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Evaluation of Patient–Physician Orientation and Empathy Levels of Research Assistant Physicians Working in a University Hospital

Bir Üniversite Hastanesinde Çalışan Araştırma Görevlisi Hekimlerin Hasta-Hekim Yönelimi ve Empati Düzeylerinin Değerlendirilmesi

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Abstract: This study aimed to examine the orientations of physicians working as research assistants regarding the patient-physician relationship, to investigate some variables thought to be related, and to evaluate their empathy levels. Research assistant physicians working at Eskisehir Osmangazi University Health, Practice, and Research Hospital were included in the study. A questionnaire comprising the Patient-Practitioner Orientation Scale (PPOS), the Jefferson Empathy Scale (JES), and questions about sociodemographic characteristics was used. A total of 264 (73.3%) research assistants who agreed to complete the questionnaire participated in the study. The data obtained were analyzed using the SPSS statistical package program (version 31.0). The mean age of the study group was 30.2 ± 5.07 years. Among the participants, 145 (54.9%) were female, and 173 (65.5%) were working in the department of internal medical sciences. Additionally, 192 (72.7%) of the physicians reported not having participated in any activities related to patient-physician orientation. The median total score of the physicians on the PPOS was 50. Multivariate analysis revealed that physicians who were married, had fewer patients per day, and exhibited higher levels of empathy demonstrated a more patient-centered approach. This study reveals that research assistant physicians tend to adopt a patient-centered approach. This approach can be enhanced by reducing physicians' daily workload and increasing the time allocated to each patient. It is recommended to provide training for physicians on this topic.

Keywords: Patient–practitioner orientation, research assistant, empathy, communication.

Özet: Bu çalışma, araştırma görevlisi olarak çalışan hekimlerin hasta-hekim ilişkisine yönelik yönelimlerini incelemek, ilişkili olabileceği düşünülen bazı değişkenleri araştırmak ve empati düzeylerini değerlendirmek amacıyla yapılmıştır. Çalışmaya Eskişehir Osmangazi Üniversitesi Sağlık, Uygulama ve Araştırma Hastanesi'nde görev yapan araştırma görevlisi hekimler dâhil edilmiştir. Katılımcılara, Hasta-Hekim Yönelim Ölçeği (Patient-Practitioner Orientation Scale, PPOS), Jefferson Empati Ölçeği (Jefferson Empathy Scale, JES) ve sosyodemografik özellikleri içeren sorulardan oluşan bir anket uygulanmıştır. Anketi doldurmayı kabul eden toplam 264 (%73,3) araştırma görevlisi çalışmaya katılmıştır. Elde edilen veriler SPSS istatistik paket programı (sürüm 31.0) kullanılarak analiz edilmiştir. Çalışma grubunun yaş ortalaması 30,2 ± 5,07 yıldır. Katılımcıların 145'i (%54,9) kadın olup, 173'ü (%65,5) dahili tıp bilimleri bölümünde çalışmaktadır. Ayrıca hekimlerin 192'si (%72,7) hasta-hekim yönelimiyle ilgili herhangi bir etkinliğe katılmadığını bildirmiştir. Hekimlerin PPOS toplam puanının ortancası 50'dir. Çok değişkenli analiz sonuçlarına göre, evli olan, günlük hasta sayısı daha az olan ve empati düzeyi yüksek hekimlerin daha hasta odaklı bir yaklaşım sergilediği belirlenmiştir. Bu çalışma, araştırma görevlisi hekimlerin genel olarak hasta odaklı bir yaklaşımı benimsediğini ortaya koymaktadır. Bu yaklaşımın güçlendirilmesi için hekimlerin günlük iş yükünün azaltılması ve her hastaya ayrılan sürenin artırılması önerilmektedir. Ayrıca hekimlere bu konuda eğitim verilmesi tavsiye edilmektedir.

Anahtar Kelimeler: Hasta-hekim yönelimi, araştırma görevlisi, empati, iletişim.

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1. Introduction

In parallel with the technical and scientific advancements in the field of medicine, different approaches have emerged in the physician-patient relationship. One such approach is the "biomedical model," which was widely accepted until the mid-20th century. It is known that this model neglected the social determinants of health. The physician-patient relationship in the biomedical model is physician-centered, where medical processes are directed and planned by the physician, and the patient plays a passive role (1).

In the late 1970s, Engel highlighted the limitations of the biomedical model and introduced the "biopsychosocial model," a multidisciplinary approach addressing the interplay of biological, psychological, environmental, behavioral, and social components (2). The biopsychosocial model takes a holistic and patient-centered perspective in the physician-patient relationship (3). The practical application of this model has been shaped by the patient-centered approach proposed by McWhinney, which emphasizes medical care that respects the patient's individual preferences and needs, ensuring that clinical decisions align with the patient's values (4).

The patient-centered approach encourages patients to actively participate in clinical diagnosis and treatment processes while considering their preferences, values, and needs (5). Research has shown that a patient-centered approach positively influences numerous biopsychosocial outcomes, including increased patient and physician satisfaction, reduced malpractice claims, enhanced quality of life, and significant improvements in clinical outcomes (6,7). Despite these advantages, studies indicate that the patient-centered approach is only partially implemented in clinical practice, even in developed countries (8). Most physicians reportedly adopt a physician-centered, paternalistic approach and are hesitant to share information and decision-making power with patients. Furthermore, it has been shown that physicians in internal medicine specialties, female physicians, and those with substantial professional experience are more likely to adopt a patient-centered approach (9-11).

The physician-patient relationship is influenced by numerous factors, one of which is empathy. Empathy is defined as the ability to accurately understand the emotional state and perspective of another individual and to respond with the most appropriate behavior based on this understanding.

Studies have demonstrated that fostering an empathetic approach can strengthen the physician-patient relationship, improve patient adherence to treatment, enhance active participation, and ultimately lead to better clinical outcomes (12,13).

This study aimed to examine the orientations of research assistant physicians working at Eskisehir Osmangazi University Health, Practice, and Research Hospital regarding the physician-patient relationship, to explore certain related variables, and to evaluate their empathy levels.

2. Materials and Methods

2.1 Study Design

This study was a cross-sectional design conducted between July 1 and August 31, 2022.

2.2 Population and Sample

The study population consisted of 360 research assistant physicians working at Eskisehir Osmangazi University Health, Practice, and Research Hospital. The study aimed to include the entire population (N=360). However, 96 physicians were excluded from the study because they either declined to participate, were absent from their units during the study period, or submitted incomplete questionnaires. As a result, the final study group comprised 264 (73.3%) research assistant physicians.

2.3. Data Collection Methods

Data were collected using a questionnaire developed based on a review of the literature (14-17). The research team visited the units where the research assistant physicians worked, informed them about the purpose of the study, and obtained verbal consent from those willing to participate. The questionnaires were completed under the supervision of the research team and required approximately 15–20 minutes to complete.

2.4. Instruments

a. Patient-Physician Orientation Scale (PPOS)

The Patient-Physician Orientation Scale (PPOS) was used to evaluate the attitudes of research assistant physicians toward the physician-patient relationship. The PPOS was developed by Krupat et al. in 1999 and adapted into Turkish by Özdemir et al. (14,15). This six-point Likert-type scale ranges from

"strongly agree" to "strongly disagree" and consists of 14 items. Items 7 and 11 are reverse-scored. Total scores range from 14 to 84, with lower scores indicating a preference for a physician-centered approach and higher scores indicating a preference for a patient-centered approach.

b. Jefferson Empathy Scale (JES)

The Jefferson Empathy Scale (JES) Physician Version was used to assess the empathy levels of research assistant physicians. The JES was developed by Hojat et al. in 2001(16,17) and adapted into Turkish by Gönüllü et al. in 2012 (18). The scale consists of 20 items rated on a seven-point Likert scale: "strongly agree" (7), "agree" (6), "partially agree" (5), "undecided" (4), "partially disagree" (3), "disagree" (2), and "strongly disagree" (1). Ten items (items 1, 3, 6, 7, 8, 11, 12, 14, 18, and 19) are reverse-scored. Total scores range from 20 to 140, with higher scores indicating greater empathic ability.

c. Personality Type Assessment

Participants were classified into personality types based on their self-assessment. Those who described themselves as "hectic, enthusiastic, hasty, and impatient" were classified as having a Type A personality, while those who described themselves as "patient, calm, planned, and organized" were classified as having a Type B personality (19).

2.5. Ethical Approval and Permissions

Ethical approval for the study was obtained from the Eskisehir Osmangazi University Ethics Committee (24.05.2022/10). Additionally, administrative permissions were obtained from the relevant institution.

2.6. Statistical Analysis

Data were analyzed using the SPSS statistical package (version 31.0). Descriptive data were summarized as frequencies, percentages, means, medians, standard deviations, and minimum-maximum values. The Kolmogorov-Smirnov test was used to evaluate the normality of the data distribution. Statistical analyses were performed using the Mann-Whitney U test, Kruskal-Wallis test, and Spearman correlation analysis.

Multivariate analysis was performed using multiple linear regression to identify variables associated

with physician-patient orientation based on univariate analyses. Logarithmic transformations were applied to some variables to approximate a normal distribution for linear regression. The assumptions of the multiple linear regression analysis were explicitly tested. Multicollinearity was evaluated using Variance Inflation Factor (VIF) values, and the independence of residuals was assessed using the Durbin-Watson statistic. A p-value of ≤ 0.05 was considered statistically significant.

Correlation coefficients were interpreted as follows: 0.00–0.25 negligible, 0.26–0.49 weak, 0.50–0.69 moderate, 0.70–0.89 strong, and 0.90–1.00 very strong, based on the classification by Sümbüloğlu (20).

The internal consistency of the scales was assessed using Cronbach's alpha coefficient, which was calculated as 0.637 for the PPOS and 0.869 for the JES.

3. Results

The study group consisted of 145 (54.9%) women and 119 (45.1%) men, with ages ranging between 24 and 52 years (mean: 30.2 ± 5.07 years). Among the participants, 113 (42.8%) were married, 173 (65.5%) had a Type B personality, and 152 (57.2%) had been practicing medicine for less than 5 years. Regarding their departmental distribution, 173 (65.5%) worked in the internal medical sciences division, 68 (25.8%) in the surgical sciences division, and 23 (8.7%) in the basic sciences division.

The scores obtained from the PPOS ranged between 26 and 73, with a mean score of 49.78 ± 7.87 (median: 50). The distribution of the PPOS scores according to some sociodemographic characteristics is shown in Table 1. Post-hoc pairwise comparisons revealed that the ≥ 35 age group had significantly higher mean ranks compared to both the ≤ 29 and 30–34 age groups, while no significant difference was observed between the two younger groups. Regarding the departments, physicians working in Surgical Sciences had significantly lower patient-centeredness scores compared to those in Internal Medical Sciences. Although univariate analysis indicated significant differences based on gender ($p=0.025$) and age ($p=0.013$), it should be noted that these associations did not maintain statistical significance in the multiple linear regression model (Table 3).

Table 1. Distribution of the PPOS scores of the study group according to some sociodemographic characteristics

Sociodemographic Characteristics	n (%)	PPOS Score Median (Min-Max)	Statistical Analysis z / KW; p
Gender			
Female	145 (54.9)	50 (35-73)	2.245; 0.025
Male	119 (45.1)	49 (26-70)	
Age (years)			
≤29	153 (58.0)	49 (26-73) ^a	8.740; 0.013
30-34	59 (22.3)	47 (37-65) ^a	
≥35	52 (19.7)	52 (41-68) ^b	
Marital Status			
Single	151 (57.2)	49 (26-70)	4.108; 0.001
Married	113 (42.8)	52 (37-73)	
Personality Type			
A Type	91 (34.5)	49 (26-69)	0.786; 0.432
B Type	173 (65.5)	50 (36-73)	
Working time in the profession (years)			
<5	152 (57.6)	49 (26-73)	2.127; 0.033
≥5	112 (42.4)	51 (26-70)	
Department of medical sciences			
Surgical	68 (25.8)	46 (26-65) ^a	10.422; 0.005
Internal Medical	173 (65.5)	50 (26-73) ^b	
Basic	23 (8.7)	51 (42-68) ^{ab}	
Total	264 (100.0)	50 (26-72)	

Note: Different superscript letters (^{a,b}) in the same column indicate a statistically significant difference between groups (Dunn-Bonferroni post-hoc test, $p < 0.05$). Groups sharing the same letter are not significantly different.

Among the study group, 19 (7.2%) reported a history of physician-diagnosed chronic disease, and 50 (18.9%) reported a history of mental disorders. A total of 113 participants (42.8%) indicated that they attended to 1–45 patients daily, while 220 (83.3%) stated that the time allocated for diagnosis and treatment was insufficient. In terms of workload, post-hoc comparisons indicated that physicians examining ≥75 patients daily had significantly lower

PPOS scores compared to those examining 1–44 and 45–74 patients, while no significant difference was observed between the groups with lower patient volumes. Additionally, 142 (53.8%) participated in social activities at least once a week, and 72 (27.3%) reported having participated in activities related to patient-physician orientation. The distribution of PPOS scores by factors related to patient-physician orientation is shown in Table 2.

Table 2. Distribution of the PPOS scores of the study group according to some variables thought to be related to patient-physician orientation

Some factors related to patient-physician orientation	n (%)	PPOS Score Median (Min-Max)	Statistical Analysis z / KW; p
History of any physician-diagnosed chronic disease			
No	245 (92.8)	50 (26-73)	0.476; 0.634
Yes	19 (7.2)	49 (26-60)	
History of any physician-diagnosed mental disorder			
No	214 (81.1)	50 (26-73)	0.822; 0.411
Yes	50 (18.9)	49 (26-69)	
Average number of patients attended to daily			
0	65 (24.6)	49 (35-73) ^{ab}	12.999; 0.005
1-44	113 (42.8)	51 (29-69) ^a	
45-74	67 (25.4)	49 (26-68) ^a	
≥75	19 (7.2)	44 (37-54) ^b	
Do you think the time you allocate to your patients for diagnosis and treatment is sufficient?			
No	220 (83.3)	49 (26-73)	2.445; 0.014
Yes	44 (16.7)	52 (39-70)	
Participation in weekly social activities			
No	122 (46.2)	49 (26-70)	0.613; 0.540
Yes	142 (53.8)	49 (26-73)	

Satisfaction with choosing the profession of medicine			
Not satisfied	161 (61.0)	50 (26-73)	0.096; 0.924
Satisfied	103 (39.0)	49 (33-73)	
History of participating in any activity on patient-physician orientation			
No	192 (72.7)	49 (29-66)	2.057; 0.040
Yes	72 (27.3)	51 (26-73)	
History of medical examination in the last year			
No	86 (32.6)	49 (26-66)	0.508; 0.612
Yes	178 (67.4)	52 (19-75)	
Total	264 (100.0)	51 (19-75)	

Note: Different superscript letters (^{a,b}) in the same column indicate a statistically significant difference between groups (Dunn-Bonferroni post-hoc test, p<0.05). Groups sharing the same letter are not significantly different.

The JES scores in the study group ranged between 41 and 134, with a mean score of 101.72 ± 15.53. A weak positive correlation was found between PPOS and JES scores (r = 0.338, p < 0.001). The distribution of the PPOS and JES scores is illustrated in Figure 1.

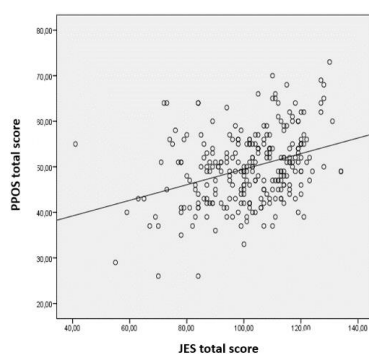


Figure 1. Distribution of the scores obtained by the study group from PPOS and JES

Although univariate analysis indicated significant differences based on gender (p=0.025) and age (p=0.013), it should be noted that these associations did not maintain statistical significance in the multiple linear regression model. Table 3 presents the independent predictors of PPOS scores. The final multiple linear regression model explained 21.7% of the variance in patient-centeredness scores (R²=0.217; Adjusted R²=0.193). The model assumptions were met, with no autocorrelation (Durbin-Watson = 1.935) and no multicollinearity (VIF < 1.5).

According to the final model, marital status (p<0.001), JES (empathy) scores (p<0.001), and daily patient number (p=0.020) were identified as significant independent predictors. Specifically, higher daily patient volume was significantly associated with lower PPOS scores (Beta = -0.138). Other variables, including gender, age, and department, were not statistically significant in the multivariate analysis (p>0.05).

Table 3. Results of multiple linear regression analysis created with variables found to be related to patient-physician orientations

Variables	PPOS Score			
	Standardized Beta	Unstandardized Beta	95% CI	p
Gender	-0.081	-1.281	-3.065 to 0.504	0.159
Age	-0.001	-0.001	-0.202 to 0.199	0.991
Marital Status	0.241	3.820	1.859 to 5.782	<0.001
Department of medical sciences	-0.086	-1.039	-2.422 to 0.344	0.140
Average number of patients attended to daily	-0.138	-1.236	-2.276 to -0.195	0.020

Thinking that the time allocated to the patient for diagnosis and treatment is sufficient	0.065	1.377	-1.007 to 3.760	0.256
History of participating in any activity on patient-physician orientation	0.082	1.446	-0.519 to 3.412	0.149
JES Score	0.286	0.145	0.087 to 0.203	<0.001
R²	0.217			
F	8.854			<0.001

Note: *CI:* Confidence Interval. *JES:* Jefferson Scale of Empathy. *PPOS:* Patient-Practitioner Orientation Scale. Statistical analysis was performed using Multiple Linear Regression (Enter method). **Model Summary:** $R^2 = 0.217$, Adjusted $R^2 = 0.193$, $F = 8.854$, $p < 0.001$. Durbin-Watson statistic = 1.935. VIF values for all variables were <1.5 . Bold values indicate statistical significance ($p < 0.05$).

4. Discussion

The inclusion of patients in processes such as diagnosis, treatment, and care through a patient-centered approach enhances the quality of healthcare services and the effectiveness of treatment. In this study, the participants showed a general tendency toward a patient-centered approach, although the scores were close to the scale's midpoint. Similar findings were reported by Pérez et al. in a study conducted among primary healthcare physicians in Spain (21). However, Abiola et al. found that most physicians in Kano adopted a physician-centered approach (10). Similarly, a study conducted in Nepal reported that physicians demonstrated a patient-centered approach (22). The variation in findings across studies may be attributed to differences in the sociocultural characteristics of the study settings and the evolving general perspectives on patient-centered orientation over time.

Gender differences in speech, communication skills, and approaches to problem-solving may influence physicians' relationships with their patients. In this study, no significant gender difference was found in terms of a patient-centered approach. However, some studies have reported that female physicians are more inclined toward patient-centered care (23,24). These differences may be due to the cultural characteristics of the populations in which the studies were conducted.

As physicians age, their general life and professional experience may contribute to a more patient-centered approach. In this study, no significant difference was found between age groups in terms of patient-physician orientation. Conversely, Abiola et al. reported that physicians aged 30 and older showed a more patient-centered approach (10). In contrast, Krupat et al. found that physicians became more physician-centered with increasing age (25). These inconsistencies may be attributed to differences in the sociocultural and individual

characteristics of the physicians in the respective study settings.

Physicians' marital status, as an element of their personal lives, may influence their professional interactions (26). In this study, married physicians demonstrated a more patient-centered approach than their unmarried counterparts. Abiola et al. similarly found that married physicians exhibited a more patient-centered approach (10). However, a study by Şahin reported no significant relationship between marital status and patient-physician orientation (27).

Surgeons are often expected to adopt a more physician-centered approach due to the complexity and high stakes of surgical decision-making processes. In this study, no significant difference was found between the medical departments in terms of patient-physician orientation. However, some studies have reported that surgeons are more likely to adopt a physician-centered approach (11,28). The diversity of conditions and challenges encountered in different medical specialties may contribute to variations in physicians' orientations.

High patient loads can lead to burnout, reduced job satisfaction, and strained patient relationships, often resulting in a more physician-centered approach. In this study, physicians dealing with higher daily patient numbers were found to adopt a more physician-centered approach. Similarly, Song et al. reported that physicians with heavy workloads exhibited a more physician-centered approach (29). Short examination times and high patient turnover may naturally hinder effective patient-physician communication.

Activities aligned with the biopsychosocial model, a preferred framework for patient-physician relationships, form the foundation of the patient-centered approach. Thus, physicians who have

participated in activities related to patient-physician orientation are expected to be more patient-centered. In this study, 73.6% of physicians had not participated in such activities, and no significant difference in orientation was found between those who participated and those who did not. Krupat et al. found that 27.5% of physicians had not received patient communication training and that those who did demonstrated a more patient-centered approach (25). Similarly, Tsimtsiou et al. reported that communication skills training positively influenced a patient-centered approach (30). Variations in these findings could stem from differences in the content and scope of the training provided.

Empathy is a crucial factor in the patient-physician relationship. Physicians with high empathy skills are more likely to adopt a patient-centered approach. In this study, physicians with higher empathy levels were found to be more patient-centered. Similar findings have been reported in other studies (27,31). Physicians' ability to empathize with their patients and tailor the treatment process to patients' needs may contribute to improved healthcare outcomes, better collaboration with patients, and overall advancements in the healthcare system.

Future research with longitudinal designs is recommended to explore the potential mediating

roles of variables such as empathy, workload, and professional seniority in the relationship between sociodemographic factors and patient-centeredness.

5. Conclusion

This study revealed that most research assistant physicians tended toward a more patient-centered approach. Physicians who were married, attended to fewer patients daily, and had higher levels of empathy were found to demonstrate a more patient-centered orientation.

To encourage the adoption of a patient-centered approach among physicians, it may be beneficial to integrate educational activities emphasizing the bio-psycho-social approach into medical school curricula, internships, and in-service training programs after graduation. Additionally, reducing physicians' daily workloads and increasing the time allocated to each patient may also be recommended.

Future research with longitudinal designs is recommended to explore the potential mediating roles of variables such as empathy, workload, and professional seniority in the relationship between sociodemographic factors and patient-centeredness

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