and care of sexually transmitted infections, human immunodeficiency virus and other infectious diseases; youth-friendly counselling and health services for other health problems, such as violence and abuse; protection from exploitation and hazardous labor practices; the prevention of sexual, physical and mental abuse; healthy school environments that facilitate physical and psychological well-being; supportive home and community environments; the control of inappropriate adolescent-centered marketing; full immunization; injury prevention; and relationship and parenthood education (5).

Over the last decade, public health institutions around the world have increasingly emphasized the importance of healthy lifestyles. Nurses are in a position to encourage health promotion by assessing lifestyle patterns of youth and intervening to facilitate positive and decrease negative behaviors. This is particularly true for school nurses and community-health nurses in primary health care settings. Abundant literature has shown that practicing health promotion behaviors decreases the occurrence of disease and lowers the death rate (6). The purpose of this study was to determine whether Adolescent Health Promotion Scale (AHPS) is a valid and reliable tool that could be used in the Turkish community.

Materials and Methods

Population and Sample

Study populations consist of all the primary school students who enrolled in the eight grades in two government schools. Research was implemented in two

cities at the west of Turkey, in 2004. On the data collection day, 358 children who are volunteer to participate in the study and who have any medical problem that could obscure physical activities were selected with a 80.6% participation rate.

Limitations of the Study

As the sample group has been selected with improbability sample technique, study results could only be generated to the study group.

Data Collection and Ethical Considerations

Permission for use of AHPS was obtained from Chen M.Y., Wang E.K., Yang R. J., Liou Y.M. by e-mail. Written permission was taken from the provincial directorates of national education of two cities. School directors, teachers were given information about the objectives and benefits of the study. After approvals and permissions of the parents were taken, students were given adequate information for their informed consent, and asked to fill the questionnaire form and the instrument without any identifying information on them. Data was gathered on the same day and it took 20 minutes to fill the forms.

Instrument

The data collection instrument used for the study consisted of a self-administered form which contains 11 socio-demographic questions and Adolescent Health Promotion Scale (AHPS) which was originally developed and published by Chen M.Y., Wang E.K., Yang R. J., Liou Y.M. (6).

AHPS is a 40-item Likert-type self-report instrument used to detect unhealthy lifestyles in adolescents. The psychometric properties of the AHPS, including item analysis, factor analysis, and reliability measures, were assessed based on the responses of 1.128 Taiwanese adolescents in 2002. The instrument is a 5-point response format to obtain data regarding the frequency of reported behaviors (never, rarely, sometimes, usually, always), with the rating score ranging from 1 to 5. Factor analysis yielded a six-factor instrument that explained 51.14% of the variance in the 40 items. The six factors are social support (7 items), life appreciation (8 items), health responsibility (10 items), nutritional behaviors (6 items), exercise behaviors (4 items), and stress management (5 items). The Cronbach alpha reliability coefficient for the total scale is 0.932, and alpha coefficients for the subscales ranged from 0.75 to 0.88. Minimum and maximum scores available from the total scale is between 40 and 200 (7). Minimum score determined for the total scale was 74, maximum score was 89, mean and standard deviation for the total scale was 140.69±20.10.

Translation procedures

The goal of cross-cultural translation is to achieve equivalence between two different languages. The goal of a congruent cross-cultural translation process is to achieve content, semantic, technical, criterion, or conceptual equivalence (8). A five-phased translation process is recommended to improve cultural equivalence during cross-cultural translation: (a) determining the relevance and function of the phenomenon in the population being studied, (b) forward translation of the instruments, (c) backward translation, (d) testing each item of the translated instruments for equivalence, and (e) reevaluating the process and outcome. General guidelines from these translation models were used as a framework for our translation process (9,10).

For the validity of scale, language equivalence should be determined. Translating a scale into a foreign language changes its nature. If nurses are to undertake rigorous research, they must take account of the cultural and linguistic diversity of the countries. Examining each items of scale carefully, performing in making necessary transformations for the scale's comprehensibility and standardized the form according to the norms of individuals who speak the translated language are the basic principles in the adaptation of a scale to another culture (11).

Translate-back translate method was used for the extend of language equivalence of the scale. Four nursing faculty members and the researchers translated the scale from English to Turkish in order to diminish the diversities. Researchers' reviewed the translated items and prepared a Turkish form. A specialist in linguistics translated it back to English. Any uncertainties regarding terminology were overcome through discussions between the translators and the researchers. After then, six nurse faculty members (expert panel) were asked to review the scale items for its content validity, linguistic properties, clarity and understandibility. The experts were given a content validity index form (CVI) for rating each item of AHPS. The CVI, contained a 4-point rating scale (1=not relevant, 4=very relevant). A score for each item on the subscales was determined by the proportion of experts who rated the item as relevant (a rating of 3 or 4). The criterion for retaining an item was at least 80% agreement among experts at the agree or strongly agree level of relevance to the construct. The Turkish version of the AHPS total CVI is 0.80. After making some minor changes in wording, scale was re-tested again on 10 students and the Turkish version of the AHPS was ensured and produced (12).

Data analysis

SPSS (Statistical Package for Social Sciences/ Version 15.0) was used to compute frequencies, percentage distributions, means, standard deviation, as a descriptive data. Hotelling TÇ test, t test, and One way analysis of variance (ANOVA) were used to find out the relations between the scale scores and demographic characteristics. Bartlett's Test of Sphericity (BS) was used to test that a correlation matrix is an identity matrix. Kendall Goodness of Concordance Coefficient and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy value were calculated for the content validity. Reliability analysis, such as Guttman test, Spearman Brown, Cronbach alpha coefficient and item total item correlations were applied to assess the degree of internal consistency and homogeneity between the items. Pearson's correlation coefficient was used to measure the item-scale correlation (13,14). Exploratory factor analysis was carried out for structural validity (12). A level of $p < 0.05$ was considered in determining the level of statistical significance.

Results

Socio-demographic characteristics

Mean and standard deviation age for the students is 14.36 ± 0.78 , and 45.6% of them are girls and 54.4% of them are boys. Severity percent of the students are living in nuclear families. Sixty-one percent of them assessed his/her health status in good level. Only 5.1 percent of the students reported that they used medical drugs routine and 12% of them had an illness diagnosed by a physician.

Validity analysis

In order to provide content validity, the final Turkish form as the instrument was presented to the consideration of experts. Kendall Goodness of Concordance Coefficient ($K=0.80$, $p < 0.05$) showed accordance among the experts. In order to test the internal criterion validity, total scale score of each students were ranked from highest to lowest and means calculated for the 27% percent of highest group and for the 27% of the lowest group were compared by student by applying for student t test. A statistical difference was found between the two group ($t=7.91$, $p < 0.001$).

Bartlett chi-square value was $\chi^2=3112.689$, $df=780$, $p < 0.001$ and for the extent of structure validity for factor analysis, KMO measure of sampling adequacy value was 0.825.

For the structure validity of AHPS, exploratory factor analysis was used, factor structure was investigated

with principle component analysis, varimax rotation and eigen values of component over one were interpretive. Analysis demonstrated 13 factors. Explained variance of the 13 dimensional scale was 58.6%. Scree test was used as a second approach and the plot showed clear cuts at six point. Finally scale with six factors and 40 items explained a 38.48 percent of total variance. Variances of six factors were; 17.0, 5.6, 4.5, 4.1, 3.8, 3.4 respectively. Only seven items (1,2,3,6,15,31,32) had a factor loading less than 0,25. Scale with a six factor and 40 items explained a 38.48% total variance (Table 2,3).

In factor analyses, it is important that items should not be included in more that one factor group. During factor solution it was observed that some items were located in different factor groups' compared to the original scale (12). Researchers decided to settle the items into the most suitable factor groups and the Turkish and form structure of the scale was constructed (Table 2).

Factor 1 is life appreciation (Table 2), and included 10 items (29,27,26,25,34,39,14,40,17,20). This was the strongest factor, explaining the greatest percentage of variance of (17.0%) AHPS.

Factor 2 is health responsibility, and included 15 items (23,22,21,10,11,28,24,15,16,38,18,19,12,3,4). This factor group explained 5.56% of variance of AHPS.

Factor 3 is exercising, included four items (30, 31, 32, 33). This factor group explained 4.51% of variance of AHPS.

Factor 4 is social support, included four items (13,7,8,9). This factor group explained 4.14% of variance of AHPS.

Factor 5 is stress management, included three items (35,36,37). This factor group explained 3.78% of variance of AHPS.

Factor 6 is nutritional behaviors, included three items (1,6,5). This factor group explained 3.43% of variance of AHPS.

Reliability

The total item mean and standard deviation of the overall scale was 3.51 ± 0.50 with item nr. 2 having the lowest mean and standard deviation score (2.18 ± 1.33) and item nr. 19 having the highest mean and standard deviation score (4.62 ± 0.85). The total item means and standard deviations of six factors; the life appreciation, health responsibility, exercising, social support stress management and nutritional behaviors were 36.79 ± 6.70 , 54.09 ± 8.46 , 13.02 ± 3.46 , 13.78 ± 3.37 , 9.38 ± 3.06 , 10.65 ± 2.73 respectively. Mean and standard deviation score for the total scale is 140.69 ± 20.10 with a range of 125 (min 74-max 189).

Hotelling test revealed the values of $T^2=1697.128$, $p<0.001$. The total item correlations of the scale ranged between 0.14-0.52. Any negative value among the item total item correlation coefficients were determined that will discompose the forming of the scale. Seven items had a item total item correlation lower than 0.25 (item 1=0.24, item 2=0.24, item 3=0.14, item 6=0.18, item 15=0.24, item 31=0.19, item 32=0.22). When these items were deleted from the scale, no alterations were determined in Cronbach's alpha values and any changes were calculated in the mean scores of the items (Table 3).

Positive correlation coefficients from 0.01 to 0.05 levels between the scale items and mean score of total scale were determined. Positive correlation coefficients were determined ($p<0.001$ $r=0.25$) between life-style factor group and the total scale score, ($p<0.001$ $r=0.25$) between health responsibility and the total scale score, and ($p<0.001$ $r=0.20$) between exercise and the total scale. Correlation coefficients determined between stress management ($p<0.05$ $r=0.12$) and the total scale score and between nutrient ($p<0.001$ $r=0.40$) and the social support ($p<0.05$ $r=0.10$). The highest correlation is between the item nb. 4 and the total mean score of the scale ($p<0.001$ $r=0.19$).

Split half technique was used also to test AHPS's internal consistency. In this approach, alpha coefficient for the first half (20 items) was 0.71 and for the second half was 0.81. Cronbach's alpha coefficient of the total scale was 0.86 (Table 1). Cronbach alpha coefficients of factor groups; social support, life appreciation, health responsibility, stress management, nutritional behaviors, exercising were 0.60, 0.74, 0.71, 0.67, 0.51 and 0.50 respectively. (Table 1,2). Guttman split half value was 0.78 and Spearman Brown value was 0.79.

Discussion

Validity is the degree to which an instrument measures what it is supposed to be measuring (13,15,16). According to Akgül (1997), validity is the degree of service to goal. In designing the Turkish form, it was aimed to organize the statements well-adjusted to the structure of Turkish sentence so that Turkish students could understand. For that reason, statements were adapted instead of translating directly (17).

It is desired to obtaine as much as a value of 1 for Kendall concordance (12). It is recommended to get a value over 0.80 (18). In the study Kendall concordance value which was found as 0.80, revealed accordance among the experts.

BS test is used to test that a correlation matrix is an identity matrix and consequently it serves to decide whether it is suitable to use or not the factor model (17, 19). Observed chi-square value was $\chi^2=3112.689$, $df=780$, $p<0.001$. KMO index was used for sample adequacy. This index compares observed correlation coefficient and the magnitude of partial correlation coefficients (17). The closer the KMO is to 1 the more suitable a set of variables will be for factor analysis. A value of 0.90-1.00 demonstrates a perfect KMO measure of sampling adequacy (12). In this study the overall value of the KMO for this data set was 0.825. BS and KMO indicated that the correlation matrix would be suitable for a factor analysis (12,17).

Factor analysis is a statistical procedure for reducing a large set of variables into a smaller set of variables by identifying underlying dimensions (13). Erkuş recommends using factor analysis in the cultural adaptation of a scale (16). Perception of the dimensions of a scale which is

developed for a culture may not be perceived in the same dimensions in a community that the scale will be adapted. In some occasions, some items may be discarded from the scale, but at the same time it is anticipated the factor structure not to be changed too much (11). Factors, with factor loadings with an eigen value over one are generally interpreted in deciding the number of the factors of a scale. KMO-normalization, scree plot are the methods in determining the factors (12).

In order to test the construct validity of AHPS, factor structure was examined by applying principle component analysis, with varimax rotation method and the components with an eigen value of over one were interpreted. According to the principle component analysis, 9 factors were determined with an eigen value of over one. Some items associated with one factor might be perceived and be sensible as a characteristic of a different factor in different culture. By including the

Table 1. Number of Items in Sub-Groups AHPS, Mean, Cronbach Alpha

Sub-Groups	Number of Items	Original Scale Number of Items	Original Scale Item Numbers	Mean	Turkish Form Coefficient	Original Scale Coefficient
Life Appreciation	10	8	23, 24 22, 25 29, 27 28, 26	36.79±6.70	0.74	0.83
Health Responsibility	15	9	14, 17 20, 21 16, 18 15, 34, 19	54.09±8.46	0.71	0.87
Social Support	4	7	9, 8, 7 12, 13, 11, 10	13.78±3.37	0.60	0.78
Nutritional Behaviors	3	6	1, 6, 5, 3, 2, 4	10.65±2.73	0.51	0.77
Exercising	4	4	31, 32 33, 30	13.02±3.46	0.50	0.75
Stres Management	3	6	37, 36 35, 39 40, 38	9.38±3.06	0.67	0.74
Total Scale	40	40		140.69±20.10	0.86	0.93

items into the most suitable factors, a structure with six factors was determined for AHPS. Although there is not a definite limitation for an item loading, that it should reach to be included in a factor, generally loadings between 0.30 and 0.40 are anticipated (12). Items' loading of Turkish form of AHPS ranged between 0.13-0.51 and were evaluated proper to be included in factors.

Chen and at all, reported that in their study they found 9 factors and %56.4 of explained variance. In their study Chen and at all determined 51.4% total variance for the scale with six factors solution 6.

In our study, Turkish form of the instrument with six-factor solution explained a 38.4% of variance. The six-factors were;

Factor 1 is life appreciation (Table 2). This was the strongest factor, explaining the greatest percentage of variance of AHP. Make an effort to understand my strengths, weaknesses and accept them, make an effort to know what's important for me, make an effort to audit

my own defects and correct often, make an effort to understand my strengths, weaknesses and accept them, make an effort to stand or sit straight, make schedules and set priorities, read food labels at every purchase, use adequate responses to unreasonable issues, observe my body at least monthly, search for health information.

Factor 2 is health responsibility. This was 5.56% percentage of variance of AHP. Make an effort to feel happy and content, make an effort to like myself, make an effort to choose foods without additives, make an effort to smile or laugh everyday, enjoy keeping in touch with relatives, make an effort to feel interesting and challenge every day, make an effort to feel growth in a positive direction, make an effort to moderate my body weight, discuss my health concerns with health personal, sleep 6-8 hr each night, brush my teeth and use dental floss after meals, wash hands before meals, maintain good interpersonal relationship, include dietary fiber, drink at least 1.500 cc of water daily.

Table 2. Factor Analyses of the AHPS Scale and Six Factor Groups

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
	Life Appreciation	Health Responsibility	Exercising	Social Support	Stres Management	Nutritional Behaviors
Item Numbers	29	23	30	13	35	1
	27	22	31	7	36	6
	26	21	32	8	37	5
	25	10	33	9		
	34	11				
	39	28				
	14	24				
	40	15				
	17	16				
	20	38				
		18				
		19				
		12				
		3				
		4				
Eigenvalue	6.8	2.2	1.8	1.6	1.5	1.3
Explained Variance	17.03	5.56	4.51	4.14	3.78	3.43
Sub-groups Cronbach Alpha	0.74	0.71	0.50	0.60	0.67	0.51

Factor 3 is exercising. This was 4.51% percentage of variance of AHP. Perform stretching exercise daily, exercise rigorously 30 min at least 3 times per week, participate in physical fitness class at school weekly, and warm up before rigorous exercise.

Factor 4 is social support. This was 4.14% percentage of variance of AHP. Talk about my troubles with others, express my caring and warmth to others, concern about and keep in touch with others, discuss my concerns with other.

Factor 5 is stress management. This was 3.78% percentage of variance of AHP. Make an effort to spend time daily for muscle relaxation, make an effort to determine the source of each stress that occurs; make an effort to monitor my emotional changes.

Factor 6 is nutritional behaviors. This was 3.43% percentage of variance of AHP. Eat three regular meals, eat breakfast daily, and include five food groups in each meal.

In Turkish form, some items placed in different factor groups comparing to the original scale. For example item 14, drink at least 1.500 cc of water daily placed in the factor nutritional behaviors in the original scale, but in the Turkish form, it was in the factor of health responsibility. This difference may be due to the fact that students perceived this nutritional behavior as health behavior for health promotion. The differences obtained in the study results might be due to the socio-cultural discrepancies.

In our study mean score for the total scale and its standard deviation was 140.69 ± 20.10 . (Max 189- Min 74).

Hotelling's T-square is a statistic for a multivariate test of differences between the mean values of two groups. The value obtained from the Hotelling ($T^2=1697.128$, $p<0.001$) indicated that the mean item scores in the scale were different, the items were not perceived and answered in the same manner by the respondents and items had measuring capacities, and that each item on the scale should definitely be placed in the scale (14).

The reliability of an instrument refers to the extent to which an instrument is internally consistent, that is the instrument's components measure the same thing. In examining the reliability of the scale, whether the items of the scale contributed to the total scale score or to what extent, they had a relation with the whole have been assessed with the total item correlation coefficient (12,14,15). It was determined that the correlation coefficients of the items had positive, moderate and

strong values. When the relation among the item total score correlations of the scale was analyzed, it was found to be statistically significant at alpha 0.01 level. All items demonstrated moderate and strong correlations with the total score.

Chen et al, determined a 0.93 Cronbach's alpha coefficient for the AHPS total scale and Cronbach's alpha coefficients for the factor groups; social support 0.83, life appreciation 0.87, health responsibility 0.78, stress management 0.77, nutritional behaviors 0.75 and exercising 0.74 (6). In our study, we determined a 0.86 Cronbach's alpha coefficients for the Turkish form total scale of AHPS and for subscale; social support 0.60, life appreciation 0.74, health responsibility 0.71, stress management 0.67, nutritional behaviors 0.51 and exercising 0.50 (Table 1,2). Cronbach's alpha coefficient demonstrates a strong internal reliability. Lower Cronbach's alpha coefficients determined for nutrition and exercise may be due to number of items included in these two factor group. Since that items such as "I eat three meals daily, eat breakfast daily, talk about my troubles to others" are the expression that are perceived acceptable might fall the internal consistency. The Cronbach alpha coefficient of the Turkish AHPS was determined to be 0.86 which indicated that the items had a relationship among themselves and served the whole measuring instrument; had equal weight, in other words, the scale was homogeneous and that the test measurement were reliable (11,15). In our study consequently Turkish version of AHPS was found quite reliable and valid.

Conclusions

At the conclusion of psychometric measurements, The Turkish version of AHPS, was found to be valid and reliable for use Turkish students. These results supported the study hypothesis.

Utilizations in Implementation of Conclusion

Nurses in primary health care services and school health nurses in the schools could use this instrument as an assessment tool inadequate to find out health behaviors of the children. So they can arrange health education and counselling programs.

Implications for Future Research and Practice

Additional research in different aged and socio-cultural groups with sample large enough to permit Confirmatory Factor Analysis is recommended in order to validate and refine this newly adapted instrument and it would strengthen the generalizability of the scale.

Table 3. Item Total Items Correlation and Item Total Item Correlation of Item Deleted		
Items	Item Total Items Correlation	Item Total Item Correlation of Item Deleted
1- I eat three meals daily	0.24	0.85
2- I choose foods without too much oil	0.24	0.85
3- Include dietary fiber (e.g. fruits or vegetables)	0.14	0.86
4- Drink at least 1500 cc of water daily (or 6-8 cups)	0.29	0.85
5- Each meal includes five food groups (e.g. Bread, meat, milk, fruit, vegetable)	0.26	0.85
6- Eat breakfast daily	0.18	0.86
7- I speak up & share my feelings with others	0.30	0.85
8- I care about other people	0.29	0.85
9- I talk about my concerns with others	0.33	0.85
10-Make an effort to smile or laugh every day	0.30	0.85
11-Enjoy keeping in touch with relatives	0.36	0.85
12-Make effort to have good friendships	0.41	0.85
13-Talk about my troubles to others	0.32	0.85
14-Read food labels when I shop	0.41	0.85
15-I watch my weight	0.24	0.86
16-Discuss my health concerns with a doctor or nurse	0.34	0.85
17-Observe my body at least monthly	0.38	0.85
18-Brush my teeth and use dental floss after meals	0.31	0.85
19-Wash hands before meals	0.29	0.85
20-Read health information	0.40	0.85
21-Make an effort to choose foods without preservatives (e.g. an additives on food)	0.33	0.85
22-Make an effort to like myself	0.46	0.85
23-Make an effort to feel happy and content	0.49	0.85
24-I usually think positively	0.44	0.85
25-Make an effort to understand my strengths, weaknesses and accept them	0.42	0.85
26-Make an attempt to correct my defects	0.44	0.85
27-Make an effort to know what's important for me	0.43	0.85
28-Make an effort to feel interesting and challenged every day	0.33	0.85
29-Make an effort to believe that my life has purpose	0.44	0.85
30-Perform stretching exercise daily	0.39	0.85
31-Exercise rigorously 30 minutes at least 3 times per week	0.19	0.86
32-Participate in physical fitness class at school weekly	0.22	0.85
33-Warm up before rigorous exercise	0.32	0.85
34-Make an effort to stand or sit up straight	0.38	0.85
35-Make an effort to spend time daily for relaxation	0.49	0.85
36- Make an effort to determine the source of my stress	0.46	0.85
37-Make an effort to watch my mood changes	0.52	0.85
38-Sleep for 6-8 hours each night	0.34	0.85
39-Make schedules and set priorities	0.43	0.85
40-I try not to lose control when things happen that are unfair	0.32	0.85

References

1. WHO 2008. Available at: http://www.who.int/topics/adolescent_health/en/ Accessed December 29, 2009.
2. Stefansdottir KI, Vilhjalmsón R. Dimensions of Health-Related Lifestyle in Young Adulthood: Results from a National Population Survey. *Scand J Caring Sci* 2007;21:321-8.
3. Ercan O, Alikasifoglu M, Erginoz E, Janda J, Kabıcek P, Rubino A et al. Demography of Adolescent Health Care Delivery and Training in Europe. *Eur J Pediatr* 2009;168:417-26.
4. Johansen A, Rasmussen S, Madsen M. Health Behavior among Adolescents in Denmark: Influence of School Class and Individual Risk Factors. *Scand J Public Health* 2006;34:32-40.
5. WHO/Europe 2005. The european strategy for child and adolescent health and development Available at: <http://www.euro.who.int/childhealthdev>. Accessed November 12, 2009.
6. Chen MY, Wang EK, Yang RJ, Liou YM. Adolescent Health Promotion Scale: Development and Psychometric Testing. *Public Health Nurs* 2003;20:104-10.
7. Chen MY, Wang EK, Chang CY. Cross-Validation and Discriminant Validity of Adolescent Health Promotion Scale Among Overweight and Nonoverweight Adolescents in Taiwan. *Public Health Nurs* 2006;23:555-60.
8. Flaherty JA, Gaviria FM, Pathak D, Mitchell T, Wintrob R, Richman JA et al. Developing Instruments for Crosscultural Psychiatric Research. *J Nerv Ment Dis* 1988;176:257-63.
9. U.S. Census Bureau. Language Translation of Data Collection Instruments and Supporting Materials 2001. Available at: <http://www.census.gov/cac/www/007585.html> Accessed November 29, 2007.
10. Weeks A, Swerissen H, Belfrage J. Issues, Challenges, and Solutions in Translating Study Instruments. *Eval Rev* 2007;31:153-65.
11. Gözüm S, Aksayan S. Kültürlerarası Ölçek Uyarlaması İçin Rehber II. *Psikometrik Özellikler ve Kültürlerarası Karşılaştırma. Hemşirelik Araştırma Geliştirme Dergisi* 2003;5:3-14.
12. Tavşancıl E. Tutumların Ölçülmesi ve SPSS ile Veri Analizi, 2. Basım. Ankara: Nobel Basımevi, 2002.
13. Polit DF, Beck CT, Hungler BP. *Essentials of Nursing Research Methods, Appraisal, and Utilization*. Fifth edition. Philadelphia: Lippincott, 2001.p.416-87.
14. Özdamar K. Paket Programlar ile İstatistiksel Veri Analizi. ETAM A.Ş. Matbaa Tesisleri. Eskişehir, 2004.p.168-92.
15. Tezbaşaran AA. Likert Tipi Ölçek Geliştirme Kılavuzu. Özyurt Matbaası. Türk Psikologlar Derneği Yayınları, 1996.p.26-8.
16. Erkuş A. *Psikometri Üzerine Yazılar*. Birinci Basım, Türk Psikologlar Derneği Yayınları, Ankara, 2003.p.211-24.
17. Akgül A. *Tıbbi Araştırmalarda İstatistiksel Analiz Teknikleri SPSS Uygulamaları*. Yükseköğretim Kurulu Matbaası, Ankara, 1997:22-67.
18. Büyükoztürk Ş. *Sosyal Bilimler İçin Veri Analizi El Kitabı*. 8. Baskı, Pagem A Yayıncılık, Ankara, 2007.p.123-48
19. Polit DF. *Data Analysis & Statistics for Nursing Research*, A Simon & Schuster Company, Connecticut, 1996.p.211-34.