

# The Relationship of Factors Affecting Traditional and Complementary Medicine Practices with Regular Drug Use, Presence of Chronic Disease and Level of Knowledge: A Cross-Sectional Research

Geleneksel ve Tamamlayıcı Tıp Uygulamalarını Etkileyen Faktörlerin Düzenli İlaç Kullanımı, Kronik Hastalığın Varlığı ve Bilgi Düzeyi ile İlişkisi: Kesitsel Bir Araştırma

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**ABSTRACT Objective:** The main purpose of this study is to determine the factors that are effective in the preference of traditional and complementary medicine practices and to investigate the relationship between these factors with regular drug use, the presence of chronic disease and the level of knowledge. **Material and Methods:** Community-based cross-sectional study design was used. The population of the study consisted of middle and elderly individuals who applied to a Family Health Center operating in Düzce province in September-October-November-December 2020. The data were conducted over 400 people using face-to-face questionnaire technique. In the study, convenience sampling method was preferred. **Results:** Factors affecting the preference of traditional and complementary medicine practices according to the results of explanatory and confirmatory factor analysis; it has been found as “effectiveness”, “accessibility”, “having fewer side effects” and “philosophically compatibility”. According to the results of confirmatory factor analysis, it was seen that the model goodness of fit indexes were at an acceptable fit level. In addition, significant relationships were found between regular drug use, having a chronic disease, and the level of traditional and complementary medicine knowledge with the reasons for preference of traditional and complementary medicine practices. **Conclusion:** It has been observed that individuals who regularly use drugs, have any chronic diseases and have a high level of knowledge about traditional and complementary medicine practices have a more positive attitude towards traditional and complementary medicine treatments.

**Keywords:** Traditional and complementary medicine practices; regular drug use; chronic disease; awareness; community

**ÖZET Amaç:** Bu çalışmanın temel amacı, geleneksel ve tamamlayıcı tip uygulamalarının tercih edilmesinde etkili olan faktörleri belirlemek ve bu faktörlerin düzenli ilaç kullanımı, kronik hastalığın varlığı ve bilgi düzeyi ile ilişkilerini tespit etmektir. **Gereç ve Yöntemler:** Toplum tabanlı kesitsel çalışma tasarımlı kullanılmıştır. Araştırmanın evreni, Düzce il merkezinde faaliyet gösteren bir Aile Sağlığı Merkezine, 2020 yılı Eylül-Ekim-Kasım-Aralık aylarında başvuran orta ve ileri yaş grubu bireyler oluşturmuştur. Veriler yüz yüze anket teknigi kullanılarak 400 kişi üzerinden toplanmıştır. Araştırmada kolayda örnekleme yöntemi tercih edilmiştir. **Bulgular:** Açıklayıcı ve doğrulayıcı faktör analizi sonuçlarına göre geleneksel ve tamamlayıcı tip uygulamalarının tercih edilmesinde etkili olan faktörler; “etkililik”, “ulaşılabilirlik”, “daha az yan etkiye sahip olması” ve “felsefi açıdan uyumlu olması” olarak bulunmuştur. Doğrulayıcı faktör analizi sonuçlarına göre model uyum indekslerinin kabul edilebilir uyum düzeyinde olduğu görülmüştür. Ayrıca geleneksel ve tamamlayıcı tip uygulamalarının tercih sebepleri ile düzenli ilaç kullanımı, kronik bir hastalığa sahip olma ve geleneksel ve tamamlayıcı tip bilgi düzeyi arasında anlamlı ilişkiler tespit edilmiştir. **Sonuç:** Düzenli ilaç kullanan, herhangi bir kronik hastalığı olan ve geleneksel ve tamamlayıcı tip uygulamaları konusunda bilgi düzeyi yüksek olan bireylerin, geleneksel ve tamamlayıcı tip tedavilerine yönelik daha olumlu bir tutum içerisinde oldukları görülmüştür.

**Anahtar Kelimeler:** Geleneksel ve tamamlayıcı tip uygulamaları; düzenli ilaç kullanımı; kronik hastalık; farkındalık; toplum

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Traditional and complementary medicine is an application method that has been on the agenda in previous periods and has gradually gained popularity all over the world. The World Health Organization (WHO) defines traditional medicine as “various health practices, approaches, knowledge and beliefs, including plant, animal, mineral-based therapy, spiritual therapies and exercises, applied only one of those or in combination to protect health, treat, diagnose or prevent diseases”.<sup>1</sup>

Traditional and complementary therapies are a health practice with strong historical and cultural roots, globally accepted and applicable. Health practices under the umbrella of traditional and complementary medicine may differ from country to country and from region to region. Traditional and complementary medicine practices are important sources of primary health care for many people. They have been known as a component of accomplishing ‘health for all’ practice since the Alma-Ata Declaration in 1978. The WHO acknowledges the contribution of traditional and complementary medicine to health, wellness, human-centered health services and universal health insurance. Its aim is to provide traditional medicine in a way that is compatible with the mainstream of health services, in an effective and above all, safely manner.<sup>2</sup>

Dealing with chronic illness often involves major lifestyle changes. It has been observed that many patients in Asia turn to traditional and complementary therapies to treat pain associated with chronic diseases. It has been reported that the rate of traditional and complementary medicine use in patients with chronic diseases in Malaysia is 64%.<sup>3</sup> Similarly, it has been reported that the rate of traditional and complementary medicine use among cancer patients in Thailand is 60%, while the rate of traditional and complementary medicine use among adults with schizophrenia in Cambodia is 77%.<sup>4,5</sup> In a nationally conducted household survey in Hong Kong, it has been shown to be that people who applied to both western and traditional Chinese medicine practices were older people, female patients, individuals with higher socio-economic status, and more likely to have a chronic disease.<sup>6</sup> It has been found that the use of traditional and complementary medicine is higher

and more common in societies with cardiovascular risk factors.<sup>7</sup> In addition, older Cambodian patients with chronic diseases who show symptoms of anxiety or depression have low quality of life, higher rates of stigmatization related to chronic disease and traditional and complementary medicine use.<sup>8</sup>

Increasing need for care and chronic and malign diseases, which are difficult to follow, physicians' inability to spare enough time for their patients, fear of the undesirable effects of drugs in conventional medicine, have led the public's attention to traditional and complementary medical treatments, and in the coming years it is thought that this orientation will increasingly continue.<sup>9</sup> In international studies, it has been observed that in parallel with the general public, the preferences of both healthcare professionals and physicians for traditional and complementary medicine treatments have increased over the years.<sup>10,11</sup> The main purpose of this study is to determine the factors that are effective in the preference of traditional and complementary medicine practices and to investigate the relationship between these factors with regular drug use, the presence of chronic disease and the level of knowledge.

## MATERIAL AND METHODS

### ETHICS APPROVAL

Prior to conducting the study, we obtained informed consent from the participants. This research was carried out upon the approval of the ethics committee of Düzce University Scientific Research and Publication Ethics Committee (Date: 27.08.2020, Decision number: 2020/164). Quantitative research methodology was used because it is suitable for the purpose and the main problem of the research and the analysis of the data set was performed by using IBM SPSS Statistic Base 23 V and AMOS package programs.

### PARTICIPANTS

Data collection was carried out by a community-based survey in a family health center operating in Düzce province. It is estimated that the total number of people receiving health services from the family health center operating in Düzce province where the study was conducted between September 1, 2020-De-

cember 31, 2020, is around 2,500. Within the scope of the research, 400 participants, who gave their consent, were informed about the objective, procedures, and confidentiality. The convenience sampling technique was used to select the study participants. Furthermore, this study was conducted in accordance with the principles of the Declaration of Helsinki and informed consent was obtained from the participants before data were collected.

## RESEARCH DESIGN AND PROCEDURE

The community-based cross-sectional study design was applied at a family health center operating in Düzce province. The study was conducted in only one family health center. The study was designed and conducted by the researcher. The study period was from September 1, 2020 to December 31, 2020. In addition, the participants were told that the participation was voluntary, that they could withdraw from the research at any time and that all information collected would be kept confidential. Face-to-face consent was obtained from all participants before starting the survey.

## MEASUREMENTS OF VARIABLES

We applied the scale form of the “knowledge level questions about traditional and complementary medicine” and “attitude level questions about traditional and complementary medicine” to measure the factors that are effective in the preference of traditional and complementary medicine practices, which features a Likert type scale made up of 29 items.<sup>12-14</sup> The measuring tool has been found to provide high reliability for the study sample ( $\alpha=0.907$ ).

In the first stage, permission was requested from the researchers who developed the original scales for the adaptation process and their approval was obtained. The scales were translated into Turkish separately by 3 experts who know both the language of the original scale and Turkish very well. In the second stage, the translations made by the authors and the translation group consisting of experts were compared. While making the comparison, each item was examined in terms of whether the translations were appropriate in terms of intended meaning. The third stage is the provision of the previous stage. At this

stage, the scales translated into Turkish were given to a group of 3-5 people who are experts in the language of the original scale and independent from the experts in the second stage and these experts were asked to translate the scales from Turkish back to the original language. Later, the original expression of each item was compared one-to-one with the expression resulting from this translation. With the translation in the third stage, it was seen that the original scale was appropriate.

## DATA ANALYSIS

IBM SPSS Statistic Base 23 V and AMOS package programs were used for statistical analysis. First, cronbach alpha statistic was calculated of the overall scale questions to assess reliability in terms of internal consistency. Second, exploratory factor analysis was applied to collect the interrelated variables into a category and to obtain a smaller number of factors. Third, confirmatory factor analysis (CFA), using structural equation modelling in AMOS, were performed to assess different latent structure models of the relationship between factors that are effective in the preference of traditional and complementary medicine practices. Fourthly, t-test and ANOVA analysis were applied to determine the relationships between the factors that are effective in the preference of traditional and complementary medicine practices and regular drug use, the presence of chronic disease and the level of knowledge. Criteria for determining CFA model fit and measurement invariance were based on conventional standards.<sup>15-17</sup>

## RESULTS

### DEMOGRAPHIC FINDINGS

A total of 400 participants' responses were considered for analysis of this study. It can be seen that 61% males and 39% females were the respondents for this study, 65.1% were 40 to 65 (middle age group) age. Participants about one half (48.8%) had graduate education levels. One quarter of respondents were public employee (25%). Other occupations such as private sector employee, self-employment, retired, housewife, student and other accounted for 20.5%, 17.7%, 14.8%, 5.7%, 5%, 4.5%, respectively. On the

other hand, more than half of the individuals participating in the study (54.4%) stated that they used regular medication, had a chronic disease (51.5%), and had an intermediate level of knowledge about traditional and complementary medicine treatment methods.

### EXPLANATORY FACTOR ANALYSIS FINDINGS

Explanatory factor analysis was performed on the data that constitute the attitudes of the participants to-

wards the factors that are effective in the preference of traditional and complementary medicine practices. The analysis performed in this direction are given below ([Table 1](#)).

Kaiser-Meyer-Olkin (KMO) value of the data and Bartlett test result are found to be acceptable for factor analysis (KMO value 0.939. Bartlett test result  $p < 0.001$ ). On the other hand, factor nomenclature was made by considering the contents of the items, factor loadings and their names in the literature.

**TABLE 1:** Explanatory factor analysis results.

Factors	Variables	Factor loads	Variance explained	Self value
Effectiveness	item2	0.816	39,741	10,730
	item1	0.794		
	item6	0.787		
	item4	0.770		
	item5	0.762		
	item8	0.726		
	item3	0.717		
Effectiveness	item9	0.699	8,353	2,255
	item7	0.685		
	item25	0.601		
	item10	0.587		
	item24	0.581		
	item28	0.558		
	item11	0.529		
	item20	0.489		
	item23	0.707		
Accessibility	item22	0.696	5,342	1,442
	item19	0.686		
	item18	0.657		
	item26	0.507		
	item15	0.662		
Having fewer side effects	item17	0.643	4,675	1,262
	item16	0.617		
	item29	0.604		
Philosophical compatibility	item14	0.450	Total explained variance: 58,111	Kaiser-Meyer-Olkin measure of sampling adequacy: 0.939 Approx. Chi-square: 5846,118 Barlett's test of sphericity: 0.000 Extraction method: Principal components Rotation method: Varimax
	item13	0.665		
Evaluation criteria	item12	0.593		

item: It refers to each variable that affects the preference of traditional and complementary medicine practices in the scale form of the research.

**TABLE 2:** Descriptive statistics.

Constructs	Factors	n	Mean	SD	Variance
Factors effective in preferring traditional and complementary medicine practices	Effectiveness	400	3.2985	0.87574	0.767
	Accessibility	400	3.2335	0.86071	0.741
	Having fewer side effects	400	3.6313	1.68277	2.832
	Philosophical compatibility	400	3.2985	0.87574	0.767

SD: Standard deviation.

Then, descriptive statistics related to the obtained variables were examined. Information related to averages, standard deviations, reliability coefficients, number of questions and scale levels used for each variable are presented in **Table 2**.

When **Table 2** is examined, it is seen that among the factors that are effective in the preference of traditional and complementary medicine practices, the variable "having less side effects" (Average: 3.6313) has the highest average. The fact that the reliability coefficients are higher than 0.60 shows that the scales used in the study are reliable.

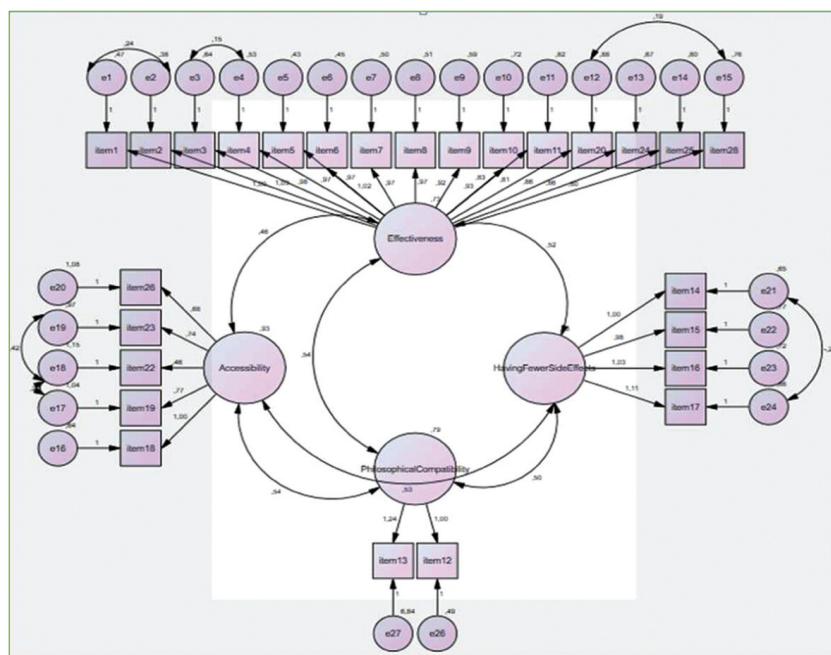
## CONFIRMATORY FACTOR ANALYSIS FINDINGS

The variables in the research model; effectiveness, accessibility, having fewer side effects, philosophical

compatibility and the causal factors between these factors. It is assumed that the relationships can be explained. CFA was performed to test the validity of the scales used, and the structures of all scales were verified. In **Figure 1**, CFA results and goodness of fit values regarding effectiveness, accessibility, having fewer side effects, philosophical compatibility are given.

By applying CFA to the adjusted measurement model, the extent to which the latent variables can be explained by the observed variables was revealed. In addition, explained variances and reliability of the calculated factors in order to determine the validity and reliability of the measurement model are given in **Table 3**.

When **Table 3** is examined, standardized regression coefficients, t values ( $t > 1.96$ ), p values



**FIGURE 1:** Research model (measurement model). [ $\chi^2/df: 3,055$ ; goodness of fit index: 0.905; normed fit index: 0.908; comparative fit index: 0.931; root mean square error of approximation: 0.064; incremental fit index: 0.913; Tucker-Lewis Index: 902; root mean square residual: 0.048].

TABLE 3: CFA results regarding the improved measurement model.					
Implicit variables	Observed variables	Standardized regression coefficients	Standard error	t value	p value
Effectiveness	item1	0.780			
	item2	0.818	0.038	27.195	***
	item3	0.721	0.064	15.363	***
	item4	0.750	0.060	16.128	***
	item5	0.784	0.057	17.058	***
	item6	0.793	0.059	17.285	***
	item7	0.758	0.059	16.347	***
	item8	0.758	0.059	16.359	***
	item9	0.715	0.060	15.233	***
	item10	0.682	0.064	14.385	***
	item11	0.617	0.065	12.807	***
	item20	0.590	0.066	12.155	***
	item24	0.664	0.061	13.957	***
	item25	0.635	0.065	13.249	***
	item28	0.617	0.063	12.790	***
Accessibility	item18	0.769	1.000		
	item19	0.587	0.767	0.077	9.970
	item22	0.381	0.458	0.071	6.474
	item23	0.585	0.738	0.074	9.945
	item26	0.534	0.680	0.074	9.159
Having fewer side effects	item14	0.726	1.000		
	item15	0.688	0.976	0.081	12.115
	item16	0.719	1.026	0.082	12.557
	item17	0.760	1.108	0.093	11.905
Philosophical compatibility	item12	0.785			
	item13	0.388	0.206	6.000	***

\*\*\*p<0.01; CFA: Confirmatory factor analysis; item: It refers to each variable that affects the preference of traditional and complementary medicine practices in the scale form of the research.

(p<0.01) and model goodness of fit indices of the observed variables show that the model is at an acceptable level of fit. In Table 4, fit index values, which are generally accepted in the literature, and the values obtained after the analysis are shown.

The results in Table 4 show that the fit indices ( $\chi^2/\text{degree of freedom}$ , root mean square error of approximation, normed fit index, comparative fit index, incremental fit index, Tucker-Lewis Index, goodness of fit index, root mean square residual) of the proposed research model, which are generally regarded as important, are at an acceptable level of compliance. The findings obtained with explanatory and confirmatory factor analyzes show that the construct validity of the model is ensured. The construct validity revealed by the explanatory factor analysis was also confirmed by the CFA.

TABLE 4: Measurement model goodness of fit indices.

General model compliance	Good compliance	Acceptable compliance	Achieved compliance values
$\chi^2/\text{df}$	$\leq 3$	$\leq 5$	3.055
RMSEA	$\leq 0.05$	$\leq 0.08$	0.064
NFI	$\geq 0.95$	$\geq 0.90$	0.908
CFI	$\geq 0.97$	$\geq 0.95$	0.931
IFI	$\geq 0.95$	0.94-0.90	0.913
TLI	$\geq 0.90$	$\geq 0.90$	0.902
GFI	$\geq 0.90$	0.89-0.85	0.905
RMR	$< 0.05$	$< 0.08$	0.048

RMSEA: Root mean square error of approximation; NFI: Normed fit index; CFI: Comparative fit index; IFI: Incremental fit index; TLI: Tucker-Lewis Index; GFI: Goodness of fit index; RMR: Root mean square residual.

## T-TEST AND ANOVA ANALYSIS FINDINGS

In this part of the study, t-test and ANOVA analysis were used to examine the differences between the

**TABLE 5:** Factors affecting the preference of traditional and complementary medicine practices and regular drug use, presence of chronic disease and knowledge level t-test and ANOVA analysis results.

Variables	Effectiveness		Accessibility		Having fewer side effects		Philosophical compatibility	
	t-test/ANOVA (t/F)	p value	t-test/ANOVA (t/F)	p value	t-test/ANOVA (t/F)	p value	t-test/ANOVA (t/F)	p value
Regular drug use	2.042 <sup>a</sup>	<b>0.042*</b>	-1.028 <sup>a</sup>	0.305	2.392 <sup>a</sup>	<b>0.017*</b>	0.576 <sup>a</sup>	0.565
Yes								
No								
Existence of chronic disease	2.489 <sup>a</sup>	<b>0.014*</b>	-0.404 <sup>a</sup>	0.687	2.489 <sup>a</sup>	<b>0.013*</b>	0.895	0.371
Yes								
No								
Traditional and complementary medicine knowledge level								
Very low								
Low	5.472 <sup>b</sup>	<b>0.000*</b>	4.031 <sup>b</sup>	0.003*	1.523 <sup>b</sup>	0.195	0.122	0.975
Middle								
High								
Very high								

<sup>a</sup>Independent sample t-test; <sup>b</sup>ANOVA test; \*The difference between groups is significant at 0.005 level.

factors affecting the preference of traditional and complementary medicine practices and regular drug use, presence of chronic disease and the level of knowledge (Table 5).

There was statistically significant differences in effectiveness of traditional and complementary medicine practices score according to regular drug use ( $t=2.042$ ;  $p<0.05$ ), according to existence of chronic disease ( $t=2.489$ ;  $p<0.05$ ) and according to knowledge level ( $F=5.472$ ;  $p<0.05$ ).

Therefore there was a statistically significant differences in accessibility of traditional and complementary medicine practices score according to knowledge level ( $F=4.031$ ;  $p<0.05$ ). However, there was no significant relationship with accessibility of traditional and complementary medicine practices among the regular drug use and among the existence of chronic disease.

Moreover, there was a statistically significant difference in having fewer side effects of traditional and complementary medicine practices score according to regular drug use ( $t=2.392$ ;  $p<0.05$ ) and according to existence of chronic disease ( $t=2.489$ ;  $p<0.05$ ). However, there was no significant relationship with having fewer side effects of traditional and complementary medicine practices among the know-

ledge level. Furthermore, there was no significant relationship with philosophical compatibility of traditional and complementary medicine practices among the regular drug use, among the existence of chronic disease and among the knowledge level.

## DISCUSSION

The factors obtained according to the explanatory and CFA results; it has been described as “effectiveness”, “accessibility”, “having fewer side effects” and “being philosophically compatible”. Among the factors that are effective in the preference of traditional and complementary medicine practices, it was observed that the variable “having fewer side effects” (Mean: 3.6313) has the highest mean. It has been revealed that individuals who are on regular drug use have a more positive perception than those who do not use regular drug, regarding the issues that traditional and complementary medicine practices have a better effect and less side effects.

Furthermore, it has been seen that individuals with chronic diseases have a more positive perception compared to individuals without chronic diseases, regarding the issues that traditional and complementary medicine practices have a better effect and have fewer side effects. In addition, it has

been revealed that individuals who have high knowledge level about traditional and complementary medicine practices before have a more positive perception than those who have low knowledge level about traditional and complementary medicine practices.

According to the results of the CFA, it showed that the standardized regression coefficients, t values ( $t > 1.96$ ), p values ( $p < 0.01$ ) and model goodness of fit indexes related to the observed variables were at the acceptable fit level of the model. Moreover, significant differences were found between regular drug use, having a chronic disease, and the level of traditional and complementary medicine knowledge with the reasons for preference of traditional and complementary medicine practices.

In parallel with the results of our research, it has been reported that traditional and complementary medicine treatments are used more widely, especially in those with cancer and other chronic diseases, and their use rate exceeds 80% in similar studies.<sup>18,19</sup>

Although there are not many results regarding the level of knowledge covering both the general population and any method, the rate of knowing traditional and alternative methods among adults in Saudi Arabia is 88.8%, individuals over 60 years of age living in rural areas in İzmir are 69.7% and in a similar study conducted in Kayseri, it was stated that the rate of hearing any of the traditional/alternative medicine methods was 98.4%.<sup>9,20,21</sup>

In recent years, there are studies showing that these methods are applied in the form of complementary medicine applications in many developed countries, and the usage rates are 42% in the United States, 49% in France, 70% in Canada, and 80% in Japan and Germany.<sup>22,23</sup>

In the study conducted by Altınbaş and İster, a significant relationship was found between the rate of using traditional and complementary treatment and the level of knowledge.<sup>24</sup>

Similar to the results of our study, in the studies conducted by Sağkal et al. and Kocabas et al., the average score of satisfaction with traditional and com-

plementary medicine treatments of people with chronic diseases participating in the study was found to be statistically significant compared to those without chronic diseases.<sup>21,25</sup>

## CONCLUSION

It has been observed that individuals who regularly use drugs, have any chronic diseases and have a high level of knowledge about traditional and complementary medicine practices have a more positive attitude towards traditional and complementary medicine treatments.

Furthermore, it has been seen that individuals with chronic diseases have a more positive perception compared to individuals without chronic diseases, regarding the issues that traditional and complementary medicine practices have a better effect and have fewer side effects. In addition, it has been revealed that individuals who have high knowledge level about traditional and complementary medicine practices before have a more positive perception than those who have low knowledge level about traditional and complementary medicine practices.

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*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:** Fuat Yalman, Tekin Sancar; **Design:** Fuat Yalman, Tekin Sancar; **Control/Supervision:** Fuat Yalman; **Data Collection and/or Processing:** Fuat Yalman; **Analysis and/or Interpretation:** Fuat Yalman, Tekin Sancar; **Literature Review:** Tekin Sancar; **Writing the Article:** Fuat Yalman, Tekin Sancar; **Critical Review:** Tekin Sancar; **References and Fundings:** Fuat Yalman; **Materials:** Fuat Yalman.

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