

VALIDITY AND RELIABILITY OF THE TURKISH VERSION OF HEALTH PROTECTIVE BEHAVIOR SCALE

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ABSTRACT

Purpose: The aim of this study is to perform the Turkish adaptation study of the Health Protective Behavior Scale.

Methods: This was a methodological study that was conducted between August 2020 and September 2020. The sample of the study consists of 384 individuals aged 18-59 living in the city center of Kayseri. In this study, "Descriptive Information Form" and "Health Protective Behavior Scale (HPBS)" were used as data collection tools. The reliability of the scale was evaluated by internal consistency, Pearson correlation, and test-retest reliability. The construct validity of the scale was tested by exploratory factor analysis and confirmatory factor analysis.

Results: According to the results of the explanatory factor analysis, 40.748% variance was explained in 4 dimensions in the scale. In the confirmatory factor analysis, a four-dimensional structure was found to fit well ($X^2/df=2.213$ RMSEA=0.056). As a result of the reliability analysis of the scale, it was found that the internal consistency coefficient was $\alpha = .82$ and the test-retest reliability was $r = .81$.

Conclusion: It has been determined that HPBS is a valid and reliable measurement tool to determine health protective and development behaviors.

Keywords: behavior, health, protective, reliability, validity

INTRODUCTION

Public health experts have emphasized the importance of healthy living behavior, especially in the last decades (1, 2). According to the World Health Organization (WHO) report, at least half of the disease burden in the world and Turkey occur due to unhealthy lifestyle behaviors. Unhealthy life behaviors consist of behaviors such as smoking, lack of exercise, environmental pollution and excessive fat consumption (3, 4). Many studies show that most diseases can be prevented by transforming unhealthy life behaviors into healthy ones (5, 6). For these

reasons, researchers have attached importance to how to determine and measure healthy lifestyle behaviors that affect people's health (7). With this reliability and validity research, it is aimed to accurately measure the health protective behavior of people in Turkey accurately.

The philosophy of Pender's health promotion model takes the human as a holistic approach. However, the pieces should be examined in context. In addition, the health promotion model defines the human as a biopsychosocial entity that can be shaped by the main focus of the model, its environment, life

experiences and individual characteristics (8). According to the health promotion model, the better the environment, life experience and individual characteristics that are effective in protecting and improving the health of people are analyzed and the factors that negatively affect health behavior are recognized, the easier it is to transform negative health behavior into positive. The role of the nurse in Pender's health promotion model includes supporting the behavior change of individuals, controlling the environment, managing change barriers, and increasing awareness with health promotion behaviors (9). With this research, it is aimed to determine the personal and environmental effects that affect the health of individuals and to guide nursing researchers.

When the literature was reviewed, many scales were observed that measure healthy life styles (8, 10, 11). On the other hand, when the scales measuring the health protective behaviors of individuals were investigated, no scale was found except for the health protective behavior scale developed by Ping et al. in 2018, whose reliability and validity were made only in this study (7). The scale, which is the most widely used among healthy lifestyle behaviors studies, was developed by Walker in 1987, revised in 1996, and was named "Healthy Lifestyle Behaviors Scale II", whose Turkish validity and reliability were provided by Bahar in 2008. The revised version of the healthy lifestyle behaviors scale consists of 52 items and factors such as self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management (8). This scale focused on the effect of culture on healthy lifestyle behaviors of individuals and tried to measure health protective behaviors with a single factor. With this research, it was aimed to measure health protective behaviors with a single scale.

Health protective behaviors consist of five dimensions. These are the environment, behavior, lifestyle, genetic factors and health care (12). There are five important factors that explain these dimensions. These are personal security, social security, ecological environment, sustainable resources and social justice (13). It is seen that Health protective Behavior Scale (HPBS) developed by Ping covers all dimensions to measure the health protective behavior of people in the 18-59 age group.

METHODS

Aim

The aim of this study is to perform the Turkish adaptation study of the Health protective Behavior Scale (HPBS). Accordingly, the psychometric properties of the Turkish form of the scale are examined.

Design

This research is a methodological instrument validation research.

Translation

The study form developed by the World Health Organization has been translated and adapted in this study (14). HPBS was translated into Turkish independently from English by a linguist who is fluent in both Turkish and English. In order to reveal insufficient expressions and inconsistencies in the translation, the translations of the scale were translated from Turkish to English by 10 people who are at least PhD graduates in the field of Public Health Nursing and are experts in both English and Turkish languages. Finally, item-based comparisons were retranslated by an expert (third author) to ensure the conceptual and linguistic appropriateness of the translation, and the suitability for scale adaptation between the English text and the original text was investigated. Nursing experts from public health nursing examined the content validity of HPBS. Some changes have been made in the adaptation of HPBS to the Turkish version. Every change made for HPBS is based on expert review. The content validity of the study was evaluated according to the opinions of the experts. Experts evaluated the feasibility and suitability of the items in the scale from 1 (not suitable) to 4 (very suitable) as follows: 1: not suitable, 2: needs revision, 3: suitable but needs minor modifications, 4: very suitable. The CVI of the scale, calculated by dividing the number of items evaluated as 3 or 4 by the total number of items, and a value greater than 80% was accepted as the standard to test the expert validity (15). For HPBS, this ratio was found to be 91.58.

Pretesting

Data collection tools were tested on 10 participants who were not included in the research sample before the study. At the end of the test, the deficiencies were

corrected in line with the recommendations of the participants and the final version of the data collection tool was applied to the sample group.

Sample/participants

The target population of this research consists of individuals between the ages of 18-59 living in the province of Kayseri. In order to evaluate the scale, 384 people were determined by accidental sampling method, to be at least ten times the number of items in the scale (17).

Data collection

The data collection phase of the research took place between 20 August 2020 and 20 September 2020. As a data collection tool, face-to-face interview method was used with 384 people who agreed to participate in the study. The data were collected by this method. It took approximately 20-25 minutes for the data collection tool to be filled by the participants. After the research data was collected, the data collection form was applied to 30 people from the same sample group who agreed to participate in the study for the test-retest phase.

Data collection tools

In this study, "Descriptive Information Form" and "Health Protective Behavior Scale (HPBS)" developed by Ping et al. were used as data collection tools.

Descriptive information form

Descriptive Informative Form, which is based on the literature (18), was used in this research. There are questions in Descriptive Informative Form that evaluate the socio-demographic characteristics of the participants (age, gender, education level, marital status, evaluation of their health status, health status experienced in the last month, chronic disease and income level).

Health Protective Behavior Scale (HPBS)

HPBS was developed by Ping et al. (2018) with 32 items and five dimensions. The sub-dimensions of HPBS are interpersonal support, general behavior, self-knowledge, nutritional behavior and health care. Cronbach alpha coefficient of HPBS is 0.89 and test-retest reliability is 0.89. The correlation coefficients of the five dimensions range between 0.28 and 0.55. The data of HPBS were collected from 454 participants between the ages of 18-59. HPBS

consists of 27 items with fivepoint likert (1 = never, 2 = rarely, 3 = sometimes, 4 = usually, 5 = always) and consists of 5 items with a binary likert consisting of "yes, no" answers. There is no reverse item in the scale. The scores that can be obtained from the scale have a possible range of scores between 32 and 145 (7).

Data analysis

SPSS 22.0 and LISREL 8.7 programs were used for the validity and reliability analysis required during the development of the scale. In order to determine the construct validity of the scale, KMO and Bartlett tests were analyzed and it was decided whether to perform factor analysis within the scope of the value found. Exploratory factor analysis was conducted in the light of the data obtained. The determination of how many factors the scale is divided into was determined by principal component analysis. The theoretical relationship between the sub-dimensions of the scale was determined by the Direct Oblim's oblique rotation technique. The analyzes were repeated by removing the items with a factor load of less than 0.30 and close to each other in different factors (19). Confirmatory factor analysis was performed to verify the factors of the scale, which was determined to consist of four factors with the exploratory factor analysis. Internal consistency coefficients were examined to determine the reliability of the scale. Cronbach's Alpha reliability coefficient was calculated in determining the internal consistency level.

Ethical considerations

In this study, written consent was obtained from the participants who volunteered for the study, through the informed consent form. In addition, the ethics committee approval was obtained from the Erciyes University Social and Humanities Ethics Committee (28 July 2020, approval no. 109) in order to conduct the study.

RESULTS

Sociodemographic characteristics of individuals

The average age of the participants is 34.36 (SD: 11.76). More than half of the participants are women (51.8%), undergraduate and higher education level (64.1%) and married (52.9%). More than half of the participants reported good health (64.6%). Approximately four-fifths of the participants did not have a chronic disease (84.4%) and did not experience any health problems in the last month

Table 1. Socio-Demographic Features (N= 384)

		n	%	
Gender	Male	185	48.2	
	Female	199	51.8	
Education level	Illiterate	6	1.6	
	Primary education	71	18.5	
	High school	61	15.9	
	Undergraduate and above	246	64.1	
Marital status	Single	181	47.1	
	Married	203	52.9	
Health status	Good	248	64.6	
	Bad	13	3.4	
	Average	123	32.0	
Having a health problem in the last month	Yes	79	20.6	
	No	305	79.4	
Chronic illness	Yes	60	15.6	
	No	324	84.4	
Level of income	Income More Than Expense	162	42.2	
	Income Equals Expense	192	50.0	
	Income Less Than Expense	30	7.8	
Occupation	Worker	40	10.4	
	Unemployed	147	38.3	
	Officer	104	27.1	
	Self-employment	93	24.2	
	n	Min-Max	Average	SD.
Age	384	19-59	34.36	11.76

(79.4%). Almost half of the participants are civil servants (27.3%) and self-employment (24.2%) (Table 1).

Validity analysis

Content validity analysis

In the Turkish validity phase of the scale, an expert's opinion was obtained from experts in two fields, and the Turkish form of the scale was administered to the participants as 32-item five-point likert (1 = never, 2 = rarely, 3 = sometimes, 4 = usually, 5 = always). In addition, the final version of the scale items was obtained by taking expert opinions from 10 experts in the field, each with a doctorate degree for the cultural validity.

Construct validity

In this study, first exploratory (EFA) factor analysis and then confirmatory (CFA) factor analysis were performed to ensure the construct validity of the scale. AFA was performed with the SPSS 22.0 program. CFA was performed with the LISREL 8.7 program.

Exploratory factor analysis (EFA)

KMO and Barlett test results were examined to determine whether factor analysis could be performed on the scale. The Kaiser-Meyer-Olkin (KMO) value must be significant in order to perform exploratory factor analysis on the data. KMO value

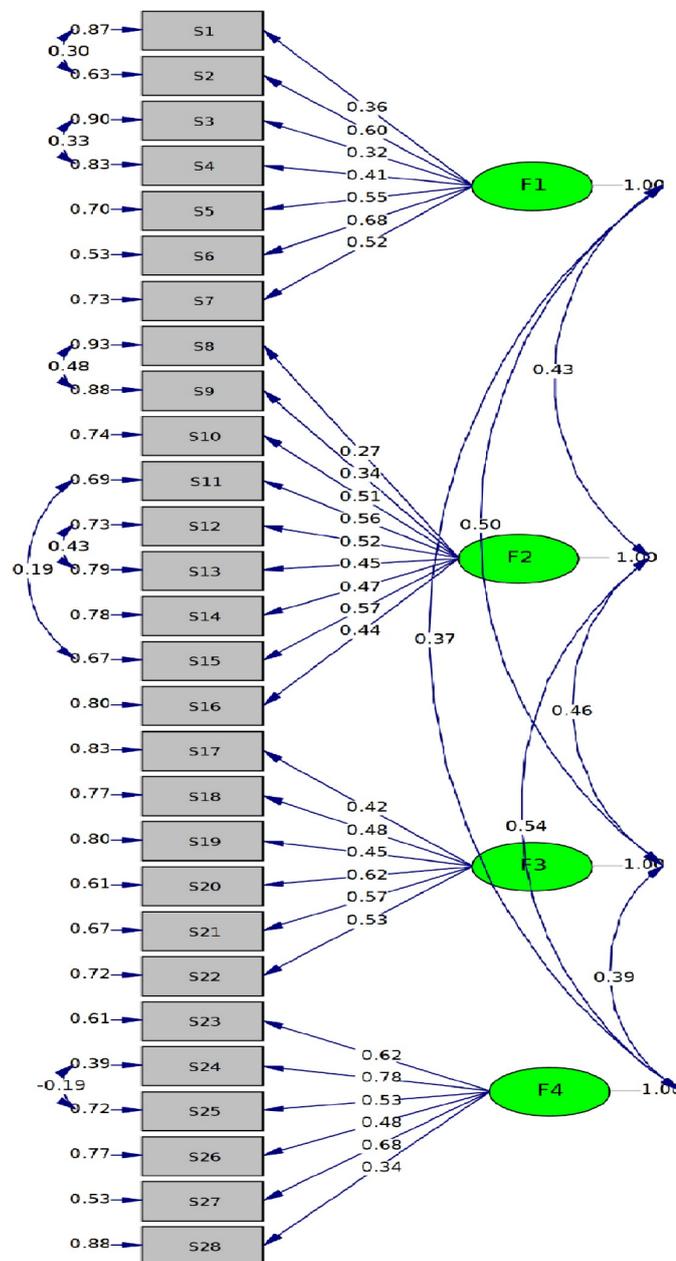
higher than 0.60 indicates that the data are normally distributed (20).

As can be seen in Table 2, KMO value was found to be 0.79. Therefore, the value found indicates that factor analysis can be carried out and the sample is sufficient (21). The Bartlett's test results given in Table 2 also confirm this situation as they are statistically significant.

Factor loadings are the basic criteria that make sense of the relationship between items and variables and factors in the evaluation of factor analysis results (22). Having high factor loadings is considered as an

indicator that the observed variable can be found under the specified factor (16). While performing factor analysis, "Principal Component Analysis" technique is frequently used to reveal how many factors the items in a scale will be divided into (16, 21). On the other hand, the Direct Oblim's oblique rotation technique can also be used when it is assumed that there is a relationship between the sub-dimensions of the scale (20).

Inference value indicates the item variance explained by each item. The common variance value explained by each item is desired to be at least 0.10 (20).



Chi-Square=748.09, df=338, P-value=0.00000, RMSEA=0.056

Figure 1. CFA results PATH diagram

Table 2. KMO and Bartlett's Test Results

Kaiser-Meyer-Olkin adequacy	sampling	0.79
Bartlett's Test of Sphericity	Approximate Chi-Square	2866.34
	Df	378
	Significance Value	0.00

Therefore, an item was excluded from the scale since the inference value of it was below 0.10. As a result of the analysis, a structure with four factors has been reached. If an item goes under more than one item and the difference between the load numbers of these two items is less than 0.10, it means that the item is overlapping (21). For this reason, the structure was limited to four factors and 28 items by conducting a second analysis since the 3 items were overlapped. While naming the factors, the semantic appropriateness of the contents of the items is checked by taking into account the factors under which they are collected (23). The sub-dimensions of the original scale consist of Interpersonal support, General behavior, Self-knowledge, Nutrition behavior and Health care. As seen in Table 3 as a result of the Turkish reliability validity EFA of the scale, the General and Nutrition behavior sub-dimensions were collected in one sub-dimension, and this factor was named as General and Nutrition behavior by taking expert opinion.

The factor loads of the items collected under the factors in the scale were examined and the findings are given in Table 3. The factor loading of the item under a factor must be at least 0.30 (19). From this point on, when Table 3 was examined, it was seen that all factor loads are above 0.30. Table 3 shows the total variance values explained for the items. When Table 3 was examined, it was seen that the items and factors within the framework of the scale explained 40.74% of the total variance. In this context, it is stated that 40% of the variance amount is sufficient (16). Moreover, the fact that the total variance ratio of the scale is between 40% and 60% indicates that the factor structure is strong (16, 24). In addition, the Item Total Correlation value should be at least 0.30. When Table 3 was examined, it is seen that all values were higher than 0.30.

Confirmatory factor analysis (CFA)

CFA is used to determine the structural suitability of the original data in the possession of the researcher

(20). Confirmatory factor analysis was performed using LISREL 8.7 program to prove the accuracy of these factors. With this analysis, the results of the confirmed items are given in Figure 1 with the modification of items 1-2, 3-4, 8-9, 11-15, 12-13, 24-25. Therefore, this value can be said to be acceptable for analysis. In addition, it has been determined that the RMSEA (0.080) value is between 0.050 and 0.080, which is within the acceptable limit (20). In order to say that the factors are verified, fit indices should also be checked. If it is determined that the model fit indices obtained in this study are in the desired range or value, the four-factor structure is confirmed. CFA is applied to the study, the results were found as follows.; $\chi^2 = 748.09$, $df = 338$, $p = .00$, goodness-of-fit index = .91, root mean square error of approximation = .056 and Standardized RMR = .070, comparative fit index = .91, normed fit index = .86. These data obtained from the research are within acceptable limits of compliance (20). The fit indices of this research are given in Table 4.

Reliability analysis

Item analysis and internal consistency results

Health Protective Behavior Scale (HPBS) item analysis was performed. The internal consistency coefficient (Cronbach's alpha) of the scale was found to be .821. This value shows that the internal consistency coefficient of the scale is strong (25). The subscale Cronach values of the scale are as follows: .722 (Interpersonal support), .733 (General and nutritional behavior), .676 (Health care), .719 (Self-knowledge). These values show that the internal consistency of the scale is appropriate (Table 5).

Test-retest reliability

For retest reliability, 30 participants of the scale were retested two weeks later. Correlations between the two-week interval and scale total score and sub-dimensions were calculated. It is recommended that the correlation value be greater than or equal to .80 in the total of the scale (25). Test-retest validity of

Table 3. Factor analysis of the Turkish version The Reliability and Validity of Health protective behavior scale

Items	Factor Loads of Sub Scales				Item Total Correlation
	Interpersonal support	General and Nutrition behavior	Health care	Self-knowledge	
3. get help from others	.726				.402
6. do something to change anxiety	.675				.542
4. take other's advice pleasureably	.644				.428
2. self-relaxation	.643				.548
1. Enjoy the pleasure at free time	.583				.394
5. keep calm in key moment	.502				.384
7. try best to solve problems	.355				.346
9. protect skin under sunshine		.688			.441
8. be far from smoking		.668			.383
13. control sugar		.659			.477
12. control salt		.590			.477
11. get enough sleeping		.500			.481
15. eat vegetable every day about 250g-500g		.474			.454
14. replacing animal fat with vegetable oil		.426			.340
10. eat fruit every day about 250g		.336			.378
16. keep weight		.320			.326
24. know the value of blood sugar			.784		.555
27. know the value of blood pressure			.721		.546
23. do physical examination regularly			.699		.527
26. learn method coping with disaster and Emergency			.511		.424
28. use water purifying plant			.499		.332
25. Income enough for general consumption			.420		.399
18. discard drug out of date				.662	.416
17. know harm about intermarriage				.662	.375
20. use seat belt				.595	.490
19. take doctors guide for medicine				.557	.365
21. use protective measures in workplace				.508	.439
22. worry for food safety				.476	.395
Total Variance	%18.934	%8.396	%7.065	%6.353	
Total Variance:	%40.748				

HPBS was re-tested one month later. Correlation was calculated as a result of the retest. The correlation value of HPBS is .812. We are presented the test-retest values of this research in Table 6.

DISCUSSION

In this study, HPBS verifies healthy protective behavior in Turkish individuals and evaluates their psychometric properties. In this context, the reliability and valid scale of the scale is a five-point Likert type and consists of 28 items under four factors. When the literature is reviewed, it is seen that there are many studies that measure healthy lifestyles (8, 10, 11). On the other hand, when the scales measuring the health protective behaviors of individuals were investigated, no scale was found except for the health protective scale, which was developed in 2018 by Ping, whose reliability and validity was only performed in this study.

At the beginning of the study, 32 items, which was the item number of the original scale, were applied to the participants. However, in reliability and validity studies, scale items and sub-dimensions of the scale may have different meanings from culture to culture and from region to region. As a result of the factor analysis performed in this study, these items were excluded from this Turkish reliability scale because the factor load of one item was low (easily adapt to a new environment) and all three items were loaded on more than one factor (persuade other to quit smoking, wear a mask in the hazy or wind weather, do physical activity every day 30 min or more). This situation is expected in scale reliability and validity studies. The original structure of HPBS consists of five sub-dimensions (Interpersonal support, General behavior, Self-knowledge, Nutrition behavior, Health care). In the exploratory factor analysis conducted as a result of this study, items related to behavior in the original scale were collected in a single sub-dimension in Turkish reliability validity. This sub-dimension was named as General and Nutrition behavior by taking

expert opinion. This situation can be observed in scale reliability and validity studies. As a result of the factor analysis performed in this study, a scale with 28 items and four sub-dimensions (Interpersonal support, General and Nutrition behavior, Self-knowledge, Health care) was obtained.

KMO value in the study was found to be 0.79. KMO test can be seen as an indicator of sampling adequacy (20). A high KMO value indicates that each variable in the scale has a very good predictability by other variables and factor analysis can be made. KMO value over 0.70 indicates that factor analysis can be performed (26). Both exploratory and confirmatory factor analysis were performed to determine the factors. When the variance ratios of the items in the factors, eigenvalues and loads of the factors are examined, it can be stated that the scale is valid within the scope of the structure. In this context, it is stated that it is sufficient for the items in the scale to explain at least 40% of the total variance and to have factor loads higher than 0.30 (21). Confirmatory factor analysis was performed to verify the factors of the scale, which was determined to consist of four factors with the exploratory factor analysis. As a result of the analysis, it was seen that the data obtained in the exploratory factor analysis were confirmed. Therefore, it can be said that each item and factor in the scale has the purpose of measuring the feature that is desired to be measured within the scope of the scale.

Cronbach's Alpha reliability coefficients were examined for the internal consistency of the scale. Cronbach's Alpha internal consistency coefficient was found to be 0.82 for the current scale. Cronbach's Alpha internal consistency coefficient of the original scale is 0.89. It is seen that the Cronbach's Alpha value of both the sub-dimensions and the scale and the values of the scale whose reliability and validity was applied in this study are close to each other. Therefore, it can be said that the internal consistency coefficient of this scale, whose reliability and validity

Table 4. Findings of the Health Protection Behavior Scale Compliance Criteria

Modification	X ² /df	p	RMSEA	CFI	GFI	AGFI	NNFI	NFI	RMR	SRMR
Before	3.622	0.000	0.079	0.83	0.88	0.84	0.81	0.77	0.097	0.078
After	2.213	0.000	0.056	0.91	0.91	0.88	0.90	0.86	0.067	0.070

Abbreviations; CFI, comparative fit index; df, degree of freedom; GFI, goodness of fit index; NFI, normed fit index; RMSE, root mean square error of approximation; χ², chi-square.; RMR, Root Mean Square Error; SRMR, Standardized Root Mean Square Error.

Table 5. Cronbach's alpha Values of Health Protective Behavior Scale (HPBS)

Sub Dimensions	Cronbach's alpha
Interpersonal support	.722
General and nutritional behavior	.733
Health care	.676
Self-knowledge	.719
Total of the Scale	.821

Table 6. Test – retest reliability values

Sub Dimensions	Test Retest (r)	p
Interpersonal support	.761	<.001
General and nutritional behavior	.711	<.001
Health care	.708	<.001
Self-knowledge	.741	<.001
Total of the Scale	.812	<.001

r=Pearson correlation test. p< .001

has been conducted, is good. While examining the reliability coefficients, the reliability of each item's factors was analyzed. Within the scope of the results obtained, it can be said that the scale can make reliable measurements. As a matter of fact, a reliability coefficient of 0.70 and above indicates that the scores obtained from the scale are reliable (27). Separate or total scores can be calculated for each item in the HPBS Scale. The minimum score that can be obtained with HPBS is 28, and the maximum score is 140. The lowest HPBS score from the people participating in this research is 66 and the highest score is 132. Having a high HPBS score indicates that individuals' health protective behavior levels increase, and a low score indicates that their health protective behavior levels decrease.

Study limitations

There are some limitations of this study. Collecting data from a single province is a limitation for this research. Another limitation of the study is the level of education of the people in the sample. 64.1% of people in the sample are graduates with a bachelor's degree and above. This rate is higher than bachelor's degree in the Turkish population.

CONCLUSION

The Turkish validity and reliability of this scale was conducted with 4 dimensions and 28 questions. The lowest score that could be obtained from the scale was 28 and the highest score was 140. As the score to be obtained from the scale increases, the health protection behavior increases.

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Conflict of Interest: No conflict of interest was declared by the authors.

Ethical approval: The ethics committee approval was obtained from the Erciyes University Social and Humanities Ethics Committee (28 July 2020, approval no. 109) in order to conduct the study.

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REFERENCES

1. Edelman CL, CL Mandle, EC, Kudzma. Health promotion throughout the life span-e-book. Elsevier Health Sciences; 2017.
2. Sorensen G, McLellan D, Dennerlein JT, et al. Integration of health protection and health promotion: rationale, indicators, and metrics. *Journal of occupational and environmental medicine/American College of Occupational and Environmental Medicine* 2013;55:12.
3. Maville JA, CG Huerta. Health Promotion in Nursing (Book Only). Cengage Learning.2012.
4. WHO, The global burden of disease: 2004 update. 2004.
5. Senapati SN, Bharti, A. Bhattacharya Modern lifestyle diseases: chronic diseases, awareness and prevention. *Int J Curr Res Acad Rev* 2015; 3: 215-23.
6. Takeuchi K. Hypertension and metabolic syndrome/lifestyle diseases. *Rinsho byori. The Japanese journal of Clinical Pathology* 2007;55:452-456.
7. Ping W, Cao W, Tan H, et al. Health protective behavior scale: Development and psychometric evaluation. *PLoS one* 2018;13:e0190390.
8. Walker CA. Coalescing the theories of two nurse visionaries: Parse and Watson. *Journal of Advanced Nursing* 1996;24:988-996.
9. Bahar Z, Açıl D. Health Promotion Model: Conceptual Structure. *E-Journal of Dokuz Eylül University Nursing Faculty* 2014;7:59-67. (in Turkish)
10. Harris DM, GutenS. Health-protective behavior: An exploratory study. *Journal of health and social behavior* 1979:17-29.
11. Walker SN, Sechrist KR, Pender NJ. The health-promoting lifestyle profile: development and psychometric characteristics. *Nursing research* 1987; 36: 71-81.
12. WHO, A conceptual framework for action on the social determinants of health, Commission on SocialDeterminants of Health, World Health Organization, Editor. 2007.
13. Irvine L, Elliott L, Wallace H, Crombie IK.A review of major influences on current public health policy in developed countries in the second half of the 20th century. *The journal of the Royal Society for the Promotion of Health* 2006;126:73-78.
14. Riley L, Cowan M. World Health Organization noncommunicable diseases country profiles. Geneva, Switzerland: WHO Library Cataloguing-in-Publication Data; 2014.
15. Grove SK, Burns N. GrayJ. The practice of nursing research: Appraisal, synthesis, and generation of evidence, ed. M. 7nd ed. St. Louis. Elsevier Health Sciences; 2012.
16. Büyüköztürk Ş, Kılıç E, Çakmak Ö, et al. *Demirel Bilimsel Araştırma Yöntemleri*. 16nd ed. PegemA Yayıncılık;2014.
17. Kline R. Principles and Practice of Structural Equation Modeling. Guilford Press;2005. pp.154-186.
18. Kolaç N, Balcı AS, Şişman FN, Ataçer BE, Dinçer S. Health perception and healthy lifestyle behaviors in factory workers. *Medical Journal of Bakırköy* 2018;14:267-74.
19. Tabachnick BG, Fidell S. Using multivariate statistics. 6nd ed. Pearson Prentice Hall;2013.
20. Seçer İ, SPSS ve LISREL ile Pratik Veri Analizi. Anı yayıncılık;2017.
21. Pallant J, SPSS kullanma kılavuzu: SPSS ile Adım Adım Veri Analizi. Anı Yayıncılık;2017.
22. Balcı A. Sosyal Bilimlerde Araştırma: Yöntem, Teknik ve İlkeler. PegemA Yayıncılık;2009.
23. Çakır A. Faktör Analizi. İstanbul.İstanbul Ticaret Üniversitesi;2014.
24. Bakaç E. Perception Scale of Social Values: Validity And Reliability Study. *Journal of Research in Education and Teaching* 2013;2: 303-309.
25. Polit DF, BeckCT. *Nursing Research: Generating and Assessing Evidence for Nursing Practice*. Lippincott Williams & Wilkins;2008.
26. Büyüköztürk Ş, Kılıç E, Çakmak Ö, et al. *Bilimsel araştırma yöntemleri*. 26nd ed. Pegem Atf İndeksi, 2017: p. 1-360.
27. Can A. SPSS ile Bilimsel Araştırma Sürecinde Nicel Veri Analizi. 2nd ed. Pegem A Yayıncılık;2014.