

A Research on the Relationship Between Performance and Medicine Styles

Hekimlik Stilleri ve Performansa Etkisi Üzerine Bir Araştırma

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ABSTRACT Objective: The behavior and approach of doctors have always been important. In the literature, these behavior styles are often described through doctor-patient relationship. The aim of this study is to go beyond this limitation and to determine practice styles and discover the relationship between these styles and performance. A new model of the style of practice development process is proposed. **Material and Methods:** The practice style and performance scale developed by the author was used. Scales are applied to specialist physicians, a validity of the scale and discovery of the scales is provided with exploratory factor analysis. The relationship between practice styles and performance is analyzed with correlation and regression. **Results:** The exploratory factor analysis results shows that the scale items are collected in five dimensions after varimax rotation. These dimensions explain 60,7% of the cumulative variance. Barletta's test was significant (chi-square = 682.945, P < .001) and the KMO value achieved (0.684) provide evidence that data is suitable for factor analysis. The factor loads of the material loaded to resulting factors ranged from 0.420 to 0.917. These values are within acceptable limits. According to the study findings, four types of practice have been described. A positive correlation has been identified between performance and numerical and patient-friendly styles. It was not found any relationship between performance and idealistic and conservative medicine styles. **Conclusion:** An analysis of medicine styles will contribute to medicine services, evaluation of the performance of the health care business and patient satisfaction.

Keywords: Physicians; clinical medicine; task performance and analysis

ÖZET Amaç: Hekimlerin davranış ve yaklaşım tarzları her zaman önemli olmuştur. Bu davranış stilleri literatürde genellikle hasta hekim ilişkisi üzerinden açıklanmıştır. Bu çalışmanın amacı bu sınırlamanın dışına çıkarak hekimlik stillerini belirlemek ve bu stiller ile performans arasında ilişki kurmaktır. Yeni bir hekimlik stilleri gelişim süreci modellemesi önerilmiştir. **Gereç ve Yöntemler:** Araştırmada yazar tarafından geliştirilmiş hekimlik stilleri ve performans ölçeği kullanılmıştır. Ölçekler uzman hekimlere uygulanmış, keşfedici faktör analizi ile ölçeklerin geçerliliği ve stillerin keşfi sağlanmıştır. Hekimlik stilleri ile performans ilişkisi korelasyon ve regresyon ile analiz edilmiştir. **Bulgular:** Keşfedici faktör ile analiz edilen verilerin rotasyonu varimax yöntemiyle gerçekleştirilmiştir. Ölçeği oluşturan ifadeler beş faktör altında toplanmıştır. Bu faktörlerin toplamı varyansın %60,7'sini açıklamaktadır. Barletta testi (chi-square=682.945, P<.001) ve KMO katsayısı (0,684) ile ölçeğin faktör analizi sonucu geçerlenmiştir. Ölçeğin faktör yükleri 0,420-0,917 arasında değerler almıştır. Çalışma bulgularına göre dört tür hekimlik stilini gösteren faktörler ve hekimlik işgücü ile kazancı arasında ilişkiyi tanımlayan faktör tanımlanmıştır. Hekimlik stilleri ile performans ilişkisinde ise sayısal hekimlik stili ve hasta dostu hekimlik stiline performans ile arasında pozitif bir ilişki tespit edilmiştir. İdealist hekimlik stili ve muhafazakâr hekimlik stiliyle performans arasında ilişkiye rastlanmamıştır. **Sonuç:** Hekimlik stillerinin analizinin, hekimlik hizmetlerinin sunumuna, hizmet alıcıların memnuniyetine ve sağlık işletmelerinin performansının değerlendirilmesine katkı yapacağı düşünülmektedir.

Anahtar Kelimeler: Doktorlar; klinik tıp; görev performansı ve analizi

Medicine is a field that covers the knowledge, technology, artistic approaches and communication skills. Medicine is a versatile activity that cannot be reduced to one of its dimensions. This means that we have to see medicine not just as a profession but was as an applied science, an art form and a subculture.¹ Broad coverage of medicine gives physicians a high autonomy. Physicians take this power from his/her special skills and the from the power of the authority given to him by the society. The style with which he/she practices this authority is affected not just by formal education but his/her personality and the social/cultural structure.²

According to the literature, researchers tried to explain the style with which physicians practice their skills mostly through patient/doctor relations. Patient and doctor have common goals: Health of the patient; increase the quality of his/her life; physical, psychological, behavioral, social well-being of the patient.³ The decisive role of the physician in this relationship gives the physician an authority over the patient. Passive role of the patient turns this relation into a relation between two unequal people.⁴ To balance the relationship, regulations like professional ethics, trust, and patient rights are needed. Because of this position of high authority, extraordinary powers are attributed to physicians throughout history. Physicians should also help balance this relationship with individual humility.

CONCEPTUAL FRAMEWORK

In the physician-patient relationship, patients role is mostly defined by his/her illness. In time, physicians start to interact with the patient's illness.¹ Human aspects of the physician-patient relationship are pushed into the background. The patient is reduced to an object which has to be analyzed, examined and "repaired". Despite the presence of many factors that affect the doctor-patient relationship, the physician's personality, patient and patient's illness come to the fore.

The most striking feature of the patient-physician relationship is the fact that the patient's exist-

tential dependence on the physician. Patient's trust in the physician is the first condition for the effectiveness of the treatment. This confidence is based on both the physician's professional competence and his/her personality.⁵

Traditionally, by the physician-patient relationship, physician styles are classified as paternalistic/imperious, consultant and participant.⁶ Szasz & Hollender defined three types of patient-physician relationships: activity-passivity based relationships; cooperation-leading based relationships; relationships based on mutual participation.⁷

Oğuz explains this relationship through three different states of the patient concerning Szasz & Hollender according to this, with patients in coma, activity-passivity; with conscious and willing patients cooperation leading; with chronically sick patients mutual participation is emphasized.¹

Ezekiel, Emanuel & Linda, Emanuel classify four different types of patient-physician relationship.⁸ These are paternalistic, informative, descriptive, and conversational models.

British Medical Association defines the patient-physician relationship from the viewpoint of the person the physician is responsible for.⁹ The first model is the "therapeutic partnership", which is the normal practice where the doctor is responsible to the patient. In the second model, the physician is responsible to the business owner or insurer. In this case, the role of the physician changes since laboratory tests and examinations are not performed to provide a health service.

MODELLING OF PRACTICE STYLES DEVELOPMENT PROCESS

The relationship between physician and patient influenced by many factors health services vary according to the society and environment.¹⁰

Associating the style of the physician and the skills he/she acquires in time with the condition of the patient falls short of explaining the behavior and style of the physician. The specialist doctors interviewed during the study, stated that their behavior is shaped by the following factors: their per-

sonality; their education, especially their training in medicine; their experience in medicine; family and social environment; the characteristics of the institution, especially its ownership; management's attitude; the relationship between their efforts and earnings; and the condition of the disease and the patient. The study tries to develop a practice style model based on these components.

The study concludes that practice styles cannot be explained only through the physician-patient relationship. The aim is to construct a scientific method that explains practice styles through a Likert questionnaire and performance scale based on different application styles. With this approach, the model in Figure 1 below has been developed.

The model showed that family and social environment as external variables affected the formation and development of all processes that create the practice style. The training process of physicians, especially the medical education process is the foundation on which the practice style is built on. During this period, the physician recognizes the medical profession and acquires knowledge. Professional experience gained from observing the practice of other physicians and cases encountered in professional practice contribute to the development of a personal practice style. A personality which is shaped by genes, family and social environment and countless other variables is also an important actor in the formation of practice styles. One can practice medicine in private and public enterprises like public hospitals, private hospitals, and private clinics. The ownership of the enter-

prise, determines the relationship between the physicians and their income. Organization and management structure of the enterprise, working conditions may influence the practice of medicine. The physician forms his/her approach to medicine under the influence of these components. This approach is converted into behavior when the physician meets the patient. It is shaped according to the identity of the patient and the condition of the illness. A detailed explanation of the model can be the subject matter of a different study.

The purpose of this study is; presenting a proposal for the modeling of practice styles; assessment of workload-earning association; to determine the practice styles; to explain the relationship between styles and performance.

METHODOLOGY

SAMPLE

This study aims to develop a scale to measure physicians' attitudes toward their profession and patients and the resulting practice styles and explain the relation between practice styles and performance. It was carried out among the clinical physicians working in public hospitals between June 2015 and April 2016 in Trabzon and Gümüşhane. Data collection process was based on face to face interviews. Necessary permissions were taken from the hospital administrations. A total of 210 clinician specialist physicians were reached for the research. Some of the physicians we could reach in the sampling process refused to fill out the ques-

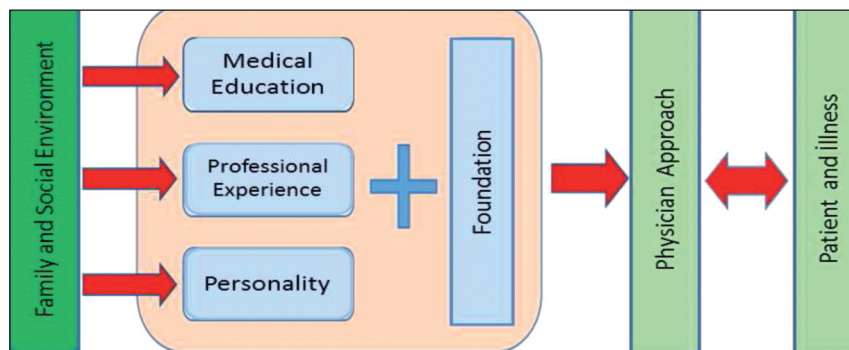


FIGURE 1: Medicine style development process model.

tionnaire. 93 specialist physicians who filled out the questionnaire were included in the sample.

Demographic characteristics of specialist physicians are as follows. 63.4% of physicians are male and 31.2% are females. The average age of physicians was 38,12 (\pm 8,77) years, the average duration of occupation was 7,93 (\pm 5,55) years.

Measuring Tool

The question form used to measure the practice styles of physicians through their attitudes against their profession and patients is composed of 29 questions developed by the researcher. During the development of the questions, relevant literature, and interviews with academics working in the field of medical and health management and those who work in public hospitals were used. The results of these interviews were evaluated. Thus the scale was created. Prepared question forms use a 5-point Likert scale. In this scale, 1 (strongly disagree) represents the minimum value, and 5 (strongly agree) represents the highest value. Special attention has been given to choose situations representing different physician behaviors.

Data Analysis

For the articles of the scale developed to acquire a scientific quality, they have to produce accurate and consistent information.¹¹ In such a case, the scale developed has to be reliable and valid. Researchers should not tabulate the analysis results of the research, comment on the study, or accept/reject a hypothesis.¹¹

Factor analysis and reliability analysis are used to prove the reliability and validity of the measurement tool used. To represent the articles developed in the first phase of the data analysis process with small numbers of variables and to determine the conceptual dimensions of questions developed, an exploratory factor analysis was performed.¹² The reliability of the responses of their response to the scale depends on consistency and to the extent the scale correctly measures the feature it is designed to measure.¹³ The reliability of the results obtained with factor analysis was assessed by Cronbach's Alpha method.

RESULTS

One of the operations that need to be performed before the factor analysis is the examination of the correlation matrix.¹² The correlation coefficients between the scale items are summarized in Table 1. When the correlation matrix is examined, it can be seen that the relationships between variables are not high enough to cause an adamant multicollinearity or singularity problem.¹² Also during the factor analysis, due to the assumptions of the respective analysis, items that show the relationship with any factor under 0.30 and factors related to multiple factors are removed from the scale.¹³ To test the assumptions on the relevance of the data to analyze, Bartlett's sphericity test and KMO test were performed.¹⁴

The exploratory factor analysis results shown in Table 2, shows that the scale items are collected in five dimensions after varimax rotation. These dimensions explain 60,796% of the cumulative variance. Barletta's test was significant (chi-square = 682.945, $P < .001$) and the KMO value achieved (0.684) provide evidence that data is suitable for factor analysis. The factor loads of the material loaded to resulting factors ranged from 0.420 to 0.917. These values are within acceptable limits. Given the common characteristics of the questions listed under factors, these dimensions are named; 1st Factor: Workload-earning relationship; 2nd Factor: Ideal practice style; 3rd Factor: The conservative practice style; 4th Factor: Patient-friendly practice style; 5th Factor: Quantitative practice style. Reliability coefficients of resulting factors range from 0.58 to 0.85. These findings confirm the validity and reliability of the scale. Thus, the family and social environment of the physicians, personal characteristics, the training they received, experience, affiliated institutions and the condition of the patient.

When the scale is analyzed; 1st factor describes the relationship between earnings and professional workload of physicians. Remaining four factors define the practice style. 2nd factor describes an ideal style of physician behavior. 3rd factor de-

TABLE 1: The correlation coefficients between the scale items.

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29
S1	1.0																												
S2	-0.2	1.0																											
S3	0.3	0.0	1.0																										
S4	0.2	-0.1	0.5	1.0																									
S5	0.0	0.0	0.3	0.5	1.0																								
S6	0.1	0.2	0.1	0.1	0.0	1.0																							
S7	0.3	-0.1	0.3	0.3	0.4	0.0	1.0																						
S8	-0.1	0.3	-0.3	0.0	0.1	0.1	0.1	1.0																					
S9	0.1	0.0	0.0	0.3	0.3	0.3	0.3	0.4	1.0																				
S10	0.0	0.1	-0.1	0.1	0.5	-0.1	0.1	0.4	0.4	1.0																			
S11	0.1	-0.1	0.1	0.4	0.3	0.1	0.2	0.2	0.3	0.3	1.0																		
S12	0.0	0.1	0.5	0.5	0.5	0.2	0.5	0.0	0.2	0.1	0.2	1.0																	
S13	0.3	-0.1	0.3	0.3	0.1	0.3	0.4	0.2	0.4	0.1	0.4	0.4	1.0																
S14	0.0	0.1	0.0	0.2	0.3	0.1	0.2	0.3	0.2	0.4	0.3	0.2	0.0	1.0															
S15	-0.1	0.4	0.1	0.1	0.1	0.3	0.1	0.3	0.2	0.2	0.1	0.3	0.1	0.3	1.0														
S16	-0.1	0.0	-0.1	0.0	-0.1	0.1	0.0	0.4	0.1	0.3	0.1	0.0	0.1	0.0	-0.1	1.0													
S17	0.0	0.2	-0.2	0.0	0.0	-0.1	0.2	0.4	0.3	0.2	0.1	0.0	0.1	0.2	0.1	0.3	1.0												
S18	0.0	0.2	0.0	0.1	0.0	0.1	0.2	0.2	0.1	0.0	0.2	0.1	0.1	0.3	0.3	0.1	0.0	1.0											
S19	0.0	0.1	0.1	0.2	0.1	-0.1	0.3	-0.2	0.1	0.0	0.1	0.2	0.0	0.1	0.1	-0.1	0.1	0.2	1.0										
S20	-0.2	0.2	-0.1	-0.1	0.1	0.2	0.2	0.0	-0.1	0.1	-0.2	0.3	-0.1	0.1	0.3	0.1	0.1	0.1	0.3	1.0									
S21	0.0	0.0	0.2	0.3	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.1	0.3	0.0	0.2	0.1	0.1	1.0								
S22	0.1	0.0	0.2	0.3	0.4	0.0	0.2	0.2	0.1	0.4	0.3	0.3	0.1	0.3	0.3	0.0	0.1	0.3	0.1	0.2	0.2	1.0							
S23	0.3	0.0	0.3	0.3	0.2	0.0	0.4	0.1	0.2	0.1	0.3	0.3	0.2	0.3	-0.1	0.0	0.2	0.2	0.4	0.0	0.3	0.2	1.0						
S24	0.2	0.2	0.1	-0.1	0.0	0.1	-0.1	0.1	0.0	0.3	0.0	-0.1	-0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.0	0.2	0.2	1.0					
S25	0.1	-0.2	0.1	0.2	0.1	-0.2	0.3	0.1	0.1	0.0	0.3	0.2	0.1	0.1	-0.1	0.1	0.2	0.1	0.1	-0.1	0.1	0.1	0.1	0.0	1.0				
S26	0.1	-0.3	0.0	0.2	0.1	-0.3	0.3	0.0	0.1	-0.1	0.3	0.2	0.1	0.0	-0.1	0.0	0.2	0.1	0.2	-0.1	0.0	0.1	0.2	-0.1	0.9	1.0			
S27	0.2	-0.3	0.0	0.2	0.2	-0.2	0.2	0.0	0.0	0.0	0.3	0.1	0.1	0.1	-0.2	-0.1	0.0	0.0	0.1	-0.1	-0.1	0.2	0.1	-0.1	0.5	0.6	1.0		
S28	0.2	-0.2	0.2	0.3	0.2	-0.2	0.2	0.2	0.1	0.1	0.4	0.2	0.1	0.1	-0.1	0.1	0.0	0.0	0.1	-0.3	-0.1	0.1	0.2	-0.1	0.2	0.2	0.5	1.0	
S29	0.1	-0.1	0.0	0.1	0.1	-0.1	0.2	0.2	0.1	0.1	0.3	0.0	0.0	0.1	-0.1	0.1	0.1	0.1	0.0	-0.1	-0.1	0.1	0.2	-0.1	0.5	0.5	0.5	0.5	1.0

TABLE 2: Results of exploratory factor analysis of medicine styles scale.

Scale Items	FACTORS				
	1	2	3	4	5
Factor 1: Medicine Workload-Gains Relationship					
(P27) There is a negative relationship between my workload and monthly gains.	,917				
(P26) There is a negative relationship between my monthly gains and performance.	,854				
(P28) I find my professional prestige to be insufficient.	,765				
(P30) I find my gains to be insufficient.	,696				
Factor 2: Good Medicine Style					
(P4) definitely examine each patient using a variety of examination methods such as palpation, percussion or auscultation.		,767			
(P13) I explain how to use the medication to the patient.		,748			
(P3) I am good at welcoming and making eye contact with each patient and allowing them room to explain their illness.		,708			
(P14) I hospitalize the patient in compulsory cases.		,644			
(P7) Before making a diagnosis, I evaluate examination findings.		,599			
Factor 3: Conservative Medicine Style					
(P8) Examination results are often adequate to make a diagnosis.			,794		
(P9) I prefer to prescribe medication in compulsory cases.			,662		
(P18) I determine the treatment method from easy to difficult.			,590		
Factor 5: Patient-Friendly Medicine Style					
(P23) I suggest and perform surgical operation if I believe it to be beneficial.				,705	
(P10) I prescribe medication even if it makes little contribution to the patient.				,681	
(P25) What matters to me is to eliminate patient's complaints immediately.				,606	
(P15) I hospitalize the patient if it will be beneficial to the patient.				,538	
(P11) While creating the treatment prescription I take the patient's personal needs into consideration.				,420	
Factor 5: Quantitative Medicine Style					
(P21) I follow the patient in person if it is an important case due to lack of time.					,768
(P2) I am not worried about the high number of patients I have to examine daily.					,595
(P16) The high number of the patients I hospitalize does not affect me negatively.					,562
Explained Variance	15,27	14,81	11,52	10,06	9,12
Total Variance					60,796
KMO					,684
Barlet Sphericity Test					682,945 (P<,001)
Cronbach's Alpha	,85	,76	,62	,65	,58

scribes conservative practice style that tries to do as little as the possible treatment, 4th factor describes the patient-friendly style that tries to help patients and 5th factor describes the qualitative practice style that emphasizes providing services to as many patients as possible.

To assess the impact of the five-dimensional "Practice styles" scale obtained through factor analysis on the professional performance of physicians, a gradual regression analysis was performed. In the regression model developed, professional performance is the dependent variable. The effect of practice styles scale dimensions on this performance level was tested. In the gradual regression analysis, a backward extraction method was used to find the model that best describes the professional performance. Due to the assumptions of this method, after all, the practice style factors were included in the model in the first step, variables that have the least relationship with professional performance were removed from the model step by step. We can say that the final model obtained at this point is the model that best describes professional performance.

Pearson correlation coefficients between the variables, and descriptive statistics of the variables are summarized in Table 3. When the coefficients in the correlation matrix are assessed; it is seen that the performance variable has a negative relationship with the 1st factor. The relationship between other independent variables and performance is a positive relationship. Correlation coefficients also show that the relationship between independent variables does not cause multicollinearity prob-

lems. When the mean and standard deviation values of the variables considered we can see that specialist physician have a high level of professional performance, and the relationship between performance and practice style seems to be close to the average.

Gradual regression analysis results are summarized in Table 4. The findings show that the model 3 which best describes the factors in practice styles factors explain 0.351 of the variance in professional performance. Assessment of the coefficients of the variables in this model shows that there is a negative relationship between the 1st factor and the professional performance ($\beta = -0,335$; $P < ,01$). However, positive relationship between the 4th factor ($\beta = 0.168$; $P < ,10$), and 5th factor ($\beta = 0.486$; $P < ,01$) and professional performance. For the detection of multiple linear regression models, VIF (variance inflation factors) of regression models was assessed and no multiple linear connection problems was found.

According to the gradual regression analysis results presented in Table 4, 1st factor (workload-earning relation) physicians believe that the relationship is reversed. They believe that workload is too much, and their performance is high, whereas earnings and dignity are proportionally and inadequate. In model 3, quantitative practice style has the highest impact on performance. Patient-friendly practice style has also an impact on performance. The relationship between quantitative practice and performance (impact) is a good example of predictions of the research being verified.

TABLE 3: Correlation matrix of practice performance and medicine styles.

	Mean	Sd.	1	2	3	4	5	6
1 Performance	4,29	,71	1,000					
2. 1 Factor	3,63	1,05	-,406	1,000				
3. 2. Factor	3,96	,66	,043	,163	1,000			
4. 3. Factor	3,41	,80	,214	,074	,119	1,000		
5. 4. Factor	3,67	,61	,182	,150	,277	,416	1,000	
6. 5. Factor	3,39	,86	,476	-,269	,105	,266	,278	1,000

TABLE4: Gradual regression analysis results.

	Model 1	Model 2	Model 3
1 Factor	-,335**	-,335**	-,335**
2. Factor	,031	-	-
3. Factor	,054	,054	-
4. Factor	,168+	,168+	,168+
5. Factor	,486**	,486**	,486**
F value	8,849	11,168	14,909
Adjusted R2	,338	,346	,351

DISCUSSION

When the literature was examined, no studies were found between the medicine styles and the performance. A relationship was established between the performance based payment system and physician performance. Three of these studies are listed below.

Kart published the work titled “The Impacts of Performance-Based Salary System as an Extension of Health Care Reforms on Physicians” in 2013. In this study, it was determined that the performance based payment system constituted the pressure to produce health care services on the physicians and physicians tried to increase the service production numbers.¹⁵

In 2011, Aslan published a research on “Performance-Based Payment: Implementation of the Ministry of Health”. According to this study, it has been stated that the performance-based payment system has been able to meet increasing demand for health care, efficient use of hospital capacities, physicians have significantly increased the rate of full-time work in the public sector, and reduced patient referral numbers.¹⁶

Kaptanoğlu’s work on “Performance Based Supplementary Payment Systems in Istanbul Public Hospitals” was published in 2013. Based on the results of this study, performance based payments increased physician healthcare production.¹⁷

The findings of these surveys indicate that the performance-based payment system caused the increase in physician-generated health care. Our study investigated the relationship between physician’s performance and physician’s style. In this study, there was a relationship between patient-friendly and quantitative medical style and performance. There was no relationship between good medical style and conservative medical style and performance.

CONCLUSIONS AND RECOMMENDATIONS

The study showed the shortfalls of explaining the behavior and practices of physicians through patient-physician relationship. Transformation of the physicians behaviors and practices is a process, and

it evolves over time. In this process, the interaction of family and social environment, training period, experience gained and personality are important factors. The structure of the institution where the physician practices his profession is another important factor. Practice style is affected by different factors depending on the workplace of the physician (in his/her clinic, responsible for his/her earnings/losses or working in a public institutions and there is a relationship between his/her performance and earnings). Also, it can be argued that the attitude of the management of the institutions and technical facilities also affect this situation. However, as suggested in the literature, demographic, socio-economic, educational, background of the patient and the condition of the illness also affect the way of practice style reflect on the patient. “The social indication”, which is expressed on many applications among physicians is an indication of this condition.

Investigation of practice styles and revealing them will make an important contribution to the quality, management, and performance of health services. For example, a private hospital may consider the practice style of a physician before signing a contract. In particular, some situations that arise in the management of medical services can be explained with this approach. This study is an initial research that approaches to practice style from a different angle. First, there is a need for new research to strengthen the recommended practice style development model. Also, researchers suggest the discussion of new results that will be obtained through the application of the scale to different groups or the development of new scales. Practicing physicians are the leaders of healthcare. In addition to physicians, managers, policy makers and entrepreneurs should consider these points. This will contribute to the development of healthcare.

Conflict of Interest

Authors declared no conflict of interest or financial support.

Authorship Contribution

This study is entirely author own work and no other author contribution have been received.

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