



Attitude scale for the dietary therapy of hemodialysis patients: Turkish validity and reliability study

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Abstract

Purpose The present study aims at the adaptation of “Attitude Scale for the Dietary Therapy of Hemodialysis Patients” (ASDTHP) into Turkish language with a validity and reliability study.

Methods Methodological design was used in the study which included 200 patients receiving treatment in the dialysis unit of a university and a state hospital in Turkey from April 2019 to October 2019.

Results As a result of the assessments and analyses conducted, content validity of the scale was found as 0.98. Total Cronbach’s coefficient of the scale was 0.84, while Cronbach’s coefficient was 0.91 for propensity of behavior that is affected by cognition, 0.91 for propensity of behavior that is affected by diet and 0.87 for negative effect that modifies the diet. Item factor loads were found to differ between 0.73 and 0.89 and item total correlation coefficients were found to be between 0.38 and 0.53. It was found that Turkish version of the Attitude Scale for the Dietary Therapy of Hemodialysis Patients also had three sub-dimensions like the original scale.

Conclusion Turkish version of ASDTHP is a valid and reliable measurement instrument to evaluate the attitudes of hemodialysis patients about dietary therapy. ASDTHP can help nurses in finding out hemodialysis patients’ lack of knowledge and skills and negative attitudes about diet therapy.

Keywords Attitude scale for the dietary therapy · Hemodialysis · Reliability · Validity · Turkish translation

Introduction

Hemodialysis (HD), which is the most preferred (76%) and most practiced (n : 58,635) renal replacement therapy according to Turkish Nephrology Society 2017 data, is a treatment method which is practiced for the excretion of leftover products and fluid that cannot be removed from the body due to the dysfunction of the kidneys and which is

applied at certain intervals throughout life until a kidney suitable for transplantation is found [1, 2]. In order for HD treatment to be effective, patients must comply with diet, drug and fluid restriction [3].

In patients who receive HD treatment, eating habits and preferences change due to the disease, and there are many restrictions especially on fluid, protein and potassium intake [4]. The aim of the dietary therapy applied on patients is the prevention of pulmonary edema, chronic hypervolemia-induced hypertension and congestive heart failure by avoiding high potassium and sodium diet to control calcium and phosphorus, avoid renal osteodystrophy, prevent malnutrition, and decrease the symptoms of uremia without increasing fluid–electrolyte disorders [5].

Compliance of patients with an effective diet program is one of the determinants with a major role in reducing complications related with the disease and in improving the individual’s quality of life [6]. It has been stated that in patients receiving HD treatment, a great number of complications resulting from the disease, especially malnutrition, can be decreased by learning and applying correct information

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about diet [7]. In the literature, it has been found that two weeks of salt and fluid restriction training contributes to significant decrease in systolic blood pressure and weight gain between two dialysis sessions [8]. It has been reported that a great number of patients are not aware of the life-threatening complications that can occur when they do not comply with diet and fluid restriction. However, if patients are taught habits and attitudes to maintain their life styles, they can comply with this complex treatment regimen more easily [9]. Since dialysis patients also have to make changes in their diets while complying with new treatment models, changes in behaviors can be difficult for them [10]. Therefore, HD nurses, who have an important role in treatment, care, and training, should know about patients' knowledge, behavior, and attitudes on diet and fluid restriction and they should be able to train them on issues they are inadequate [11].

No studies conducted to develop a measurement tool to find out the attitudes for dietary therapy of hemodialysis patients were found in Turkey. Therefore, the present study aims to carry out a validity and reliability study for Attitude Scale for the Dietary Therapy of Hemodialysis Patients, which had 16 items and which was developed by Onbe and Kanda in 2018 to find out the attitudes of patients receiving HD treatment for dietary therapy, and which had a high validity and reliability [12]. It is thought that with the translation of this scale into Turkish, the assessment of attitudes of HD patients for dietary therapy will enable finding out the deficiencies on the issue and providing supportive trainings according to the needs of patients.

Methods

Population and sample of the study

Methodological design was used in the study. The population included 220 patients who were receiving treatment in the dialysis unit of a university and a state hospital in Turkey between April and October 2019. The inclusion criteria of the study were being 18 and older, being able to communicate, and not having psychiatric problems. 20 patients who did not meet the research criteria and who did not agree to participate were not included in the study. It is stated in the literature that at least 10 times of the number of items is required for the adaptation of a scale to another culture [12]. For this reason, the study was completed with 200 patients who met the inclusion criteria (Fig. 1).

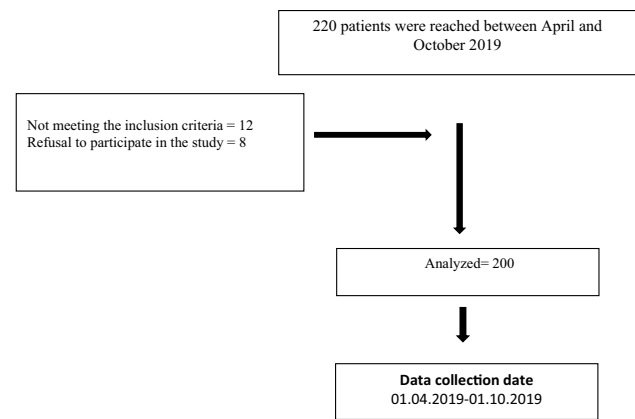


Fig. 1 Flow chart of the enrollment of study participants

Data collection tools

Personal information form

This form includes 7 questions to determine the demographic characteristics of individuals (age, gender, marital status, educational status, working status, income status, and the status of having social security) and 11 questions about the disease (disease duration, dialysis duration, presence of another chronic disease, type of comorbid disease, number of weekly HD sessions, the state of using medication regularly, the state of having problems with the diet, the reason for having problems with the dialysis, the state of having problems with the ideal weight between the two dialyses, the state of quitting hemodialysis session earlier than recommended, the state of quitting hemodialysis session before the recommended time).

Attitude scale for the dietary therapy of hemodialysis patients (ASDTHP)

“Attitude Scale for the Dietary Therapy of Hemodialysis Patients” is a 4-Likert type scale with 16 items developed by Onbe and Kanda in 2018 to find out the attitudes of patients for dietary therapy [13]. Each item is scored according to responses ‘1-Totally agree’, ‘2-Agree’, ‘3-Disagree’, ‘4-Totally disagree’. The scale consists of 3 sub-dimensions. 1st sub-dimension; “Propensity of behavior that is affected by cognition” includes 7 items (1, 2, 3, 4, 5, 6, and 7). 2nd sub-dimension; “Propensity of behavior that is affected by food culture” includes 6 items (8, 9, 10, 11, 12, and 13). 3rd sub-dimension; “Negative affect that modifies the diet” includes 3 items (14, 15, and 16). These three items are scored in reverse in the scale. A high score from the scale shows better attitudes.

Data collection

The researchers collected the study data in approximately 10–15 min in patient room after necessary explanations were made to individuals.

Data assessment

The data found in the study were evaluated using Cronbach's alpha reliability coefficient, Pearson's moment correlation, Factor analysis, Bartlett's test, Kaiser–Meyer–Olkin test and correlation analysis. Significance level was considered as 0.05.

Ethics of the study

Permission was taken from Hiromi Onbe with the email for the Turkish adaptation of Attitude Scale for the Dietary Therapy of Hemodialysis Patients used in the study. Ethical approval was taken from a University Ethical Board (2018-3/2 numbered) and written permissions were obtained from the hospitals where the study was carried out.

Psychometric assessment of the scale

Validity

Language validity The nature of a scale changes when it is translated into another language. Different conceptualization and expression are the main causes of this change that cannot be avoided. To minimize these differences while adapting a scale to a new culture, the basic things to consider are careful examination of scale items, making the required changes to make sense in the translated language, and standardization according to the norms of the individuals who use the translated language [14]. Considering these issues in mind, first the researchers and then two faculty members translated the original scale from English into Turkish. The translated scale was reviewed by the researchers. Next, an English linguist with a good command of both languages and cultures translated the forms back into English. The original scale and the Turkish translation were compared to find out whether there were changes in the meanings of the items. The translations in both scales which expressed each item the best were chosen and presented to the views of 7 experts in the field of nursing (specialist assistant professors in the field of internal medicine) in line with the suggestions. Finally, the scale was translated back into English and the items were examined by Onbe and approved.

Content validity For language and culture equivalence and content validity of the items with numerical values and

for healthy evaluation of expert opinions, Content Validity Index (CVI) was used [14]. The experts were asked to choose the suitable expression for each item from “4 = completely suitable”, “3 = very suitable”, “2 = suitable but the items need small changes” and “1 = not suitable” and to score each item between 1 and 4. Davis technique was used to calculate content validity index. Content Validity Index (CVI) was found as 0.98. > 0.80 content validity shows the adequacy level of the items. Content validity of the scale was found to be statistically significant [14], and no items were deleted.

Construct validity Factor analysis is commonly used to test construct validity. It is a procedure applied to find out whether the scale items can be grouped under different dimensions. There are two kinds of factor analysis as Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA finds out under how many sub-dimensions the items of the measurement tool can be grouped and CFA tests this construct [12, 15]. Sample adequacy is measured with KMO and Bartlett's test before construct validity analysis [15]. It is stated that a KMO level lower than 0.50 cannot be accepted, a value of 0.80 to 0.90 is good and a value higher than 0.90 is very good [16].

Two of the most common factor analysis statistical techniques, Principal Component Analysis and Varimax rotation were used to examine factor analysis. The idea that items with a factor load of < 0.30 should be deleted was taken into consideration [15]. To confirm the findings of the sub-dimensions in the scale, Confirmatory Factor Analysis (CFA) was performed after Exploratory Factor Analysis. The lower limits of the model's data fit index are accepted as χ^2/sd ratio of ≤ 5 , RMSEA value of ≤ 0.07 and GFI, CFI, IFI values higher than 0.90 were found with CFA [17].

Reliability

For the examination of reliability of Likert type scales, Cronbach's α internal consistency coefficient technique is recommended. Cronbach's alpha reliability coefficient shows the internal consistency and homogeneity of the scale items. Higher Cronbach's alpha reliability coefficients show that the items are more consistent with each other and include items that test the elements of the same characteristic [12, 18]. It is stated in literature that a measurement tool with a Cronbach's alpha reliability of 0.70 and higher can be used in studies [12, 18].

The relationship between the scores of the items in the scale and the total score of the test was examined with item total correlation coefficients. The acceptable coefficient being 0.20 and above was taken into consideration in item selection [19].

Test–retest is getting consistent results in repeated measurements of the test. Correlation analysis is used to evaluate the results of both tests. Correlation coefficient being closer to 1 shows that the test has better test–retest reliability [20]. The scale was given again to 60 patients 2 weeks later for test–retest analysis of the scale.

Results

As a result of the analysis of the patients' demographic characteristics, it was found that average age of the patients was 53.17 ± 16.74 , average disease duration was 10.24 ± 6.94 years, and average dialysis duration was 7.42 ± 5.53 years. It was found that 53.5% (107) of the patients were female, 78% (156) were married, and 47% (94) were primary school graduates. It was found that 94.5% (189) of the patients had an income equal to expenditure and were not working, while 54.5% (129) had social security.

It was found that 94% (188) of the patients received hemodialysis treatment three times a week, 98% (196) used their medication regularly, 32.5% (65) had problems about diet, and 69.2% (45) of the ones that had problems about diet could not change their eating habits. It was found that 66.5% (133) of the patients did not have any problems about the issue of ideal weight in-between two dialyses, 98.5% (197) followed the recommendations and 88% (176) did not leave their HD sessions earlier than recommended. It was found that 55% (111) of the patients had another comorbid chronic disease, and 47.3% (52) of the comorbid chronic diseases were hypertension (Table 1).

Validity

Barlett's test of sphericity analysis showed that KMO value was 0.84, and X^2 value was 2274.87 in the study. Test results were significant at the level of $p \leq 0.001$ (Table 2). The sample size was found to be adequate and suitable for factor analysis [17]. Varimax rotation technique was used for factor analysis. EFA conducted for the ASDTHP for patients receiving HD treatment showed factor load values between 0.73 and 0.89. 71.5% of the total variance was explained (Table 3). The diagram about the factor structure of the scale is given in Fig. 2. Thus, ASDTHP with 16 items and 3 sub-dimensions was achieved.

In Table 4, confirmatory factor analysis (CFA) fit index values of ASDTHP were found as $X^2 = 186.89$, $df = 99$ ($p < 0.05$), $X^2/df = 1.88$, $RMSEA = 0.067$, $CFI = 0.90$, $RMR = 0.062$, $SRMR = 0.04$ and $NFI = 0.94$, and it was found that model fit was acceptable [17].

The results of EFA and CFA showed that Turkish form of ASDTHP with 16 items and 3 sub-dimensions was

Table 1 Demographic characteristics of the hemodialysis patients

	n	(%)
Gender		
Female	107	53.5
Male	93	46.5
Marital status		
Married	156	78
Single	44	22
Level of education		
Illiterate	33	16.5
Primary	94	47.0
High school	61	30.5
College/University and higher	12	6
Employment status		
Employed	11	5.5
Unemployed	189	94.5
Level of income		
Income lower than expenditure	9	4.5
Equal income and expenditure	189	94.5
Income higher than expenditure	2	1
Status of having social security		
Yes	129	64.5
No	71	35.5
Weekly dialysis sessions		
2 Sessions	12	6
3 sessions	188	94.0
State of using medications regularly		
Yes	196	98.0
No	1	0.5
Sometimes I skip	3	1.5
State of experiencing problems about the diet		
Yes	65	32.5
No	135	67.5
Reason for experiencing problems about the diet		
I can't change my eating habits	45	69.2
Being a diabetes patient	14	21.5
Other	6	3
State of experiencing problems about ideal weight in-between two hemodialysis sessions		
Yes	67	33.5
No	133	66.5
State of following recommendations		
Yes	197	98.5
No	2	1.0
Sometimes	1	0.5
State of leaving hemodialysis session earlier than recommended		
Yes	24	12.0
No	176	88.0
Presence of a comorbid chronic disease		
Yes	111	55.0
No	89	44.5

Table 1 (continued)

	<i>n</i>	(%)
Type of comorbid disease		
Hypertension	52	47.3
Diabetes	38	34.2
Heart failure	21	19.1
Average age (Ave ± SD)		
53.17 ± 16.74		
Disease duration average years		
10.24 ± 6.94 years		
Dialysis duration average years		
7.42 ± 5.53 years		

Table 2 Results of the Kaiser–Meyer–Olkin measure of sampling adequacy and Bartlett’s test of sphericity

Test	Results	
Kaiser–Meyer–Olkin measure of sampling adequacy	0.84	<i>p</i> ≤ 0.001
Bartlett’s test Approx. Chi-square	2274.87	
df	120	
Sig	0	

Table 3 Item-total score correlation coefficients, factor loads, alpha coefficients and explained ASDTHP variance

Item load	Factor load	Mean (SD)	Corrected item total correlations	Cronbach’s alpha if item deleted
1	0.87	3.17 (0.65)	0.51	0.82
2	0.82	3.15 (0.68)	0.48	0.82
3	0.73	3.10 (0.66)	0.41	0.83
4	0.74	3.23 (0.78)	0.49	0.82
5	0.78	3.25 (0.65)	0.39	0.83
6	0.88	3.14 (0.58)	0.44	0.83
7	0.86	3.16 (0.58)	0.41	0.83
8	0.91	3.15 (0.65)	0.53	0.82
9	0.85	3.09 (0.72)	0.49	0.83
10	0.83	3.14 (0.69)	0.47	0.83
11	0.81	3.48 (0.75)	0.41	0.83
12	0.86	3.47 (0.77)	0.47	0.83
13	0.73	3.03 (0.83)	0.42	0.83
14	0.88	3.62 (0.88)	0.50	0.82
15	0.85	3.58 (0.82)	0.50	0.82
16	0.89	3.26 (1.03)	0.38	0.83
% variance explained				Total = 71.55 f1 = 29.43 f2 = 26.68 f3 = 15.44
Cronbach’s a				Total = 0.84 f1 = 0.91 f2 = 0.91 f3 = 0.87

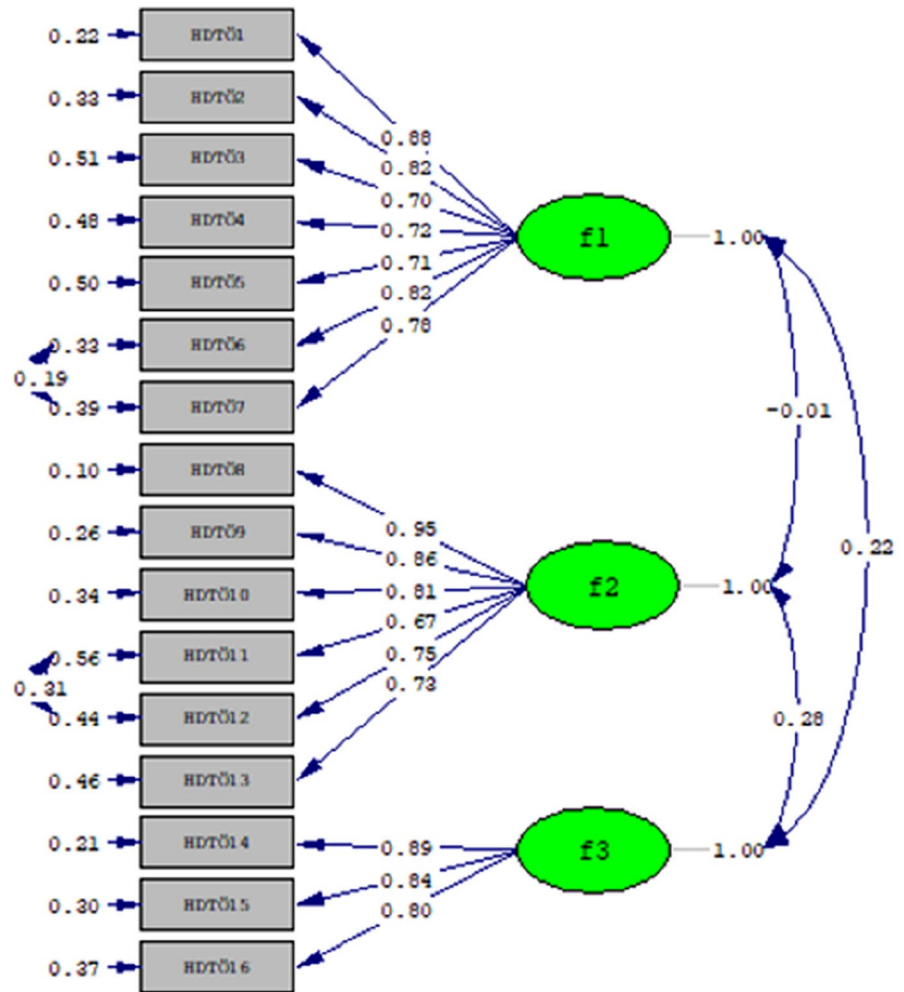
confirmed with no changes in the original scale form. All of the results show that the validity of the scale is high in Turkish culture.

Reliability

In the analyses conducted for reliability, the data were reapplied to 60 individuals from the sample EFA was conducted, and test–retest correlation was found as 0.88. This value indicates that the scale had high external reliability and a stable structure [20].

In addition, Cronbach’s α internal consistency coefficient was tested to find out the internal consistency of the scale, and this value was calculated as 0.84 for the whole scale. Internal consistency coefficient was 0.91 for propensity of behavior that is affected by cognition, as 0.91 for propensity of behavior that is affected by food culture and as 0.87 for negative affect that modifies the diet. These values show that the scale with 16 items has high internal consistency [16, 18] (Table 3). The examination of the item total correlation coefficients of the scale showed that all items had > 0.30 item total correlation coefficient (between 0.38 and 0.53).

Fig. 2 PATH diagram regarding the factor structure of the scale



Chi-square=186.89, df= 99, p<0.001, RMSEA=0.067

Table 4 ASDTHP confirmatory factor analysis results

Fit criteria	Found	Appropriate	Acceptable
χ^2/df	1.88	<2	<5
RMSEA	0.067	<0.05	<0.08
CFI	0.97	>0.95	>0.90
RMR	0.047	<0.05	<0.08
SRMR	0.04	<0.05	<0.08
NFI	0.94	>0.95	>0.90

RMSEA Root mean square error of approximation, CFI Comparative Fit Index, RMR Root mean square residual, SRMR Standardized root mean square residual, NFI Normed Fit Index

Discussion

No specific scale was found to assess the attitudes of hemodialysis patients for dietary therapy in Turkey.

Therefore, the present study was conducted for Turkish validity and reliability of ASDTHP. In this section, the findings related to ASDTHP, which consisted of 16 items and 3 sub-dimensions, were discussed.

In this study, ASDTHP, which was developed by Onbe and Kanda in 2018, was adapted into Turkish. ASDTHP was found to be a valid and reliable tool with the assessment of psychometric characteristics on a sample group of Turkish patients receiving hemodialysis treatment.

The construct validity of Turkish version of ASDTHP was tested with EFA and CFA. As a result of EFA conducted to test the validity of ASDTHP, factor loads of all items were found to differ between 0.73 and 0.89. No items were deleted since all of the items had a factor load of >0.30 [15, 19]. In the original scale, items had factor loads between 0.41 and 0.84 [13]. The results were consistent with the EFA results of the original scale. Similar to the original scale, Turkish version of the scale was found to be grouped under three factors. It was found that 71.5% of the total variance was

explained. The scale was found to have construct validity since ≥ 52 is taken into consideration for the explained variance rate in scale adaptation studies [15]. Three-factor scale construct, found as a result of the EFA, was supported with CFA. To find out whether the model built with CFA was suitable for the data, goodness-of-fit indices were taken into consideration.

CFA fit index values of ASDTHP were found as $X^2 = 186.89$, $df = 99$ ($p < 0.05$), $X^2/df = 1.88$, $RMSEA = 0.067$, $CFI = 0.90$, $RMR = 0.062$, $SRMR = 0.04$ and $NFI = 0.94$, and the fit of the model was found to be acceptable [17]. The results of EFA and CFA showed that Turkish form of ASDTHP which had 16 items and 3 sub-dimensions was confirmed with no changes in the original scale form. All the results obtained show that the scale has a high validity in Turkish culture.

Cronbach's α internal consistency coefficient, item total correlation, and test–retest analysis were used to evaluate the reliability of Turkish version of ASDTHP. In our study, total Cronbach's alpha coefficient is 0.84, while it was found as 0.91 for propensity of behavior that is affected by cognition, as 0.91 for propensity of behavior that is affected by the food culture and as 0.87 for negative affect that modifies the diet. In the original scale developed by Onbe and Kanda, total Cronbach's alpha coefficient was 0.84, while it was found as 0.83 for propensity of behavior that is affected by cognition, as 0.78 for propensity of behavior that is affected by the food culture and as 0.63 for negative affect that modifies the diet [12]. It is stated in literature that ≥ 0.70 Cronbach's α scale reliability shows that the measurement tool is adequate to be used in studies [13, 18]. These results show that ASDTHP has a high internal consistency and high reliability in measuring the attitudes of hemodialysis patients for dietary therapy.

In the study, it was found that item total correlation coefficients differed between 0.38 and 0.53. It has been stated in the literature that acceptable item-total correlation coefficients can be as low as ≥ 30 and that high correlation coefficient obtained for each item shows that the item is effective and adequate to measure the aimed behavior [19]. These results show that item-total correlation coefficients of scale items are adequate.

ASDTHP was applied again to 60 patients with an interval of 2 weeks for test–retest analysis. Positive and high statistically significant association was found ($p \leq 0.001$). This result showed that the scale has high internal consistency and can give reliable results for more than one application.

Limitations of the study

The fact that the study was carried out in a university hospital was the most important limitation of the

study Supplementary material: The Turkish version of the scale is given in Table 5 and the English version is given in Table 6. (Tables 5, 6).

Conclusion

It was found that the results obtained were consistent with the original scale's analysis results. The three-factor construct of the scale was confirmed with EFA and CFA results. Cronbach's α internal consistency coefficient, item total correlation, and test–retest analysis of the scale were found to have high correlation. These results show that ASDTHP, the reliability and validity of which we studied, is a valid and reliable tool for the assessment of the attitudes of hemodialysis patients for dietary therapy.

Clinical implications

- Attitude Scale for the Dietary Therapy of Hemodialysis Patients can help nurses plan and perform more effective patient education to improve the effectiveness of compliance with dietary therapy
- Attitude Scale for the Dietary Therapy of Hemodialysis Patients can help nurses identify the lack of knowledge and skills and negative attitudes about diet therapy in hemodialysis patients'
- Attitude Scale for the Dietary Therapy of Hemodialysis Patients can be used in further research in future, through implementing comparisons between study outcomes in Turkish contexts.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11255-022-03438-4>.

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Data availability The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Declarations

Conflict of interest All authors approve that they do not have any financial and personal relationships with other people, or organizations, that could inappropriately influence (bias) this research and this manuscript.

References

- Seyahi N, Ateş K, Süleymanlar G (2018) T current situation of renal replacement therapies in Turkey: Turkish society of nephrology registry system 2016 summary report. *Turk Neph Dial Transpl* 27(2):133–139
- Sezen A, Arslan H (2014) Dialysis nursing In A. In: Failure K (ed) Sezen. Nobel medicine bookstores, Istanbul, pp 113–142
- Griva K, Nandakumar M, Jo-an HN, Lam KF, McBain H, Newman SP (2018) Hemodialysis self-management intervention randomized trial (HED-SMART): a practical low-intensity intervention to improve adherence and clinical markers in patients receiving hemodialysis. *Am J Kidney Dis* 71(3):371–381
- Ovayolu N, Uçan Ö, Pehlivan S (2007) The relationship between the adherence to treatment and diet of hemodialysis patients and some blood values. *Firat J Health Serv* 2(4):93–100
- Cicolini G, Palma E, Simonetta C, Di Nicola M (2012) Influence of family carers on haemodialyzed patients' adherence to dietary and fluid restrictions: an observational study. *J Adv Nurs* 68(11):2410–2417
- Bailey JL, Franch HA (2010) Nutritional considerations in kidney disease: core curriculum 2010. *Am J Kidney Dis* 55(6):1146–1161
- Kocamış RN, Türker P, Köşeler E, Kızıltan G, Ok MA (2016) The relationship between nutritional knowledge level and nutritional status in hemodialysis patients. *Baskent Univ Fac Health Sci J* 1(1):15–31
- Beto JA, Ramirez WE, Bansal VK (2014) Medical nutrition therapy in adults with chronic kidney disease: integrating evidence and consensus into practice for the generalist registered dietitian nutritionist. *J Acad Nutr Diet* 14(7):1077–1087
- Baraz S, Parvardeh S, Mohammadi E, Broumand B (2010) Dietary and fluid compliance: an educational intervention for patients having haemodialysis. *J Adv Nurs* 66(1):60–68
- Topbaş E (2017) Behavior change in nutrition of dialysis patients. *J Nephrol Nurs* 12(1):29–35
- Düzalan ÖB (2014) The effect of education given to hemodialysis patients on nutrition management. (Master's Thesis). Marmara University Istanbul
- Onbe H, Kanda K (2018) Development and testing of the attitude scale for the dietary therapy of hemodialysis patients. *Jpn J Nurs Sci* 15(1):39–49
- Güngör D (2016) Guide to development and adaptation of measurement tools in psychology. *Turk Psychol Artic* 19(38):114–112
- Çapık C, Gözüm S, Aksayan S (2018) Intercultural scale adaptation stages, language and culture adaptation: updated guideline. *Florence Nightingale J Nurs* 26(3):199–210
- Seçer İ (2015) Practical data analysis with spss and lisrel, 2nd edn. Am, Ankara
- Çokluk Ö, Şekercioğlu G, Büyüköztürk Ş (2016) Multivariate statistics SPSS and Lisrel applications for social sciences, 2nd edn. Pegem Academy, Ankara
- Capık C (2014) Use of confirmatory factor analysis in validity and reliability studies. *J Anatol Nurs Health Sci* 17(3):196–205
- Özdamar K (2017) Statistical data analysis with package programs, 10th edn. Kaan Kitabevi, Eskişehir
- Büyüköztürk Ş (2017) Data analysis handbook for social sciences statistics, research pattern SPSS applications and interpretation, 23rd edn. Pegem Academy, Ankara
- Tavşanel E (2019) Measurement of attitudes and data analysis with SPSS ankara, 6th edn. Atlas Publishing, Ankara

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