

Development and psychometric testing of determining the Attitudes of Immigrants towards Utilization Health Care Services (DAIUHCS) Scale: A Validation and Reliability Study

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Abstract

Background: Factors affecting immigrants' use of health services have been examined in many studies, some of them in nursing. However, no measurement tool determines immigrants' attitudes towards utilization health services and provides standard and psychometric characteristics.

Objectives: This study aims to develop a scale, "Determining the Attitudes of Immigrants towards Utilization Health Care Services" (DAIUHCS), considering the factors that affect their utilization health services and evaluate its validity and internal reliability.

Methods: This is a methodological study that evaluated the psychometric properties of the scale. Haphazard sampling, one of the non-probability sampling methods, was used. The data was collected from 416 immigrants. After the data was collected, the validity and reliability of the scale were evaluated through the Principal Component Analysis (PCA) and the internal reliability test (Cronbach's alpha).

Results: As a result of the PCA, the scale questions with an acceptable internal consistency level were grouped under four sub-dimensions. The DAIUHCS scale includes four sub-dimensions and 18 questions in its final version. The total Cronbach's alpha reliability coefficient of the scale was found to be 0.72.

Discussion: The scale was developed to determine and understand the attitudes of immigrants towards utilization health care services. It is suitable for the widespread use of nursing researchers working in the field of immigrant health.

Conclusion: The scale was developed to determine and understand the attitudes of immigrants towards utilization health services and it is suitable for the widespread use of researchers working in the field of immigrant health. [*Ethiop. J. Health Dev.* 2022; 36(4):000-000]

Keywords: Immigrant Health, the Attitude towards Utilization Health Services, Developing Scale, Validation and Reliability.

Introduction

According to the World Migration Report, approximately 272 million people live in the world as immigrants. Around 281 million people live somewhere other than their country of birth. Immigrants constitute 3.6% of the world population (IOM, 2022). Migration affects not only the health of individuals but also their level of utilization health care services. The fact that immigrants do not have equal opportunities with other individuals in society in terms of access to health care services causes them to use these services at a low level and neglect their health (Hemminki, 2014; Sanchez et al., 2017), which poses a risk to public health (Sarría-Santamera et al., 2016).

Utilization of health care is a function of usage trends, facilitating factors and the need for healthcare. The utilization health care services is one of the most important factors contributing to the improvement of the health level of society (Sepanlou and Majdzadeh, 2011; Wonde and Tadele, 2016). The first condition necessary for the utilization health care services is access to health services. Access to health care refers to the situation where facilitating factors exist. A higher number of facilitating factors increases the possibility of individuals to utilization health care services. Having access to health care services affects individuals' attitudes towards utilization health care services (Van der Heyden et al., 2015). The frequency of utilization health care services varies from country

to country. According to the studies conducted in different regions with various age groups, utilization health care services rates are 59.39% in Iran (Motlagh et al., 2015), 74% in Spain (Fernández-Olano et al. 2006), 86% in Taiwan (Tsou, 2018), 68% in Nepal (Sanjel et al., 2012). 79.95% in Turkey (Caner and Cilasun, 2019) and almost 90% in Scandinavian countries (Vadla et al., 2011). Generally, the utilization health care services was evaluated in studies on the elderly, individuals living in slums, and women.

Socio-demographic characteristics such as gender, age, availability of health insurance, economic status, educational status, marital status, and living alone or with someone affect individuals' attitudes towards utilization health care services. At the same time, personal characteristics such as smoking or alcohol use, having any chronic disease, using drugs, ability to perform daily life activities, awareness, religious and cultural attitudes and beliefs about health and illness, perceived family and peer social support, and health literacy levels also affect individuals' attitudes towards utilization health care services (Zhang, Oldenburg and Turrell, 2009; Sanjel et al. 2012; Tsou, 2018). In addition, social and environmental factors such as the budget allocated by the family for health care; the fees, accessibility and content of health care services; the means of transportation to the health institutions, the duration of transportation and the waiting time in the health institutions, the geographical distribution of the

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health institutions, and the health policies of the state affect the attitudes of individuals towards utilization health care services (Alzubaidi, Mc Namara, Browning, 2015; Mantwill and Schulz, 2017).

According to the studies conducted in different countries, the rate of immigrants' utilization health services is lower than that of local people (Sarría-Santamera et al., 2016; Alzubaidi, Mc Namara, Browning, 2015). The socio-economic status of immigrants, lack of awareness and knowledge about the health system, language proficiency, decrease in a social context, legal status in the country of residence, experiences with health personnel and the health system and the level of acculturation are the factors that affect the rate of health services utilization (Hemminki, 2014; Sarría-Santamera et al., 2016; Sanchez et al., 2017). Also health policy of the country for immigrants, adaptation to the country, the attitude of the healthcare personnel towards immigrants, the cost of health services and the preference for traditional treatment methods instead of benefiting from the health services provided by health institutions effects the rate of health services utilization (Alzubaidi, Mc Namara, and Browning, 2015; Ahmed et al. 2016).

There are differences among immigrant groups in terms of barriers to utilization health care services. In societies with a collective family structure, such as the Arab society, individuals cannot make their own decision about visiting a health institution. In these societies, postponement of visiting health institutions and neglecting health even when symptoms of illness develop decrease the utilization health care services (Alzubaidi, Mc Namara, Browning, 2015; Ahmed et al. 2016).

Studies conducted with immigrants mostly focus on factors affecting their utilization health care services (Hemminki, 2014; Alzubaidi, Mc Namara, Browning, 2015; Ahmed et al. 2016) or compare the utilization health care services by immigrants and local people (Sarría-Santamera et al., 2016; Sarría-Santamera et al., 2016; Beiser and Hou, 2014; Franchi et al. 2016). Previous studies evaluating the utilization health care services by immigrants mostly focused on mental health (Maier, Schmidt and Mueller, 2010; Redditt et al., 2015; Spinogatti et al. 2015). There are a few studies in the nursing and migration literature evaluating the utilization health care services by immigrants (Redditt et al., 2015; Ahmed et al. 2016); however, they do not include any measurement tool that evaluates the attitudes of immigrants towards utilization health care services.

Assessment Instruments

The researcher could not retrieve any information about measuring scale in the literature that determines the attitudes of immigrants towards utilization health care services. To determine the level of utilization health care services in the studies, the participants have generally been asked about the status of visiting a doctor or a health institution in the last 4 weeks, in the last 6 months, or the last year (Motlagh et al., 2015; Sanjel et al. 2012; Caner and Cilasun, 2019; Alzubaidi,

Mc Namara and Browning, 2015). Questions about having the doctor write a prescription, hospitalization, check-up, the frequency of visiting the doctor, taking medication, visiting a health institution regularly, the reason for seeing the doctor, the status of having tests, the number of examinations, and the number of diagnoses are posed in studies to determine individuals' attitudes towards utilization health care services (Loxton, Schofield and Hussain, 2004; Beiser and Hou, 2014; Babu et al., 2019). In some studies, answers to the questions of 'What do you do when you get ill?', 'What do you do when symptoms of a major or minor illness develop?', and 'which one do you prefer: alternative medicine or modern medicine?' were used to determine attitudes of immigrants towards utilization health services (Mantwill and Schulz, 2017; Tsou, 2018).

In some studies, the Urban Health Equity Assessment and Response Tool (Urban HEART) (Motlagh et al., 2015; WHO, 2020; Amiresmaili, Yazdi-Feyzabadi and Heidarijamebozorgi, 2019) and the World Health Survey (Darby et al., 2003; Babu et al., 2019) were used to determine the attitude towards using health services. In another study General Practitioners Preventive Health Services Utilization Questionnaire (GP-PHSUQ) questionnaire with six sub-dimensions was created and used. The questions of questionnaire were combined from five different scales (Zhang, Oldenburg and Turrell, 2009). Only a few questions in GP-PHSUQ are intended to determine the attitudes towards utilization health care services.

In some studies, researchers used general health evaluation questionnaires of the country's official institutions where the study was conducted to determine the attitudes towards utilization health care services. The questionnaires are the following; General Practice Assessment Survey (GPAS) (Zhang, Oldeeburg and Turrell, 2009), Women's Health Australia (WHA) (Loxton, Schofield and Hussain, 2004), Canada Community Health Survey (CCHS) (Beiser and Hou, 2014), National Population Register (NPR) (Franchi et al. 2016), Australian Bureau of Statistics (ABS) Population (Zhang, Oldenburg and Turrell, 2009).

This study aims to develop a DAIUHCS scale considering the factors that affect their utilization health care services and bringing such a scale to the nursing literature.

Methods

Scale Development

The procedure followed to develop the questions in the scale and to finalize the scale are as follows.

Creating the Item Pool

Factors that affect migrants' access to health care services, such as socio-economic conditions, lack of awareness and understanding of the health system, lower language proficiency, social background, the legal status of the country of residence, health policies of the immigration country, and the experience of medical staff and the health system are reviewed in the

literature (Alzubaidi, Mc Namara, Browning, 2015; Ahmed et al. 2016; Sanjel et al. 2012) and based on this literature review process, 36 questions were created to determine the attitudes of immigrants towards utilization health care services. After the first evaluation including the review of the questions, the number of questions was decreased to 23.

Obtaining Expert Opinion

A conformity form was created to receive the experts' opinions about the 23 questions obtained. The first column of the conformity form included questions with three response options. The experts were expected to choose one of the "essential", "useful but not essential", and "not necessary" options for each question. This form was sent to 2 Public Health Nursing Specialists, 1 Psychological Guidance and Counselling Specialist, 2 Healthcare Management Specialists, 1 Community Medicine Specialist and 1 Physiology Specialist to evaluate conformity. The specialists have projects and research on the topic. Also, they have proven their competence in this field. Combining all of the forms received from the specialists in a single form, it was determined which options were chosen for each item by how many experts. In this process, in line with the opinions of the specialists, the content validity of the questions was determined with the validity ratio developed by (Gokdemir and Eryilmaz, 2022). The ratio was determined by subtracting 1 from the ratio of the total number of experts who selected the positive response for each item to the total number of experts. After the content validity ratios were determined, it was seen that none of the questions had a content validity ratio below 0.80 (Esin, 2014). Some of the questions were revised to increase clarity.

The pretest and the revision of the questionnaire

After the questions were revised, the questionnaire in Arabic was administered as the pretest to a small group of immigrants who could speak and write Arabic in order to test its comprehensibility. Twenty-three immigrants (thirteen men and ten women) who could speak and write Arabic, who were between 19 and 52 years old, whose average age was 26, and who had different socio-economic levels were selected to administer the pretest. In addition to the questionnaire, an invitation letter and checklist were distributed to the participants. The necessary revisions were made by evaluating the feedback and comments of the participants. After the administration of the pretest, a questionnaire form in Arabic titled "DAIUHCS Scale" was created.

Data Collection

This study was reviewed and approved by the participating institutions. A questionnaire form was

used to evaluate the validity and reliability of the scale among immigrants who speak and write Arabic. The form consists of 22 descriptive questions, such as socio-demographic and personal characteristics, and 23 questions in the "DAIUHCS Scale". By answering the questions on a 5-point Likert-type scale (I strongly agree (5), I agree (4), I am undecided (3), I disagree (2), and I strongly disagree (1), the participants express their own perceptions. The questionnaire was administered to immigrants after obtaining their verbal informed consent. The data was collected from 416 immigrants.

Evaluation of the psychometric characteristics of the scale

Validity and reliability analyses of the scale were conducted based on the responses from a total of 416 immigrants who agreed to participate in the study. The data were evaluated using SPSS 23. First of all, the Kolmogorov-Smirnov test was performed to examine the normality distribution of the data. The data were found to show normal distribution. Kendal's W Analysis was performed for content validity, while Cronbach's Alpha reliability coefficient was calculated for internal consistency, and the Principal Components Analysis and Varimax Rotation were used for explanatory factor analysis. The Kaiser-Meyer-Olkin (KMO) test was performed to determine the adequacy of the sample in the explanatory factor analysis. The Barlett test was used to determine whether the data matrix is a unit matrix and whether the correlation between variables is sufficient.

In this study, as the reliability criterion, the item total score correlation value was taken as 0.30 (Esin, 2014). After the validity and reliability analyses, the scale was finalized with 18 items. Responses to each statement in the scale are in five-point Likert type, and all the statements are positive. The DAUHC Scale expresses positive opinions about utilization health care services. Each sub-dimension in the scale is evaluated separately, and attitudes towards utilization health care services can be evaluated based on the total score obtained from the scale. The scores that could be obtained from the sub-dimensions vary between 4-20 for the health awareness sub-dimension; 4-20 for the factors affecting health services sub-dimension; between 5-25 for the sub-dimension of the way health care services are provided; and between 5-25 for the access to health care services sub-dimension. The total score that could be obtained from the scale range between 18 and 90. A higher total score and higher sub-dimension scores indicate that immigrants have a positive attitude towards utilization health care services (Figure 1).

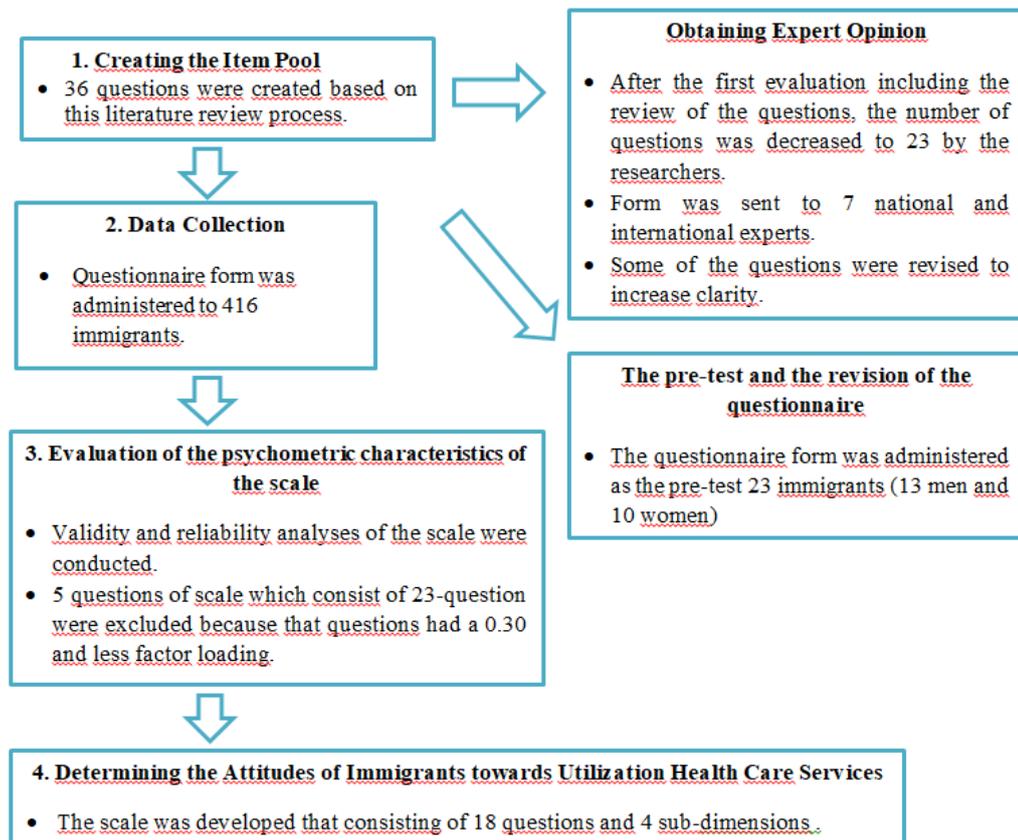


Figure 1. Research Process

Results

This is a methodological study evaluated the psychometric properties of the scale. Haphazard sampling, one of the non-probability sampling methods, was used. A sample of 416 immigrants was enrolled in an NGO that organizes activities for migrants in Samsun city in Turkey from September 2019 to February 2020. DAIUHCS Scale aimed to be developed in the study, involves 23 items. In the literature, it is recommended that the scale to be developed should be applied to individuals 5 to 10 times the number of items (Tabachnick ve Fidell, 2007; Esin, 2014). This study was completed with 416 immigrants in total. Inclusion criteria of this study are speaking and writing Arabic language, being an

immigrant, being over 18 years old, agreeing to participate in the study, having no communication barriers and living in Samsun city in the north of Turkey. Exclusion criteria of this study are to be illiterate, be a local citizen and be under 18.

416 immigrants between 18 and 80 participated in the study to develop the DAIUHCS Scale. 251 immigrants (60.3%) were male, and 165 (39.7%) were female. 195 participants (46.9%) were married, and 221 (53.1%) were single. The average age of the participants was 29.1 ± 11.3 (min 18, max 80). Table 1 shows the socio-demographic characteristics of the participants, such as their financial status, legal status, health insurance, and educational status.

Table 1. Socio-demographic characteristics of the study sample (n = 416)

Characteristics	n	%
Average of age	416	29.1 ± 11.3 (min 18, max 80) years old
Gender		
Female	165	39.71
Male	251	60.39
Marital status		
Married	195	46.93
Single	221	53.17
Average number of children	187	3.37 ± 1.83 (min 1, max 9) children
Origin County		
Syria	211	50.61
Iraq	171	41.22
Iran	1	0.21
Afghanistan	1	0.24
Other	32	7.72
Ethnicity		
Arab	392	94.21

Persian	5	1.23
Kurdish	8	1.92
Afghan	6	1.43
Turkoman	5	1.21
Education		
Primary school	52	14.76
College	106	27.65
University	189	47.34
Postgraduate	35	10.25
Health Insurance		
Presence	277	66.63
Absence	139	33.37
Turkish language skills		
Adequate	144	34.61
Partially	224	53.86
Inadequate	48	11.53
Employment status		
Employee	111	26.65
Unemployee	305	73.35
Currently Employment		
Worker	98	96.83
Health Professional	13	3.17

The individual characteristics of the participants, such as the status of having a chronic disease and the status of visiting the doctor, are given in Table 2. The principal component analysis (PCA) and varimax rotation were used to determine scale's construct validity. The analysis revealed four sub-dimensions: health awareness, factors affecting the utilization health care services, how health services are provided, and

access to health services. The explanatory variance percentages of the sub-dimensions of the scale were found to be 17.91, 11.20, 8.15 and 7.62, respectively. The factor loadings of five questions in the 23-item scale were below 0.30; thus, they were excluded from the study. As a result, the total number of questions on the scale was 18 (Appendix 1).

Table 2: Individual characteristics of Immigrants (n = 416)

Characteristics	n	%
Status of regularly using a drug		
Use	79	18.75
Not use	337	81.25
Ability to perform daily life activities		
Perform	359	86.32
Not perform	57	13.68
Status of disability		
Presence	23	5.50
Absence	392	94.50
Status of regularly applying to a doctor		
Apply	124	29.81
Not apply	292	70.19
Status of having a chronic illness		
Have	62	14.94
Not have	354	85.06
Status of have a family member or relatives having a chronic illness		
Have	135	32.23
Not have	283	67.77
Presence of health professional among family members/ close relatives (Doctor, Nurse etc.		
Presence	144	34.67
Absence	272	65.33

Table 3 shows the factor loadings of these questions under the sub-dimensions of health awareness (1,2,3,7), the factors affecting the utilization health care services (4,5,6,8), the way health services are provided (9,10,14,15,16) and access to health services

(11,12,13,17,18). As a result of the exploratory factor analysis of the scale, it was found that the KMO coefficient was 0.735, and the Bartlett test result was $\chi^2=639.698$, $p:0.001$ (Hoskins, 2021).

Table 3. Results of final Principal Component Analysis for the Scale (N: 416)

Scales/items	Mean	Standard Deviation	Factors and item loadings (Varimax Rotation)	Variance Explained
Health Awareness				
1. I think my health is good.	3.38	1.28	0.607	
2. I have sufficient knowledge about diseases.	3.44	1.11	0.788	
3. I can access the necessary information about my health from social media and websites.	3.02	1.25	0.691	17.91
7. I have enough information about the services provided by the health institutions in my area.	3.31	1.09	0.510	
The factors affecting the utilization of health care services				
4. I do not think I will be diagnosed with any other health problem when I go to a hospital, family health center or polyclinic.	2.74	1.22	0.758	
5. My illnesses so far do not affect my application to health institutions.	2.82	1.23	0.731	
6. I do not think that my state of citizenship of the country I live in will affect my state of benefiting from health care services.	3.13	1.28	0.716	11.20
8. My experiences with the health institutions so far will not affect my application for health care service.	3.05	1.24	0.687	
The way health care services are provided				
9. When I go to the hospital, family health center or outpatient clinic, I care about the attitude of the health care personnel towards me.	3.57	1.11	0.522	
10. The distance between my residence and health institutions affects my application to health institutions.	3.87	1.01	0.506	
14. It is important for me that hospitals, family health centers and polyclinics provide special services (translator, guidance, private polyclinic, etc.) to immigrant individuals.	3.90	1.11	0.706	8.15
15. I think the quality of the services provided in hospitals, family health centers and polyclinics is sufficient.	3.63	1.02	0.512	
16. I believe the working hours of the health institutions are appropriate.	3.62	0.99	0.667	
Access to health care services				
11. The signs showing the health institutions in the city make it easier for me to reach hospitals or other health institutions.	3.46	1.11	0.735	
12. It takes a short time for me to reach the health institutions by vehicles.	3.38	1.10	0.567	
13. The fees of the transportation vehicles I use to go to health institutions are reasonable.	3.44	1.06	0.802	7.62
17. I can afford the fees specified for health care services.	3.38	1.21	0.533	
18. I find the immigrant health policies of the country I live in successful.	3.57	1.12	0.614	
Total Variance Explained				50.22

Table 4 shows the internal reliability test, mean score, standard deviation and Cronbach's Alpha reliability coefficient of the sub-dimensions of the scale. Sub-dimensions, reliability coefficients and a number of questions have the following; Health awareness (4 items) with Cronbach's alpha reliability coefficient of 0.63, The factors affecting the utilization of health services (4 items) with Cronbach's alpha reliability coefficient of 0.73, The way health services are

provided (5 items) with Cronbach's alpha reliability coefficient of 0.60, and access to health services (5 items) with Cronbach's alpha reliability coefficient of 0.71. The total Cronbach's alpha reliability coefficient of the scale was found to be 0.72. The scale questions with an acceptable internal consistency level were grouped under 4 sub-dimensions.

Table 4. Mean scores, standard deviations and Cronbach's Alpha reliability coefficients for the factorially derived sub-dimensions

Sub-dimensions	Number of Case	Number of Items (possible score range)	Mean (SD)	Cronbach's Alpha
Health Awareness	416	4(4-20)	13.16(2.99)	0.63
The factors affecting the utilization of health care services	416	4(4-20)	11.75(3.46)	0.73
The way health care services are provided	416	5(5-25)	18.61(3.26)	0.60
Access to health care services	416	5(5-25)	17.26(3.69)	0.71
Total	416	18(18-90)	60,79(8.44)	0.72

Discussion

Statement of principal findings

As a result of the analysis performed to determine the factor structure of the scale, it was found that the questions were gathered under four factors. One of the criteria evaluating the reliability of a scale is internal consistency. The Cronbach Alpha reliability coefficient is commonly used to evaluate internal consistency. A Cronbach's Alpha coefficient greater than 0.6 indicates that the reliability of a scale is at a good level (Esin, 2014). The study revealed that the scale's Cronbach Alpha value of each sub-dimension was between 0.60 - 0.71, which indicates that the scale is reliable. In a study conducted to evaluate the factors affecting the use of preventive health services that family physicians offer by individuals living in Australia, a new scale was developed by combining questions from different scales and making the necessary analyses. The Cronbach's Alpha of the scale was found to be between 0.75–0.86 (Zhang, Oldeeburg and Turrell, 2009).

In scale development studies, the sample size must be large enough to perform the factor analysis. Whether the data obtained from the sample is suitable for factor analysis is explained with the KMO (Kaiser-Meyer-Olkin) coefficient and Bartlett test. The KMO value is expected to be above 0.50, and the Bartlett test result is expected to be significant. In addition, a KMO value below 0.50 indicates that the sample is insufficient for factor analysis, and a KMO value above 0.90 shows that the sample size is satisfactory (Esin, 2014; Hoskins, 2021). In this study, the KMO value was 0.735, and the Bartlett test was significant ($p < 0.001$), indicating that the sample size was sufficient (Hoskins, 2021).

It is stated in the literature that the variance explained in single-factor scales should be 30% or more, and it should be higher in multi-factor scales (Bowling, 2004). In this study, the total variance explained by the scale was found to be 50.22%, meaning that the scale evaluates the concepts well.

In this study, while the scores obtained by the participants from the sub-dimensions of the way health services are provided and access to health services were at a moderate level, in their study Zhang et al. (2009) found that the participants had high scores in the sub-dimensions of concerns about the availability of health care and accessibility and attitudes towards health care, which have similar questions to our study.

Our study revealed that immigrants' attitudes towards utilization health care services were positive. It is of great importance to determine the attitudes of immigrants towards utilization health care services because, especially after the Syrian civil war, the Syrians migrated to countries in different parts of the world and determining the attitudes of these immigrants towards utilization health care services can reduce the negative effects of this process on both the health of the immigrants and the health of the individuals in the society where the immigrants now live. Determining immigrants' attitudes may also positively affect the service planning of healthcare institutions.

The study's results revealed that the participants obtained average scores from the sub-dimensions of the scale. This result does not coincide with the findings in the literature. Studies on the immigrant Arabic society, which has a collective structure, show that the attitudes of the Arab society towards utilization health care services are at a low level (Alzubaidi, Mc Namara, Browning, 2015) compared to the local people and other immigrant groups.

Strengths and limitations

This validity study was conducted to determine the attitudes of Arabic-speaking immigrants towards utilization health care services. The study was conducted with a homogeneous group. Thus, the results can only be generalized to the individuals in the study group. The administration of this scale to different immigrant groups in different studies may increase the scale's validity.

Interpretation within the context of the wider literature

No measurement tool determines the attitudes of immigrants towards utilization health care services and provides standard and psychometric characteristics in the literature. DAIUHCS scale was developed considering the factors affecting their utilization health care services. It is suitable for the widespread use of nursing researchers working in immigrant health. The scale may contribute to the studies of nursing researchers who could use the scale as a guide while developing new measurement tools.

Implications for policy, practice and research

The data and measurement tool obtained in this study provide guidance for nurses and politicians who want

to produce nursing interventions and policies aimed at increasing the utilization of health care services by immigrants. Nurses caring for immigrants can use this scale to determine the attitudes of immigrants towards utilization health care services and to make nursing interventions for immigrants in line with determined results. The scale developed in the study is a scale with proven validity and reliability, which can be used by nursing researchers who research the immigrant health.

Conclusion

The scale consisting of 18 questions and four sub-dimensions was developed to determine and understand immigrants' attitudes towards utilization health care services. It was proven to be an easy-to-complete, clear-to-understand, valid and reliable scale. Thus, this scale has the potential to determine the attitudes of immigrants who can speak and write Arabic towards utilization health care services. It is suitable for the widespread use of nursing researchers working in immigrant health. The scale may contribute to the studies of nursing researchers who could use the scale as a guide while developing new measurement tools. The scale was developed in Arabic. It is important for countries to recognize their immigrant populations' characteristics and identify the factors that affect admission to health services. For this purpose, it may be suggested that this scale be adapted to different societies and languages. In this way, by determining the attitudes of immigrant individuals towards utilization health care services, individual and social measures can be taken and the health of immigrants and individuals in the society where the immigrants live can be protected and improved.

Contributor ship

IAA: Made substantial contributions to conception and study design, conducted data collection and performed the statistical analysis and interpretation of data. Has also been involved in drafting the manuscript, revised it critically for important intellectual content and given final approval for the version to be submitted. MK: Made substantial contributions to the conception, study design, data collection and interpretation of data. Has also been involved in drafting the manuscript, revised it critically for important intellectual content and given final approval for the version to be submitted.

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