

Causes for Applications to Complementary Medicine Practices: A Scale Development Study

Tamamlayıcı Tıp Uygulamalarına Başvuru Nedenleri: Bir Ölçek Geliştirme Çalışması

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ABSTRACT Objective: The study was carried out to develop an application scale for complementary medicine applications in order to measure behaviors related to the reasons of application to complementary medicine applications in accordance for Turkish culture. **Material and Methods:** This study was carried out in June 2017-December 2017 with 387 patients who applied to a medical centre operating in Bursa province for complementary medicine applications. The data were obtained with a personal data sheet and a draft scale of application to 46-point complementary medical applications. For draft scale; descriptive factor analysis was performed for surface validity, expert evaluation, the correlation between the materials and Cronbach Alpha values for internal consistency/reliability, and structural validity. **Results:** Scope validity index of the scale as a result of the expert evaluation. 0.92. The correlation values between the scales are $r=0.47-0.80$, Cronbach Alpha=0.97. Kaiser-Meyer Olkin value of your scale=0.94, Bartlett test $\chi^2=16566.489$; $p=0.000$, and the 45-item single factor, accounting for 47% of the total variance explained. **Conclusion:** This scale is a reliable and valid measurement tool in determining the reasons for applying complementary medicine to individuals.

Keywords: Health behaviours; complementary medicine; alternative medicine; traditional medicine; scale development

ÖZET Amaç: Araştırma Türk kültürüne uygun, birey düzeyinde tamamlayıcı tıp uygulamalarına başvuru nedenlerine yönelik davranışları ölçmek için bir "Tamamlayıcı Tıp Uygulamalarına Başvuru Ölçeği" geliştirmek amacıyla yapıldı. **Gereç ve Yöntemler:** Metodolojik tipte bir çalışma olan bu araştırma, Bursa ilinde tamamlayıcı tıp uygulamaları ile ilgili faaliyet gösteren bir tıp merkezine işlem için başvuran 387 hasta ile Haziran 2017-Aralık 2017 tarihleri arasında gerçekleştirildi. Veriler kişisel bilgi formu ve 46 maddelik tamamlayıcı tıp uygulamalarına başvuru taslak ölçek ile elde edildi. Taslak Ölçek için; meslektaş görüşleri ile yüzey geçerliliği, uzman değerlendirmesi yapılarak kapsam geçerliği, iç tutarlılığı/güvenirlilik için maddeler arasında korelasyon ve Cronbach Alpha değerlerinin hesaplanması, yapı geçerliği için açıklayıcı faktör analizi yapıldı. **Bulgular:** Uzman değerlendirmesi sonucunda ölçeğin Kapsam geçerlilik ineksi. 0,92 olarak saptandı. Ölçek maddeleri arasındaki korelasyon katsayıları $r=0,47-0,80$, Cronbach Alpha değeri=0,97 olarak tespit edildi. Ölçeğin Kaiser-Meyer Olkin değeri=0,94, Bartlett test sonucu $\chi^2=16566,489$; ($p\leq 0,001$) ve ölçeğin 45 maddelik tek faktörden oluştuğu, açıklanan toplam varyansın %47 olduğu saptandı. **Sonuç:** Bu ölçeğin, bireylerin tamamlayıcı tıp uygulamalarına başvuru nedenlerini belirlemede geçerli ve güvenilir bir ölçek olduğu sonucuna varıldı.

Anahtar Kelimeler: Sağlık davranışı; tamamlayıcı tıp; alternatif tıp; geleneksel tıp; ölçek geliştirme

Although technology in the modern medicine and pharmaceutical industry has evolved with increasing momentum, people are increasingly interested in what is traditional or natural. Complementary and/or conventional medical practice (T/CAM) is increasingly being implemented as an alternative to modern medical practice in developed

countries, not only in underdeveloped or developing countries where access to health care is difficult.¹ The World Health Organization (WHO) has reported that treatment of complementary and/or traditional medical practices for disease prevention and prosperity has been increasing worldwide in recent years.² The prevalence of complementary and/or traditional medical practices among the general population in developed countries such as the USA is 42%, Canada 50% and France 75%. Similarly, in developing countries, the use of complementary and/or traditional medical practices is becoming increasingly popular. Up to 90% of Asian and African countries have relied on complementary and/or traditional medical practices for primary health care purposes. In developing countries such as Uganda, the prevalence of complementary and/or traditional medical practices is 60%, India is 70%, and Ethiopia is 90%.² Complementary and/or traditional medical practices in China account for approximately 40% of health services. In addition, global market sales of complementary and/or traditional medical practices increased from US \$ 700 million in 1999 to US \$ 1.000 million in 2001. The use of complementary and/or traditional medical methods in Australia is estimated to be around 2.3 billion dollars in national expenditures in 2000.³

Healing of traditional Chinese medicine include, homeopathy and Ayurveda “alternative and medical system”, biofeedback, hypnosis, relaxation/meditation, music, “body-drug therapy”, herbal treatment, high-dose vitamins, biological-world diets, the most basic therapies, Touch and Reiki, such as massage, exercise, energy therapies, manipulative and body-based therapies, chiropractic, hydrotherapy, reflexology, acupuncture.⁴ The reasons people apply to complementary and/or traditional medical practices can be influenced by many factors. The decision to use can be according to personal preferences. If the reasons for applying for complementary and/or traditional medical practices are to be looked at; the lack of health insurance systems, some side effects that drugs can create, the complications that may arise in medical interventions and the high costs for these treat-

ments, if the person has too much voice or control over the medical treatment and interventions to be implemented, that the technological medical methods to be applied are not person-to think that body resistance will increase with these ways, treatment is to be rescued from the despair of diseases that are not possible with modern methods, and strengthening healthy behaviors.⁵⁻⁷ It is reported that the elderly who apply complementary and/or traditional medical practices are generally used to be healthy and to increase their quality of life by reducing their pain.⁸ Survival et al. (2013) in a survey conducted by elderly individuals living in rural areas in Turkey, 98.3% of the use of CAM methods, herbal therapies, 70.7%, 69.3% of religious practices, 59%;⁷ have been using nutritional therapies. The same study has determined that elderly people in our country have never used yoga, biofeedback and hypnosis methods. It has been determined that 60-80% of elderly people with respiratory, gastrointestinal, urinary, musculoskeletal and endocrine system health use religious practices.⁹ The most common use of CAM practices is the perception that it will not harm health if it is natural.¹⁰ The belief that the side effects of complementary and/or traditional medical practices are less and less harmful is also shown as the reason for making the most of these applications.¹¹ The reason for the growing popularity of CAM applications, the approach to protect the holistic nature of CAM practices, one’s own self-empowerment sense, “safer”, low cost, more accessibility, application diversity and philosophical beliefs.¹²

Although the use of CAM has provided important contributions to health care and personal health management, the increased use of complementary and/or traditional medical practices has increased the concern that toxicity of potential plant-drug, herbal and plant-herbal interactions may be associated with it.¹³ There are many factors that affect health behaviour. These factors are personal characteristics, socio-cultural characteristics, social environment and health beliefs. The aim of this research is to develop a measurement tool to measure behaviours to determine Causal References (CAM) to a Complementary/Traditional

Medical Practice that is valid and reliable at the individual level.

MATERIAL AND METHODS

OBJECTIVE

The survey method was used in this study aimed at determining the reasons for the application of traditional and complementary medicine for individuals 'health. In order to improve the scale of determining the reasons for choosing complementary and traditional medicine applications, the survey was conducted in-depth literature screening. As a result of the literature research, studies for traditional and/or complementary medicine practices were conceptual, and no methodological studies were seen. This study aims to develop a scale that measures the "Reasons for Applying for Complementary and/or Traditional Medicine Applications" in order to fill this gap in the literature.

THE UNIVERSE AND SAMPLING OF THE STUDY

The research was carried out in the province of Osmangazi, Bursa between June and December 2017. The study was conducted with 387 people who were involved in complementary medical practices, who applied for treatment at a medical centre that allowed the study to be conducted and agreed to participate in the study. The sample size of the study was calculated as 384 persons as a result of the power analysis performed over the number of 424.909 people who are over 20 years old living in the Osmangazi district of Bursa and the whole of the universe.¹⁴ In addition, when the number of samples was determined, the number of items in the measure was taken into account and the number of samples was determined to be five to ten times the number of items.¹⁵ The scale consisting of 46 items was applied to 414 persons, which is 8 times the number of items in the measure. However, 387 people who completed the questions in the measure complete and without error and accepted to participate in the voluntary work constituted the real sample of the research. 27 questionnaires that were not answered on the scale were excluded.

DATA COLLECTION TOOLS AND COLLECTION OF DATA

The data were collected using the "Personal Information Form" and the "Draft Scale for Reasons for Application to Complementary and/or Traditional Medical Practices".

Personal Information Form; It is a form of 4 questions about the personal characteristics of the participants (age, gender, education level, which of the complementary medicine methods are applied).

Draft Scale for Reasons for Application to Complementary and/or Traditional Medical Practices; The scale items prepared in the light of the information in the literature and the opinions of the academicians in their field are a form of 46 questions which assess the reasons for the participants 'application to complementary and/or traditional medical practices. The surface validity of this scale was utilized from the opinions of researchers and colleagues. Thus, surface validity was obtained by testing the comprehensiveness of the items on the scale.¹⁶

For the validity of the draft scale form, the draft scale was examined and evaluated by 5 faculty members of the Faculty of Health Sciences of the institution where the researchers were employed. A form was prepared for the expert assessment and the Davis technique was used. The expressions on this form, sent by e-mail for expert evaluation, were evaluated as (a) "very suitable", (b) "suitable", (c) "slightly suitable" and (d) "not suitable". For the scope validity index (SVI) value (a) "very convenient", (b) "convenient" number of eligible markers was divided into total numbers.¹⁷ The SVI values of the draft scale were 0.92. According to expert evaluations, corrections were made to the proposed articles and a draft scale (46 items) was prepared. Before the validity of the scale, 50 participants were piloted by the researchers. With this pilot application, corrections were made to the questions that participants had difficulty understanding and the sample set for the research was applied.

After the final arrangement of the scale by means of structural validity, substance and internal consistency analysis to calculate the number of

layers of reliability, the test was repeated for 50 participants by using the test-re-test method between 2 weeks. After all these evaluations, a scale of 46 items of 5 Likert type was obtained. The obtained scale consists of 45 items. Scale items; 5 Likert-type scaling method is defined as “1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree”. The lowest score is 45 points and the highest score is 225 points. As these points rise, the reasons for applying complementary/traditional medicine applications of individuals are increasing positively.

After the participant was informed about the research in the waiting room of the Medical Center, the participant was approved. The participants were given the “personal data form” and the “scale of application for complementary and/or traditional medical practices”. The response time was approximately 8-10 minutes.

ETHICS OF RESEARCH

In this study, from the ethics committee of the university where the researchers were received (Ethics approval no: 2018/05, 3734). In this study, written permission was obtained from the medical centre where the study was conducted. Participants were told that the research was based on volunteering. Written consent was obtained from the participants who volunteered for the study.

EVALUATION OF DATA

Statistical analysis was performed using SPSS 25.0 package program. The distribution of questions included in the personal data form was interpreted as frequency, percentile. For the validity and reliability of the scale, percentages, mean, Cronbach Alpha, Spearman-brown Correlation and factor analysis tests KMO, Bartlett test, Anti-image correlation, Principal Components Analysis and Varimax rotation were used. Content validity analysis was performed to determine whether the number of items was reduced on the scale. The factors for the draft scale were determined using the SPSS factor and the principal components analysis using the simple building approach solution based on the eigenvalues reported above 1.¹⁸ These are supported

by slope testing and factor interpretability based on factor scale correlations. The results were considered to be good if the factor loads above 0.71 (50% overlap variance) were excellent, 0.63 (40% overlap variance) were very good and 0.55 (30% overlap variance) were good. Factor loads lower than 0.55 were also considered appropriate if the scale was correlated with the only one factor.¹⁹

RESULTS

RESULTS ON INDIVIDUAL CHARACTERISTICS OF PARTICIPANTS

The mean age of the participants was found at 42.75 ± 0.96 years. The gender of the participants was found to be not equal to men and women and the female participants were more (women N=228, 58.9%; men N=159, 41.1%). The sample chosen for this study reflects the diversity of participants with different educational status of society, while the most commonly defined educational groups were: high school (N=145, 37.5% of the sample), primary school (N=80, 20.7% of the sample), associate (N=61, 15.8% of the sample), undergraduate (N=50, 12.9% of the sample), graduate (N=22, 5.7% of the sample) and literacy (N=29; 7.5%).

Information about which traditional and/or complementary medical methods the participants apply is shown in Table 1.

According to Table 1 shows that, with the traditional and/or complementary medical practices applied by the participants, 33.9% of the participants performed cupping therapy with the highest proportion of the participants, 26.9% of the parti-

TABLE 1: Traditional and/or complementary method of the participants.

Traditional and/or complementary medicine method applied	The Number of	
	Participants	Per cent (%)
Cupping Therapy	131	33.9
Acupuncture	104	26.9
Phytotherapy	38	9.8
Yoga-Meditation	24	6.2
Hydrotherapy-Reflexology	8	2.1
Homoeopathy	4	1.0
Others	78	20.2

participants applied acupuncture at the second place. The other traditional and/or complementary medical practices among the participants were as follows: phytotherapy 9.8%, yoga-meditation 6.2%, hydrotherapy-reflexology 2.1%, homoeopathy 1.0% and other applications 20.2% (Table 1).

RESULTS FOR ANALYSIS OF ITEMS ON THE SCALE

Before the analysis of the structural validity of the draft scale, a total score analysis was made and the total correlation values of 46 items were taken into consideration. The correlation values of the item-total score of the scale were found to be positive for 45 items, ranging from $r=0.47-0.80$. Only one item was found low ($r=0.28$). In the literature, it is emphasized that this value ($r=0.28$) should be $r=0.30$ and above.¹⁷ As a result of the analysis, it was decided that an item with a low r -value on the scale should be removed from the scale and the scale should be evaluated over 45 items.

RESULTS OF STRUCTURAL VALIDATION ANALYSIS

The Kaiser-Meyer Olkin coefficient was evaluated to determine the suitability of the data for factor analysis before making structure validation for Reasons for Application to Complementary and/or Traditional Medical Practices Scale. Kaiser-Meyer Olkin (KMO) coefficient 0.94 and Barlett test result $\chi^2=16566.489$; $p=0.000$ ($p<0.001$). The KMO value should be above 0.50.²⁰ According to these results, the data can be considered as suitable for factor analysis. Exploratory factor analysis was performed to test the structural validity of the scale. The principal components analysis and the varimax rotation were used and a single factor solution was proposed (eigenvalue=21.716, 47% of the explained variance). Factor loads range from 0.47 to 0.82 between 45 items.

When we look at the reliability coefficients of the scale, it is observed that the overall reliability of the scale is 0.97. This result shows that the scale is highly reliable (Table 2).

DISCUSSION

In this study, which was conducted to develop a scale to assess the causes of referral to complemen-

tary/traditional medical practices, the present studies were firstly reviewed through an in-depth literature review. As a result of the examinations made, there was no specific scale for determining the reasons for the application to complementary/traditional medical practices in our country. For this purpose, a study was carried out on a sample that applied to complementary/traditional medicine applications and had at least one of the applications. With this scale being developed, it is considered to be a source to guide individuals to determine complementary/traditional medical applications and to determine the factors that will affect the health behaviour in the negative and complementary/traditional medical applications.

All the scales used in the research are two important criteria that are expected to be valid and reliable. It is defined that the measuring instrument is suitable for the condition to be measured or the characters to be measured and the validity of the measuring point is to be determined. Reliability is that each measurement of the measurement tool has the same degree of measurement that is desired to measure consistently, or that the answers given by those who respond to the scale are consistent with each other. Thus, if the feature desired by the measurement tool is measured correctly, this measurement tool is valid.²¹⁻²³

For the validity test, surface, content-scope and structure validity were used in this study. The coverage validity index of the technique was accepted as 0.80.¹⁷ Adjustments were made to the recommendations of the experts. The scope validity index values were found to be quite high as 0.92. According to this finding, the scale validity of the scale is good.²⁴ In order to remove the misunderstanding of the items of the scale, the pilot was applied to 50 participants by the researchers and the necessary corrections were made for the unrecognized items, and a 46-item draft scale was created.

The relationship between the total score of the draft scale and the scores of the items in the measure is determined by item-total correlation. If the score obtained from one item of the scale is positive and the score is highly correlated, it is assumed that

TABLE 2: Reliability and factor analysis of the scale of the reasons for reference to traditional and/or complementary medical methods.

Item	Factor loading	Mean Item-Total Correlation
Q1:....makes me feel more comfortable	0.51	0.47
Q2:....used for diseases	0.62	0.59
Q 3:....my reason for applying is in religious sources	0.66	0.64
Q 4:....it protects me from the side effects of drugs	0.61	0.60
Q 5:....I'm doing it as a continuation of medication treatment	0.60	0.59
Q 6:....I see it as the only treatment method	0.60	0.60
Q 7:....should be done with the purpose of protecting without disease	0.61	0.58
Q8:....should only be done for the purpose of treatment	0.63	0.63
Q9:....the advice of our prophet has been effective in choosing these methods	0.64	0.60
Q10:....I'm doing it because it's good for obsessions and spells	0.69	0.68
Q11:....increases the spiritual feeling of those who do	0.76	0.75
Q12:....people who working under stress and irritable finds healing	0.76	0.74
Q13:....those who do get rid of all their worries	0.77	0.77
Q14:....because I don't benefit from medical treatment, I get it done as a last resort	0.59	0.59
Q15:....used against diseases	0.68	0.67
Q16:....because I had a fear of surgery, I turned to these treatments	0.66	0.65
Q17:....I turned to these practices because I think medical doctors do not understand me	0.49	0.49
Q18:....should be applied only for pain	0.47	0.48
Q19:....it is an appropriate treatment for every disease, including cancer	0.75	0.72
Q20:....I have received positive results from the applications I have applied so far	0.75	0.71
Q21:....familiar and my friends also apply to these practices	0.73	0.70
Q22:....I apply these practices so that my disease does not progress	0.73	0.70
Q23:....I trust these practices more than medical drugs	0.65	0.61
Q24:....I think it's better to use medical medication or surgery	0.68	0.66
Q25:....I'm applying because it's cheaper than medical treatments	0.69	0.67
Q26:....I'm applying for a quick result	0.78	0.76
Q27:....it leads me to feel safe	0.79	0.76
Q28:....I met people who survived their illness	0.78	0.74
Q29:....it should also be used for psychological problems	0.79	0.75
Q30:....after applying I feel comfortable and peaceful	0.82	0.79
Q31:....I applied because I was curious about the result	0.76	0.74
Q32:....I'm not an easy-to-use drug, so I think these practices are right for me	0.76	0.73

continued...→

TABLE 2: Reliability and factor analysis of the scale of the reasons for reference to traditional and/or complementary medical methods.

Item	Factor loading	Mean Item-Total Correlation
Q33:...I feel that these practices increase my hope of recovery	0.76	0.72
Q34:...I'm happy to recommend these applications to others	0.77	0.73
Q35:...I think it has a metacognitive effect	0.75	0.73
Q36:...it makes me feel more comfortable to use more known materials and methods than medical interventions	0.82	0.80
Q37:...the fact that the people I trust with religious representation recommend these practices makes me prefer these practices	0.79	0.78
Q38:...I'm referring to these practices because I think that healing is from Allah	0.79	0.77
Q39:...I believe that a divine power will heal me when I choose these practices	0.78	0.76
Q40:...I think that the programs that I watch are effective in my preference for these applications	0.63	0.63
Q41:...I think that these applications are effective in the sharing and advertising I see in the internet environment	0.60	0.61
Q42:...I think that my research on the internet is effective in my preference for these applications	0.58	0.58
Q43:...I think that presentations and narratives of teachers with academic identity are effective in my preference for these practices	0.64	0.63
Q44:...I think that the number of places that make these applications is increasing in the city where I live	0.69	0.68
Q45:...I think that my wife's conversations and narratives are effective in choosing these practices	0.61	0.61
Variance accounted for= 47 %		
Coefficient alpha = 0.97		
KMO= 0.94		

...= Traditional and/or Complementary Medical Practices

When we look at the reliability coefficients of the scale, it is observed that the overall reliability of the scale is 0.97. This result shows that the scale is highly reliable.

these items are similar to each other and the item is scaled.²³⁻²⁵ The item-total score correlation values of the scale were found positive for $r=0.47-0.80$ for 45 items. It is emphasized in the literature that this value should be $r=0.30$ and above.^{17,24,25} As a result of the analysis, 1 item with a correlation value of $r=0.30$ was subtracted from the scale. If the Cronbach's alpha coefficient is high in the literature, it is emphasized that the reliability of the scale is high. It is stated that if the floor number is between 0,60-0,80, the scale is reliable and if it is between 0,80-1,00 it has a high level of reliability.^{17,23,26} The general reliability value of the CAM submissions scale was $\alpha=0.97$. This result indicates that your scale is highly reliable.

It has been stated in the literature that structural validity analysis should be performed to determine which concepts or features measure the scale.^{23,26} Explanatory factor analysis was performed to determine the construct validity of the CAM Application Causal Scale and the dimensions explaining the concepts in the measure. In order to perform factor analysis, it is necessary to have certain levels of correlation between variables.²⁵ The Bartlett test is used to determine the level of the relationship between these variables, and if $p < 0.05$, there is a sufficient relationship between the variables.¹⁷ Furthermore, in factor analysis, the adequacy of the sample for the scale and the fit of the measures to the factor analysis are determined by the value of Kaiser Mayer Olkin (KMO) and it is expected that this value should be above 0.50.^{23,27} The Bartlett test was highly significant ($BMD > 0.80$; Barlett's $p < 0.05$). As a result of the analyses made, a scale consisting of a 45-item

one-dimensional scale with a total variance of 47% was obtained. The high total variance indicates that the factor structure is strong.^{25,28}

CONCLUSION

Within the scope of this study, Cronbach Alpha values were found to be high for the reliability and validity of the developed scale, surface, coverage, internal consistency test, correlation of the total scores of the items. With the factor analysis, it was determined that the scale had a single dimension of 45 items. With these findings, a valid and reliable scale was developed to determine the reasons for referral of individuals to complementary and/or traditional medical methods. It can be said that this scale is important because it can be used to evaluate the behaviour of individuals to improve their health. It is also thought to be a reference for the research to be carried out for this purpose since there is no similar scale in the literature. It may also be advisable to carry out confirmatory factor analysis with a different sample group in order to strengthen or further enhance the reliability of this developed scale.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Halil Şengül, Fadime Çınar; **Design:** Fadime Çınar, Haşim Çapar; **Control/Supervision:** Fadime Çınar, Halil Şengül; **Data Collection and/or Processing:** Halil Şengül, Arzu Bulut; **Analysis and/or Interpretation:** Fadime Çınar, Haşim Çapar; **Literature Review:** Fadime Çınar, Halil Şengül, Haşim Çapar; **Writing the Article:** Fadime Çınar, Halil Şengül, Haşim Çapar; **Critical Review:** Fadime Çınar, Haşim Çapar; **References and Fundings:** Halil Şengül, Haşim Çapar, Fadime Çınar; **Materials:** Halil Şengül, Fadime Çınar, Haşim Çapar; **Other:** Arzu Bulut.

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