

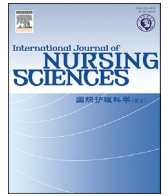
HOSTED BY



Contents lists available at ScienceDirect

International Journal of Nursing Sciences

journal homepage: <http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132>



Original Article

Turkish validity and reliability of the Diabetes Self-Efficacy Scale



Talip Mankan ^a, Behice Erci ^b, Gülcan Bahçecioğlu Turan ^{c,*}, Ümmühan Aktürk ^d

^a Firat University, Department of Nursing, Elazığ School of Health Science, Elazığ, Turkey

^b Department of Nursing, Malatya School of Health Science, Malatya, Turkey

^c Ataturk University, Faculty of Health Sciences, Department of Internal Medicine Nursing, Erzurum, Turkey

^d Malatya State Hospital, Malatya, Turkey

ARTICLE INFO

Article history:

Received 17 April 2017

Accepted 3 May 2017

Available online 4 May 2017

Keywords:

Diabetes mellitus
Diabetes Self-Efficacy Scale
Nursing
Reliability
Self-efficacy
Validity

ABSTRACT

Purpose: The aim of this methodological study was to determine the validity and reliability of the Diabetes Self-Efficacy Scale adapted to the Turkish community.

Methods: The study sample was completed with 319 patients who had been diagnosed at least 1 year before and hospitalized in the Malatya Turgut Ozal Health Center and Malatya State Hospital in Turkey. A questionnaire that consists of items on sociodemographic characteristics, drug use and information about the disease of patients and the Diabetes Self-Efficacy Scale were used for data collection in the study. In reliability analysis of the scale, the Cronbach's α coefficient was calculated and item analysis method was utilized. Factor analysis was used for the construct validity, and Principal Component Analysis and Varimax Rotation method were used for analyzing the factor structures.

Results: According to data obtained in the study, item-total correlation of the items of the scale was found to be at an adequate level (0.297–0.803). The scale's Cronbach's α reliability coefficient was found to be 0.86, and there was one factor that explains 52.38% of the total variance with an eigenvalue was greater than 1.0. As a result of the analysis, the factor loadings of the items of the scale were found to be between 0.59 and 0.81.

Conclusion: Diabetes Self-Efficacy Scale is a valid and reliable instrument for determining the self-efficacy of patients and providing a proper care. It can be suggested to investigate and evaluate the consistency of the scale by applying it to broader sample groups representing different socioeconomic levels.

© 2017 Chinese Nursing Association. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Diabetes mellitus is a chronic disease that caused by inherited and/or acquired deficiency in production of insulin by the pancreas, or by the ineffectiveness of the insulin produced [1]. Diabetes affects whole life of the individual with its biological, psychological and social effects. Patients with diabetes must maintain a planned care throughout their lives and receive professional help from time to time. Acute and chronic complications that can occur as well as these restrictions and requirements decrease quality of life. Diabetes leads to a number of psychological problems and loss of joy of

life in individuals. Individuals who feel loss of independent self-sufficiency become increasingly desperate, losing self-confidence [2,3].

According to the IDF (International Diabetes Federation) Diabetes Atlas published recently, the number of diabetics in the world was increased by sevenfold from 30 million in 1985 to 230 million in 2005. According to the IDF Diabetes Atlas, the total population of the world is 7.2 billion. And, this is expected to have risen to 8.7 billion by 2035. Based on the IDF data, it is estimated that the health expenses on diabetes and its complications in the world will exceed 627 billion USD by 2035, which was 548 billion USD in 2013. In 2013, 5.1 million people have lost their lives due to diabetes-related causes. According to the Diabetes Atlas, 382 million people around the world in the 20–79 year age group are estimated to be suffering from diabetes, and IDF expects that there will be more than 592 million diabetics by 2035. And, again according to the Diabetes Atlas, Turkey is the country with the highest prevalence of diabetes

* Corresponding author.

E-mail addresses: talipmankan@hotmail.com (T. Mankan), behiceerci@hotmail.com (B. Erci), glnbah@hotmail.com (G. Bahçecioğlu Turan), ummuhahan_akturk@hotmail.com (Ü. Aktürk).

Peer review under responsibility of Chinese Nursing Association.

<http://dx.doi.org/10.1016/j.ijnss.2017.05.001>

2352-0132/© 2017 Chinese Nursing Association. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

among European countries. Similarly, Turkey ranks 3rd after Russia and Germany with its over 7 million people with diabetes in the rank of European Countries with higher prevalence of diabetics in the between 20 and 79 year age groups [4,5]. According to Turkey Diabetes Epidemiology Study (TURDEP-II) in 2010, Eastern Turkey has the highest prevalence of diabetes (18.2%), whereas Northern region has the lowest prevalence (14.5%) [6–8]. In addition, according to the results of TURDEP-II study, the Province of Malatya was in the first place among the provinces with higher prevalence with its more than 20% diabetes prevalence, which is a significant cause of mortality and morbidity [7,9]. According to the results of a study conducted in 2012 by SSI (Social Security Institution) in order to determine the cost of diabetes in Turkey, the cost of diabetes is approximately 10 billion TL for the SSI in 2012. The total cost of diabetes is increasing every year by 18% approximately, compared to the previous year. In the total health expenses by SSI, the rate of diabetes has increased from 16.4% in 2008 to 23% in 2012 [10,11].

Psychologist Albert Bandura suggested the concept of self-efficacy/sufficiency in 1977 with the scope of “Cognitive Behavior Change” for the first time. A strong sense of personal efficacy-sufficiency has been found to be associated with a higher level of health, higher achievement and social integration. Self-efficacy levels of individuals may increase or decrease the motivation to take action [12–14]. How individuals react to failures, how much effort they exert when faced with a problem or an unpleasant experience, and how much time they spend to cope with a problem are all affected by their self-efficacy/sufficiency levels [15,16].

Diabetes is a chronic health problem. The self-efficacy beliefs and expectations of the individuals with health problems that require complex treatment and care, such as diabetes, play an important role to take steps for making changes in lifestyle and learning new skills to cope with the disease process. People with diabetes are expected to have a sufficient level of self-efficacy to cope with the complex diabetes care and treatment effectively. Behaviors of diabetics on self-care can be improved and developed by increasing their self-efficacy levels [17–19]. In a study by Bernal et al. on the relationship between self-efficacy and self-care in people with diabetes, the nutrition-and-insulin-treatment-related self-efficacy perceptions of patients who were visited by home care nurses and attending diabetes education programs were found to increase [20]. And, in a study by Johnston-Brooks et al., it was found that the individuals with low levels of self-efficacy have insufficient self-care behaviors for diabetes and have failed to manage diabetes [21].

The aim of this study was to evaluate the validity and reliability of the Diabetes Self-Efficacy Scale, which was developed to determine the levels of self-efficacy of people with diabetes in Turkish society.

2. Methods

2.1. Research type

This study was conducted methodologically to adopt the “Diabetes Self-Efficacy Scale” to Turkish, and to determine its validity and reliability.

2.2. Research place and time

The study was carried out between in November 2013 and January 2015 in the Malatya Turgut Ozal Health Center and Malatya State Hospital in Turkey.

2.3. Study population and sample selection

The study population consisted of 420 patients with diabetes who had been diagnosed at least 1 year before and hospitalized in the Malatya Turgut Ozal Health Center and Malatya State Hospital in Turkey. No sampling was performed in the study, and the study was completed with 319 patients who agreed to participate in the research.

The Inclusion Criteria for the Study.

- Literate
- Have no history of psychiatric diseases
- Have no audio/visual impairment

2.4. Data collection tools

A questionnaire and Diabetes Self-Efficacy Scale were used for data collection in the study.

2.4.1. Questionnaire

The 16 items questionnaires, prepared by the researcher, consist of items on sociodemographic characteristics, drug use and information about the disease of patients.

2.4.2. Diabetes Self-Efficacy Scale

Lorig et al. developed Diabetes Self Efficacy Scale (DSES) in 2009 in South Korean [22]. The scale was developed to determine the self-efficacy of the patients with diabetes. The Likert-type scale consists of 8 items. The items of the scale are scored between 1 and 10 (1 = Not at all confident, 10 = Totally confident). The scale is usually applied within 5–6 min. The Cronbach's α coefficient of the scale, which was developed by Lorig et al., is 0.89 [22]. And, in this study, Cronbach's α reliability coefficient was found to be 0.86.

2.4.3. Validity and reliability of the Diabetes Self-Efficacy Scale

The validity and reliability analysis of the Diabetes Self-Efficacy Scale was performed in accordance with the expert opinions and related literature [23].

2.4.4. Linguistic validity

Translation of a scale into another language changes the nature of that scale. This inevitable change is due to the conceptualization and expression differences. The scale items should be carefully examined to minimize the differences, necessary linguistic transformations should be performed to achieve the same meaning in the target language, and the language of translation should be standardized according to the norms of individuals in that language for adapting the scale to a new culture [24].

In translating the language of Diabetes Self-Efficacy Scale, first the scale was translated from English to Turkish by researchers. Then, an expert linguist translated it because of back to English. This back-translation was compared with the original, revised and translated scale was finalized.

2.4.5. Internal consistency

The item-total score correlations, Cronbach's α , and factor analysis were used for the internal consistency test of the scale. The item-total score correlations indicate whether each item in the scale contributes to the overall internal consistency [25,26]. And, the Cronbach's α reliability coefficient is a measure of internal consistency, homogeneity of items in the scale. The items in a scale are considered consistent and homogeneous in measuring the very same feature as the Cronbach's α reliability coefficient of the scale increases [27]. In the literature, a correlation coefficient smaller

than 0.25 is suggested for item selection [25,26,28] and it is also stated that a Cronbach's α reliability of 0.70 and above is sufficient to use the measurement tool in studies [27,29].

2.5. Data collection

Data were collected after informing the participants by researchers through face-to-face interviews between in November 2013 and March 2014 in the Malatya Turgut Ozal Health Center and Malatya State Hospital in Turkey. Data collection time was approximately 15–20 min.

2.6. Evaluation of study data

In the evaluation of the data obtained in the study, Cronbach's α Reliability Coefficient, Pearson Product-Moment Correlation Coefficient, Factor Analysis, Bartlett's test, Kaiser-Meyer Olkin test, Correlation, Number and Percentage distributions and *t*-test were used.

2.7. Ethical principles of the study

Written consent of Lorig et al. was taken to adopt the Diabetes Self-Efficacy Scale, which was developed by Lorig et al., to Turkish. Approval of the Malatya Clinic Researches Ethics Committee was obtained to conduct the study (supplemental material). Before starting the study, written permission from the Chief Physicians of Malatya Turgut Ozal Health Center and Malatya State Hospital were obtained. Before filling out the data collection questionnaire, the patients were informed about their freedom to participate, and their verbal informed consent were obtained, explaining that they are free to withdraw from study at any time.

3. Results

Introductory characteristics of patients included in the study were given in Table 1. The descriptive characteristics of the patients who participated in the study were shown in this table. The mean age of the patients was found to be 58.10 ± 1.41 (Max = 90, Min = 19). It was found that 41.7% (133) of the patients was male, 58.3% (186) was female, 45.8% (146) was literate, 11% (35) was diabetic for more than 20 years, 28.5% (91) was Type-1 diabetics, 71.5% (228) was Type-2 diabetics, and 50.8% (160) of the patients was using insulin (Table 1).

Table 1
Introductory characteristics of patients included in the study ($n = 319$).

Introductory characteristics		<i>n</i>	%
Gender	Male	133	41.7
	Female	186	58.3
Educational Status	Literate	146	45.8
	Elementary School	92	28.8
	Secondary School	21	6.6
	High School	43	13.5
	University	17	5.3
Diabetes Diagnosis Time	1-5 years	118	37.0
	6-10 years	67	21.0
	11-15 years	61	19.1
	16-20 years	38	11.9
	More than 20 years	35	11.0
Type of Diabetes	Type 1	91	28.5
	Type 2	228	71.5
Drug Administration	Oral	107	33.5
	Insulin	162	50.8
	Oral + Insulin	29	9.1
	Does not use	21	6.6

It was determined that the result of the Kaiser Meyer Olkin Measure of Sampling Adequacy test (the sample adequacy) was 0.868 and the result of the Bartlett's Test of Sphericity Analysis (examination of the sample size) was 1.050, and both of the tests were significant at the significance level of $P < 0.001$.

The factor analysis results and item-total score correlation, which shows the homogeneity of the scale, are shown in Table 2. The item-total correlation coefficient (leaving the item) varied between 0.297 and 0.803. The item-total correlations of the scale items were observed to be adequate. As a result of the analyses, 1 factor with eigenvalue above 1 that explained 52.38% of the total variance was found and the Cronbach's α reliability coefficient of the scale was calculated as 0.86.

4. Discussion

Language validity of the scale is an important stage in the study process. Because translating a scale into another language changes the nature of that scale. This inevitable change originates from the differences of conceptualization and expression. Examining carefully the scale items to minimize the differences, performing the necessary transformations to have a meaning in the language it is translated into, and standardizing the individuals using that language according to norms form a basis in adapting the scale into a new culture [24]. While translating an original scale into the targeted language, three methods are used as 'unidirectional translation', 'group translation', and 'reverse translation'. Among these methods, the one that is used mostly in the world to provide the cultural equality of the scale is the 'reverse translation' method [24]. The translators to translate the scale should be selected among individuals who have knowledge and experience about translation, speak both languages fluently and know both cultures very well. Because the most important point in a language adaptation is the selection and technique of translations [24,30,31]. In this study, the reverse translation method was used in translating the scale. The scale was translated in accordance with literature and a language equivalence was ensured. The scale being translated was observed to provide the cultural equality.

KMO test and Bartlett's Test of Sphericity Analysis are conducted in order to evaluate whether or not the sample is adequate and convenient [32]. While performing the factor analysis, decisions are made based on the sample adequacy and the KMO value [32]. A good factor analysis requires the KMO value to be above 0.60. If the KMO value is below 0.50, it is not accepted; if it is between 0.60 and 0.69, it is accepted as moderate, if it is between 0.70 and 0.79, it is good and if it is above 0.90, it is excellent [32]. In our study, it was determined that the result of the KMO test was 0.868 and the result of the Bartlett's Test of Sphericity was 1.050, and both tests were significant at the significance level of $P < 0.001$. According to this result, the sample was understood to be adequate and convenient for the factor analysis. In the original scale, the results were determined as 0.88 for the KMO test and 1.183 for the Bartlett's Test of Sphericity Analysis [22]. In this study, the value of the KMO and Bartlett's Test of Sphericity Analysis was close to the original study.

Regarding the reliability analysis, the correlation coefficient is calculated for the item analysis, which determines the relation of items constituting the assessment instrument with the entire assessment instrument and is frequently used in selecting the items [27,33]. Highness of the correlation coefficient obtained for each item in the scale signifies that the item in question is efficient and adequate in measuring the targeted behavior. If an item has a low correlation to the total score, this signifies that the item in question measures a different quality from other items in the scale. While selecting the items, it is recommended to have a correlation coefficient above 0.25 and since the low item-total score correlation

Table 2
Diabetes Self-Efficacy Scale, Item-Total Score Correlation Coefficients, factor loadings, α coefficients and explained variance.

Diabetes Self-efficacy Scale Items	Item-total correlation	Item factor loadings
1. How confident do you feel that you can eat your meals every 4–5 h every day, including breakfast every day?	0.600*	0.593
2. How confident do you feel that you can follow your diet when you have to prepare or share food with other people who do not have diabetes?	0.710*	0.711
3. How confident do you feel that you can choose the appropriate foods to eat when you are hungry (for example, snacks)?	0.803*	0.818
4. How confident do you feel that you can exercise 15–30 min, 4 to 5 times a week?	0.725*	0.701
5. How confident do you feel that you can do something to prevent your blood sugar level from dropping when you exercise?	0.784*	0.772
6. How confident do you feel that you know what to do when your blood sugar level goes higher or lower than it should be?	0.731*	0.741
7. How confident do you feel that you can judge when the changes in your illness mean you should visit the doctor?	0.297*	0.657
8. How confident do you feel that you can control your diabetes so that it does not interfere with the things you want to do?	0.450*	0.772
Cronbach's α	0.86	
Eigenvalue	4.19	
Total Variance Explained (%)	52.38	

* $P < 0.0001$.

decreases the reliability, these items are omitted from the scale [25,26,28]. Even though it is recommended to omit the items showing a lower correlation from the assessment instrument, it is not a certain rule [30,33]. In order to omit an item from the scale; it is required to consider the change in the α coefficient if the item is deleted and consider the change in the scale mean if the item is deleted [33,34]. Highness of the relationship between the items signifies that the scale is unidimensional, the items measure the same property and they could be summed [33]. In our study, the item-total correlation coefficient (leaving the item) varied between 0.297 and 0.803 (Table 2). In the original study, the item-total correlation coefficient (leaving the item) varied between 0.47 and 0.73 [22]. Examining the results, all the items showed an adequate correlation with the total score.

In order to determine the factor structure of the Diabetes Self-Efficacy Scale, the “principal component” method was used and analyses were conducted according to the transformation of “varimax”. As a result of the analyses, 1 factor with an eigenvalue above 1 that explained 52.38% of the total variance was found. Eigenvalue values are used in calculating the factors and the factor number is calculated as much as the eigenvalue values. Eigenvalue is the total variance explained by a factor. It is generally considered convenient to interpret the factor number whose eigenvalue is 1 or higher [35]. As a result of the results, it was determined that the items showed a good distribution and they were compatible with their factors. In the original study, 2 factors explaining 56.5% of the total variance were found [22]. It is known that the higher the variance rates are, the higher the factor structure is and in analyses performed in social sciences, the variance rates ranging between 40% and 60% are accepted to be adequate [36]. These data acquired show that the internal consistency of Diabetes Self-Efficacy Scale is protected.

As an indicator of the internal consistency and homogeneity of the Diabetes Self-Efficacy Scale, the Cronbach's α reliability coefficient was examined and calculated as 0.86 (Table 2). In case that the scale reliability is 0.70 and above, literature states that it is adequate to use the assessment instrument [37]. Highness of the α coefficient of the scale signifies that the scale items are consistent with each other and the scale consists of items examining the elements of the same feature or all items function together [29]. The adequate α coefficient in a likert scale should be close to 1 as much as possible [24]. In the original validity and reliability study of the scale, the Cronbach's α coefficient was calculated as 0.89 [22]. In this study, the Cronbach's α coefficient was found as 0.86 (Table 2). The Diabetes Self-Efficacy Scale is observed to have a high internal consistency and a high reliability.

5. Conclusion

As a result of the statistical analysis, Diabetes Self-Efficacy Scale was found to have a validity and reliability to be used in Turkish society. It was found that this scale can be used safely in determining the proper care and training methods based on patients' individual self-efficacy levels in Turkish community.

Author contributions

Study conception/design; Talip Mankan, Behice Erci, Gülcan Bahçecioğlu Turan, Ummühan Aktürk.

Data collection/analysis; Talip Mankan, Behice Erci, Gülcan Bahçecioğlu Turan, Ummühan Aktürk.

Drafting of manuscript; Talip Mankan, Behice Erci, Gülcan Bahçecioğlu Turan, Ummühan Aktürk.

Critical revisions for important intellectual content; supervision; Talip Mankan, Behice Erci, Gülcan Bahçecioğlu Turan, Ummühan Aktürk.

Statistical expertise; Talip Mankan, Behice Erci, Gülcan Bahçecioğlu Turan, Ummühan Aktürk.

Administrative/technical/material support: Talip Mankan, Behice Erci, Gülcan Bahçecioğlu Turan, Ummühan Aktürk.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.ijnss.2017.05.001>.

References

- [1] Altındaş M. Diabetic foot. Istanbul: Nobel Medical Bookstores; 2002.
- [2] Kumcagız H, Ersanlı K. Examination on the hopelessness level of diabetics patients according to their sex and education level. *Dokuz Eylül Univ Buca Fac Educ J* 2008;23:123–8.
- [3] Acemoglu H, Ertem M, Bahceci M, Tuzcu A. Levels of health care utilization in patients with type 2 diabetes mellitus. *Eurasian J Med* 2006;38:89–95.
- [4] International Diabetes Federation Diabetes Atlas. Date accessed: <http://www.diabetcemiyeti.org/c/jidf-avrupa-diyabet-atlasi>. Accessed in January 12, 2016.
- [5] The Global Burden Available at: http://www.idf.org/sites/default/files/EN_6E_Ch2_the_Global_Burden.pdf. Date accessed: in January 12, 2016.
- [6] Turkey Diabetes Program 2015–2020. Available at: <http://diyabet.gov.tr/content/files/guncel/turkiye-diyabet-programi.pdf>. Accessed in January 07, 2016.
- [7] Satman I, Omer B, Tutuncu Y, Kalaca S, Gedik S, Dincçag N, et al. TURDEP-II Study Group. Twelve-year trends in the prevalence and risk factors of diabetes and pre-diabetes in Turkish adults. *Eur J Epidemiol* 2013;28(2):169–80.
- [8] The Republic of Turkey Ministry of Health. General directorate of primary health care. Ankara: Turkey Diabetes Prevention and Control Program, Action Plan, 2011–2014; 2011.
- [9] Diabetes Prevalence Study of Turkey TURDEP-I and TURDEP-II Available at: http://diyabet.gov.tr/content/files/bilimsel-arastirmalar/turdep_1_turdep_2.

- pdf. Accessed in January 07, 2016.
- [10] Social Security Institution Perspective Diabetes. Social security institution monthly newsletter. 2013. Ankara.
- [11] Diabetes Statistics - Turkish Diabetes Society, Available at: <http://www.diabetcemiyeti.org/c/diyabet-istatistikleri>. Accessed in February 18, 2016.
- [12] Cetinkaya A, Ozmen D, Fadiloglu C. Relationship between social support perceptions and self-efficacy levels of the future health professional. *Gümüşhane Univ J Health Sci* 2014;3(4):1045–55.
- [13] Otacioglu SG. Examination of self-sufficiency of teacher candidates who participate in application of experience of music school teaching I. *Cumhuriyet Univ J Soc Sci* 2008;32(1):163–70.
- [14] Zimmerman B. J. Self-efficacy: an essential motive to learn. *Contemp Educ Psychol* 2000;25:82–91.
- [15] Bıkmaz FH. Scale of self-efficacy belief in science teaching. *Educ Sci Appl* 2002;1(2):197–210.
- [16] Yesilbursa C, Uslu S. Self-efficacy beliefs of social science teacher candidates toward museum education. *Int Eurasia J Soc Sci* 2014;5(16):410–28.
- [17] Van Der Ven NCW, Weinger K, Yi J, Pouwer F, Ader H, Van Der Ploeg HM, et al. The confidence in diabetes self-care scale. *Diabetes Care* 2003;26(3):713–8.
- [18] Yanık YT, Erol O. Evaluation of self-efficacy levels of patients with type 2 diabetes. The 1st International Clinical Nursing Research Congress Abstract Book, Turkey: 29 May-1 June 2012.
- [19] 2010-2020 National Diabetes Strategy Results Breakdown. Available at: http://www.tsn.org.tr/folders/file/Diyabet_2020_Sonuc_Dokumani.pdf. Accessed in January 07, 2016.
- [20] Bernal H, Woolley S, Schensui JJ, Dickinson JK. Correlates of self-efficacy in diabetes self-care among hispanic adults with diabetes. *Diabetes Educ* 2000;26(4):673–80.
- [21] Johnston-Brooks CH, Lewis MA. Self-efficacy impacts self-care and HbA1c in young adults with type 1 diabetes. *Psychosom Med* 2002;64:43–51.
- [22] Lorig K, Ritter PL, Villa FJ, Armas J. Community-based peer-led diabetes self-management: a randomized trial. *Diabetes Educ* 2009;35(4):641–51.
- [23] Karasar N. Bilimsel araştırma yöntemleri. Ankara: Nobel Yayın Dağıtım; 2012.
- [24] Aksayan S, Gözüm S. A guide for transcultural adaptation of the scale. *J Nurs Res Dev* 2002;4(1):9–14.
- [25] Büyüköztürk S. Manual data analysis for social sciences. Ankara: Pegem Academy; 2012.
- [26] Akgül A. Statistical analysis methods spss applications at medical research. Ankara: Emek Offset Ltd; 2005. Sti.
- [27] Tezbaşaran AA. Preparation Guide of Likert-Type Scale (The third version of e-book. 2008. Available at: http://www.academia.edu/1288035/Likert_Tipi_Olcek_Hazirlama_Kilavuzu. Accessed on January 9, 2015.
- [28] Cimen S, Bahar Z, Ozturk Bektaş M. Validity and reliability of the aids of attitude scale, zonguldak health of school. *Health Educ Res J* 2005;1(1):1–12.
- [29] Alpar R. Introduction to applied multivariate statistical methods. Ankara: Nobel Publishing; 2006.
- [30] Erefe İ. Quality of data collection tools. Content. In: Erefe İ, editor. Principles, processes, and methods of Researches in nursing. İstanbul: Odak Ofset; 2002. p. 169–88.
- [31] Eser E. Cultural Adaptation of Life Quality Scales concerning Health. 2. Congress on Life Quality in Health, Book for Courses before the Congress, İzmir, 2007.
- [32] Cokluk Ö, Sekercioglu G, Büyüköztürk Ş. Multivariate statistics spss and LISREL applications for social sciences. Ankara: Pegem Academy; 2010.
- [33] Özdamar K. Package softwares and statistical data analysis. 4. Edition. Eskişehir: Kaan Bookstore; 2004. p. 50–205.
- [34] Gözüm S, Aksayan S. Intercultural scale adaptation guide ii: psychometric features and intercultural comparison. *J Nurs Res Dev* 2003;5(1):3–14.
- [35] Tavşancıl E. Measurement of attitude and advanced data analysis of spss, ankara. Nobel Publishing; 2005.
- [36] Sencan H. Reliability and validity at the social and behavioral measures. Ankara: Seçkin Publishing; 2005.
- [37] Alpar R. Validity and reliability, applied statistics and validity-reliability with examples from sports, health and education, science. Ankara: Detay Publishing; 2010.