

Attitudes of Family Medicine Trainees Towards Patient-Centeredness Practice

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Objective: The interaction between physicians and patients is essential in clinical practice. Patient-centered care (PCC) is becoming popular in healthcare and provides an approach to deliver high-quality healthcare to yield positive clinical outcomes. This study explores family medicine residents' attitudes toward the physician–patient relationship and patient-centered care and the possible influence of demographic characteristics, level of training, school of graduation, and previous training.

Methods: A cross-sectional study was conducted among family medicine residents in Riyadh. They were invited to enroll in a web-based survey that includes demographic data, training details, and the “Patient Practitioner Orientation Scale (PPOS).”

Results: A total of 114 family medicine residents completed the survey. There were 68 (59.6%) males and 46 (40.4%) female residents. The overall PPOS was 4.23 ± 0.53 . The mean score for sharing domain was 3.97 ± 0.66 . The caring domain scored 4.49 ± 0.57 . No correlations were found between the residents' demographic data and other included variables, and the means of sharing domain, caring domain, and overall score.

Conclusion: Family medicine residents were found to have positive attitudes toward patient-centeredness. Integrating patient-centered training early in the curriculum can improve healthcare students' and trainees' attitudes toward patient-centered care. Future research can explore the possible interventions in systematic assessment and training programs that can improve PCP.

Keywords: physician–patient relations, medical residency, patient-centered care, Saudi Arabia

Introduction

Building beneficial partnerships between patients and healthcare providers can improve patients' experiences and health outcomes, lowering healthcare costs and increasing efficiency.^{1,2} Patient-centered care can help in planning, delivering, and evaluating healthcare.^{1,2} This approach can be applied to all healthcare workers and all medical specialties.^{1,3}

Eight elements of patient-centered care were identified, including respect for the patient's values, preferences, and expressed needs; information and education; access to care; emotional support to reduce fear and anxiety; family and friend involvement; continuity and secure transition between health care settings; physical comfort; and coordination of care.⁴ Patient-centered care allows patients to actively participate in all areas of their care, including treatment decisions and self-management.⁵ This reduces costs without compromising the control of chronic diseases and increases medication adherence, which contributes to shorter hospital stays.⁵

Lack of patient-centered care results in poor health outcomes, decreased patient and family satisfaction, high readmission rates, increased average length of stay, higher mortality, poor management of chronic conditions, and additional costs.³ The “quality chasm” report from the US Institute of Medicine characterized patient-centered care as respecting and responding to individual patient choices, needs, values and emphasizing that patient values lead all medical decisions.⁶

New models of care that include patient preferences, care coordination, empowerment, and physical environment aspects are thought to be the most crucial contributors to quality improvement.⁷ Healthcare development programs have had extensive attention through the years in Saudi Arabia.⁸ The introduction of advanced healthcare systems necessitates ongoing measuring programs focusing on patient centric tools.^{1,2} A continuous patient experience measurement program has been implemented by the Saudi Ministry of Health.⁸

Aligning the healthcare system with individuals' preferences and requirements can improve patient satisfaction and clinical outcomes.^{9,10} Patient-centered communication affects patients' health by giving them the impression that their visit was focused on them, especially by giving them the perception that they and their doctor had achieved common ground. By eliminating diagnostic tests and referrals, patient-centered practice enhanced health and boosted care efficiency.³

Several studies have looked into patient care quality in Saudi Arabia. Wahabi et al¹¹ conducted a study to determine healthcare providers' attitudes toward clinical practice guidelines (CPGs). It found that most respondents in the study expressed a favorable view of using guidelines in clinical decision-making.¹¹ Furthermore, it showed that clinical practice guidelines effectively unify and increase the quality of patient care, according to most respondents.¹¹

A systemic review of Saudi university hospitals highlights the need for continued healthcare quality improvement and recommends that future studies focus on providing valid assessments and identifying strategies to enhance healthcare quality.¹² It also concluded that physicians and nurses must participate in ongoing training programs in communication and interaction skills to be aware of the issues obstructing optimum care quality.¹² Although some local studies explored PCP among medical students,^{13,14} dentists,¹⁵ and nurses,¹⁶ no sufficient published data exploring it among residency trainees in Saudi Arabia.

In patient care, there is a need for educational interventions toward better communicative skills to foster more favorable attitudes toward patient-centered care among medical trainees.^{17–20} This will improve satisfaction scores among patients and their families, enhance providers' reputation among healthcare consumers, better morale and productivity among clinicians and ancillary staff, improve resource allocation, reduce expenses, and increase financial margins throughout the continuum of care.^{21,22} This study aimed to explore the family medicine residency trainees' attitude toward patient-centered care and its correlates.

Materials and Methods

A cross-sectional online-based survey was conducted among Riyadh's family medicine residency trainees. It was conducted from September 2022 to October 2022. Participants were selected using the convenience sampling method, and the sample size was determined using the single population proportion formula determined the sample size: " $n = (Z\alpha/2)^2 p(1-p) / d^2$." p was assumed to be 50%, 95% was the confidence interval, and the margin of error was 5%. It was calculated to be 114 residents.

All family medicine residency trainees in Riyadh, males and females, all levels, were included with no exclusion criteria. The questionnaire was sent electronically using Google forms through participants' emails privately.

Independent variables include personal data, ie, age, gender, level of training, city of the medical school of graduation, and previous training in patient centeredness. Patient centered knowledge among trainees was the dependent variable. The "Patient-Practitioner Orientation Scale (PPOS)" by Krupat²³ was used for its validity. It was used in international studies and translated into several languages. It was used locally in previous studies conducted among medical students in Saudi Arabia by Al-Bawardy and Fothan et al^{13,14} A written permission was obtained from Krupat to use this tool in this study.

The scale contains 18 items that are subdivided into Sharing and Caring subdomains. Sharing measures the responders' beliefs about how much they should share power with their patients and how much information they should share.²³

The caring domain examines how much the responders care for emotions and care for the patient as a person, not as a disease.²³ The 6-point Likert scale is used. Strongly disagree is scored six, and strongly agree is scored one. Item number 5 from Sharing domain and items 6 and 9 from the Caring domain are reverse worded, hence reversed scoring. A higher score reflects a positive attitude toward patient centeredness.²³

Data analysis was conducted using Statistical Package for Social Sciences software (SPSS 24.0 version) (IBM Inc., Chicago, USA). Mean and standard deviation (SD) were calculated to report the quantitative variables. Qualitative variables were reported as frequency and percentage. The total mean score was calculated for all items. The scores of Sharing and Caring sub-scales were also calculated.

The validity and reliability of the data were obtained by Cronbach's alpha value, ie, 0.681. One-way ANOVA and one-sided independent sample *t*-test were used to identify the differences in PPOS among sociodemographic characteristics and other variables. A regression analysis was also carried out to investigate the predictors of PPOS. Pearson correlation showed no multicollinearity. The fitted regression model was $R = 0.148$; $R^2 = 0.022$; model fit: $F = 0.401$ $p = 0.877$ (enter method).

The present study followed the principles of the Helsinki Declaration. The informed consent was explicit, stating the study's objectives and the responders' ability to withdraw without consequences. Participants received no incentives or rewards, and their anonymity was guaranteed. The King Saud University College of Medicine's institutional review board granted ethical approval (No. E-22-0213/IRB).

Results

A total of 114 family medicine residents participated in the survey. There were 68 (59.6%) males and 46 (40.4%) female residents. Demographic characteristics of the family medicine residents and the total Patient Practitioner Orientation Scale (PPOS) are shown in Table 1. The overall PPOS score mean was 4.23 ± 0.53 . Sharing domain score mean was 3.97 ± 0.66 . The caring domain score mean was 4.49 ± 0.57 . Table 1 shows the correlations between gender, level of training, the center of training, city of medical school, and previous training in patient centeredness, with the means of overall PPOS, sharing, and caring domain scores. No differences were found ($p > 0.05$).

Table 2 shows the mean score of each Patient Practitioner Orientation Scale (PPOS) statement according to the residents' responses. It shows the participants' means of overall PPOS, sharing, and caring domains. The lowest-scored item was item number 9 from the Sharing domain. Two items scored the highest among participants, item number 2 from Sharing domain and item 3 from the Caring domain.

The regression model is shown in Table 3. The regression analysis did not point to any significant association between the overall PPOS and age, gender, level of training, training center, city of graduation, or Previous Training in Patient Centeredness. Figure 1 shows the sources of previous education about patient-centeredness reported by participants. The most reported source

Table 1 Demographic Characteristics of Family Medicine Residents and Correlation with the Total Patient Practitioner Orientation Scale (PPOS) (N=114)

Characteristics	Frequency (n)	Percentage (%)	Mean Sharing Subscale (SD)	Mean Caring Subscale (SD)	Mean Total Score (SD)	P-value
Age	Mean 26.97(2.41)		3.97(0.66)	4.49(0.57)	4.23(0.53)	0.872
Gender						
Male	68	59.6	3.99	4.46	4.22	0.855
Female	46	40.4	3.95	4.54	4.24	
Level of Training						
R1	38	33.3	3.92	4.61	4.26	0.578
R2	38	33.3	4.05	4.53	4.29	
R3	28	24.6	3.92	4.31	4.11	
R4	10	8.8	4.25	4.46	4.25	
Training Center						
University-based	48	42.1	4.01	4.60	4.31	0.310
Ministry of Health	30	26.3	3.90	4.34	4.12	
Other sectors	36	31.6	3.99	4.49	4.23	
City of Graduation						
Riyadh	91	79.8	4.00	4.53	4.27	0.190
Others	23	20.2	4.10	4.33	4.10	
Previous Training						
Yes	32	28.1	3.94	4.59	4.26	0.713
No	82	71.9	3.99	4.46	4.22	

Table 2 Means of Total Patient Practitioner Orientation Scale (PPOS), Sharing and Caring Scores (N=114)

Patient Practitioner Orientation Scale (PPOS)	Mean (Standard Deviation)
Sharing	3.97(0.66)
1. The doctor is the one who should decide what gets talked about during a visit.	4.44(1.32)
2. It is often best for patients if they do not have a full explanation of their medical condition.	5.10(1.30)
3. Patients should rely on their doctors' knowledge and not try to find out about their conditions on their own.	4.38(1.3)
4. Many patients continue asking questions even though they are not learning anything new.	3.73(1.43)
5. Patients should be treated as if they were partners with the doctor, equal in power and status.	4.15(1.56)
6. Patients generally want reassurance rather than information about their health.	3.10(1.34)
7. When patients disagree with their doctor, this is a sign that the doctor does not have the patient's respect and trust.	4.62(1.26)
8. The patient must always be aware that the doctor is in charge.	3.71(1.46)
9. When patients look up medical information on their own, this usually confuses more than it helps.	2.54(1.37)
Caring	4.49(0.57)
1. Although health care is less personal these days, this is a small price to pay for medical advances.	4.14(1.17)
2. The most important part of the standard medical visit is the physical exam.	4.33(1.50)
3. When doctors ask a lot of questions about a patient's background, they are prying too much into personal matters.	5.10(1.00)
4. If doctors are truly good at diagnosis and treatment, the way they relate to patients is not that important.	5.09(1.04)
5. If a doctor's primary tools are being open and warm, the doctor will not have a lot of success.	4.63(1.31)
6. A treatment plan cannot succeed if it conflicts with a patient's lifestyle or values.	4.78(1.34)
7. Most patients want to get in and out of the doctor's office as quickly as possible.	3.81(1.39)
8. It is not that important to know a patient's culture and background in order to treat the person's illness.	5.00(1.28)
9. Humor is a major ingredient in the doctor's treatment of the patient.	3.55(1.39)
Total score	4.23(0.53)

Table 3 Multiple Regression Model for Total Patient Practitioner Orientation Scale (PPOS) Score Correlates (N=114)

	B	Std. Error	Beta	t	Sig.
(Constant)	4.673	0.705		6.632	<0.001
Age	-0.005	0.026	-0.025	-0.212	0.833
Gender	0.004	0.104	0.003	0.034	0.973
Level of Training	-0.016	0.063	-0.030	-0.256	0.799
Training Center	-0.034	0.064	-0.056	-0.536	0.593
City of Graduation	-0.143	0.133	-0.109	-1.073	0.286
Previous Training in Patient Centeredness	-0.015	0.116	-0.013	-0.133	0.894

Notes: Summary of model: R= 0.148; R²=0.022; Adjusted R² 0.033, fit: F=0.401 P= 0.877 (Enter method).

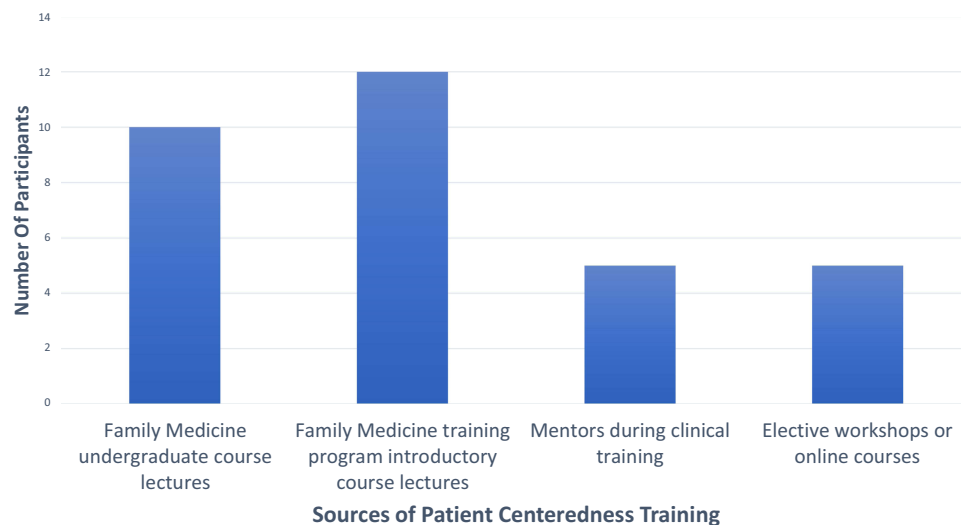


Figure 1 Sources of previous education about patient centeredness reported by participants.

was the Family Medicine training program introductory course lectures, followed by the Family Medicine undergraduate course lectures. Learning from mentors during clinical training and attending elective workshops or online courses were also reported.

Discussion

Globally, a shift in perspective toward patient-centered care and all that it entails may lead to an enhanced patient–doctor relationship and lower healthcare expenses. Healthcare experts, managers, clinicians, and patients reported new priorities during the COVID-19 era that can help achieve patient-centered care,²⁴ including a stronger emphasis on patient safety, care for vulnerable patients, self-management promotion, and patient autonomy.²⁴

These priorities are different from what was known about integrating patient-centered care prior to the pandemic, which concentrated on six important elements, ie, understanding the whole person, finding common ground, experiencing time, aiming for positive outcomes, considering the system and collaborating in care and optimizing the general practice environment.²⁴ This study explored the attitudes of family medicine residents toward the patient-centeredness approach and found its correlates.

The current study showed no statistically significant correlation between PPOS score and demographic data such as age and gender. This is constant with Fothan et al study and Ahmad et al, which showed similar results.^{13,25} In contrast, gender and age were reported in the literature to be highly correlated to the PPOS score.^{23,26–28} A study found that Healthcare professionals' perception of Patient-Centered-Care (PCC) will be higher with age.²⁸ An explanation of the discrepancy between the current study results and the reported correlation with age is that the sample age range is in the same age group. A broader study including all the age ranges can give a better conclusion on this issue.

Regarding gender, Bejarano et al reported more positive attitudes toward patient-centered care among female healthcare students than males in that study.²⁶ Similarly, Ishikawa et al found a significant difference in caring attitude in correlation to gender; male residents have a more significant fall in this attribute than females.²⁷ In accordance with that, Peck et al reported that female doctors are more likely to adopt a patient centered approach, mainly if the patient is female.²⁹ Male doctors are more likely to adopt physician-centered approach with their patients, particularly if they are female.²⁹ Al-Surimi et al also reported that healthcare professionals' perception of Patient-Centered-Care (PCC) will be higher with the female gender.²⁸ Female first year medical students were more patient centered, according to Krupat et al.²³ This indicates that differences in PCC attitudes of males and females exist early in medical training.²³

A recently published meta-analysis looked at 16 different evaluation methods to measure the attitudes about patient-centered care among healthcare students; found that the PPOS was the most used tool.²⁶ In the current study, residents were found to have positive attitudes toward patient centeredness. A study conducted among medical students in Saudi Arabia in pre-clinical years reported a high score, ie, 4.0(1.5), Sharing score mean was 4.2(1.5), and the caring score mean was 3.8(1.4).¹³ This is in

accordance with the current results.¹³ Clinical exposure can partly explain the higher scores in all domains among the current study participants compared to Fothan et al results, which included pre-clinical students.¹³ This was also reported by Ahmad et al, ie, higher patient-centered attitudes can be expected by students in clinical years in medical schools.²⁵ Advanced academic and clinical exposure can explain the higher score among participants in the current study.

Although the current study did not find a significant correlation between elective training in patient-centeredness, possibly because a small number of participants reported this. The introductory component of the training program that includes training in this entity can contribute to this, and it was the most reported method of PCP training exposure by participants. Literature found that brief training considerably boosted residents' empathy scores according to patients.³⁰ Internal medicine residents with a patient-centered inpatient curriculum had more excellent satisfaction ratings in patient-centered categories, and patients with physicians had higher satisfaction ratings.³¹ These findings suggest that incorporating patient-centered communication into residency programs can improve the quality of patient-centered care.³⁰

According to a longitudinal study, residents' patient-centered attitudes were found to deteriorate during their first year of training.^{27,32} Physicians with a lesser reduction in their patient-centered attitude had a more considerable rise in their confidence in speaking with patients.²⁷ Assessment of physicians' attitudes and practice of talking with patients could be beneficial to identify physicians with higher needs and assess the educational program's effectiveness.^{27,32}

While this study did not find statistical differences among different family medicine training centers in Riyadh, Sultan et al explored the perceived importance of patient-centered between physicians in private and physicians in public hospitals and demonstrated favorable results among physicians in private hospitals.³³ All family medicine residency training programs included in this study follow a standard curriculum by Saudi Commission for Health Specialties (SCFHS), and the clinical attachment is conducted in governmental-based practice. This can explain the current finding; however, there could be differences between clinical specialties according to their program structures and clinical exposure, which can be evaluated further by including all clinical specialties in future research.

Opportunities are available to improve healthcare students' attitudes toward patient-centered care. An excellent example of the creation and development of patient-centered care during the COVID-19 pandemic was the implementation of "pharmacist-led tele-medication management".^{34,35} This model was designed and conducted to ensure the continuous delivery of required healthcare among elderly patients and those with chronic diseases.^{34,35} These examples may motivate the growth continuity in patient-centered care to utilize telemedicine tools.

Medical schools have an important role in tailoring the curricula to highlight aspects of patient-centered care. Specific courses to expand the patient-centered care approach through role-playing, practice, and discussion (eg, biopsychosocial perspective, shared responsibility, and therapeutic relationship).²⁶ This may improve healthcare students and residents' attitudes toward patient-centered care. The administration of early patient-centered care courses during medical school and residency programs can tremendously increase patient satisfaction and improve healthcare outcomes.^{19,20}

Although this study includes multiple family medicine training centers, it was limited to one city and specialty. Including all regional training centers and clinical specialties in future research can help investigate the different barriers and motives of PCC practice among different specialties and clinical training programs in Saudi Arabia and worldwide. Moreover, this study does not explore the cultural and socio-economic aspects among family medicine residents, which might affect the medical practice, especially in Saudi Arabia. A deeper investigation using qualitative methods could explore this issue further. Furthermore, a study correlating patient-centered practice among family medicine trainees and patient satisfaction in the studied centers can help further identify the errors in each hospital system and improve the quality of care.

Conclusion

Family medicine residents were found to have positive attitudes toward patient centeredness. No differences were identified between residents' gender, level of training, training center, city of graduation, and previous training in patient centeredness. The residency training programs should include thorough training and assessment of patient centeredness, not only in the program's introductory course. The goal is to integrate the training into the education curriculum of the residents all over the training years. Integrating a patient-centered curriculum and clinical exposure of trainees as early as possible can improve patient-centered care. Future research can explore possible interventions in systematic assessment and training programs to improve PCP.

Abbreviations

PPOS, Patient-Practitioner Orientation Scale; PCC, Patient-Centered-Care.

Data Sharing Statement

The corresponding author will provide the datasets created and used for the current work upon reasonable request.

Ethics Approval and Consent to Participate

The present study followed the principles of the Helsinki Declaration. The College of Medicine at King Saud University's institutional review board approved this project (No. E-22-0213/IRB).

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Author Contributions

All authors contributed to data analysis, drafting, and revising the article, have agreed on the journal to which the article will be submitted, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

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References

1. Miller LR, Peck BM. Patient-centered care: an examination of provider-patient communication over time. *Heal Serv Res Manag Epidemiol*. 2019;6:2333392819882871.
2. Pearson SD, Raeke LH. Patients' trust in physicians: many theories, few measures, and little data. *J Gen Intern Med*. 2000;15(7):509–513. doi:10.1046/j.1525-1497.2000.11002.x
3. Oates J, Weston WW, Jordan J. The impact of patient-centered care on outcomes. *Fam Pr*. 2000;49(9):796–804.
4. Genteis M, Edgman-Levitan S, Dalay J, Delbanco TL. Through the patient's eyes: understanding and promoting patient-centered care. *J Healthc Qual*. 2003;25(3):47. doi:10.1097/01445442-200305000-00015
5. Kaplan SH, Greenfield S, Ware JE. Assessing the effects of physician-patient interactions on the outcomes of chronic disease. *Med Care*. 1989; S110–S127. doi:10.1097/00005650-198903001-00010
6. Baker A. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Vol. 323. British Medical Journal Publishing Group; 2001.
7. Ahmad S, Singh J, Kamal MA, Shaikh ZM. Person-centered care design with reference to healthcare outcomes in Saudi Arabia: an overview. *Am J Civ Eng Arch*. 2020;8(3):91–96.
8. Saudi Arabia Vision Realization Programs. Health Sector Transformation Program (Delivery Plan); 2021. Available from: https://www.vision2030.gov.sa/media/0wop2tds/hstp_eng.pdf. Accessed January 24, 2023.
9. Asirvatham AR, Siddiqui R, Irfan S. Patient centered model of care: a positive impact on treatment outcome in a rehabilitation hospital in Saudi Arabia. *Iran Rehabil J*. 2011;9(2):65–68.
10. Alrasheedi K, AL-Mohaithef M, Edrees H, Chandramohan S. The association between wait times and patient satisfaction: findings from primary health centers in the Kingdom of Saudi Arabia. *Heal Serv Res Manag Epidemiol*. 2019;6:233339281986124. doi:10.1177/2333392819861246
11. Wahabi HA, Alzeidan RA, Fayed AA, Esmail SA, Al Aseri ZA. Attitude and practice of the health care professionals towards the clinical practice guidelines in King Khalid University Hospital in Saudi Arabia. *J Eval Clin Pract*. 2011;17(4):763–767. doi:10.1111/j.1365-2753.2011.01694.x
12. Aljuaid M, Mannan F, Chaudhry Z, Rawaf S, Majeed A. Quality of care in university hospitals in Saudi Arabia: a systematic review. *BMJ Open*. 2016;6(2):e008988. doi:10.1136/bmjopen-2015-008988
13. Fothan AM, Eshaq AM, Bakather AM. Medical students' perceptions of the doctor-patient relationship: a cross-sectional study from Saudi Arabia. *Cureus*. 2019;11(7). doi:10.7759/cureus.5053
14. Rasha A-B, Benjamin B, Saad A-S, Samuel JS. Cross-cultural comparison of the patient-centeredness of the hidden curriculum between a Saudi Arabian and 9 US medical schools. *Med Educ Online*. 2009;14(1):4655. doi:10.3402/meo.v14i.4655
15. Jasser RAL. Evaluation of the practice of patient centered care among Saudi dentists in central region of Saudi Arabia: a cross-sectional study. *J Res Med Dent Sci*. 2020;8(2):5–10.
16. Alhalal E, Alrashidi LM, Alanazi AN. Predictors of patient-centered care provision among nurses in acute care setting. *J Nurs Manag*. 2020;28(6):1400–1409. doi:10.1111/jonm.13100

17. Dacey M, Murphy JI, Anderson DC, McCloskey WW. An interprofessional service-learning course: uniting students across educational levels and promoting patient-centered care. *J Nurs Educ.* 2010;49(12):696–699. doi:10.3928/01484834-20100831-09
18. Lévesque MC, Hovey RB, Bedos C. Advancing patient-centered care through transformative educational leadership: a critical review of health care professional preparation for patient-centered care. *J Healthc Leadersh.* 2013;5:35–46. doi:10.2147/JHL.S30889
19. Bokhary DH, Saggaf OM, Baabdullah AM, Kabli YO, Ghalayieni KW. Assessment of patient experiences in an academic hospital in Saudi Arabia. *Cureus.* 2022. doi:10.7759/cureus.24203
20. Elzubier AG. Doctor-patient communication: a skill needed in Saudi Arabia. *J Family Community Med.* 2002;9(1):51.
21. Epstein RM, Fiscella K, Lesser CS, Stange KC. Why the nation needs a policy push on patient-centered health care. *Health Aff.* 2010;29(8):1489–1495. doi:10.1377/hlthaff.2009.0888
22. Edgman-Levitan S, Schoenbaum SC. Patient-centered care: achieving higher quality by designing care through the patient's eyes. *Isr J Health Policy Res.* 2021;10(1):1–5. doi:10.1186/s13584-021-00459-9
23. Krupat E, Hiam CM, Fleming MZ, Freeman P. Patient-centeredness and its correlates among first year medical students. *Int J Psychiatry Med.* 1999;29(3):347–356. doi:10.2190/DVCQ-4LC8-NT7H-KE0L
24. Brickley B, Morgan M. Patient-centred care during the COVID-19 pandemic. *Aust J Gen Pract.* 2022;51(1–2):77–81.
25. Ahmad W, Krupat E, Asma Y, Attique R, Mahmood U, Waqas A. Attitudes of medical students in Lahore, Pakistan towards the doctor–patient relationship. *PeerJ.* 2015;3:e1050. doi:10.7717/peerj.1050
26. Bejarano G, Csiernik B, Young JJ, Stuber K, Zadro JR. Healthcare students' attitudes towards patient centred care: a systematic review with meta-analysis. *BMC Med Educ.* 2022;22(1):324. doi:10.1186/s12909-022-03371-1
27. Ishikawa H, Son D, Eto M, Kitamura K, Kiuchi T. Changes in patient-centered attitude and confidence in communicating with patients: a longitudinal study of resident physicians. *BMC Med Educ.* 2018;18(1):1–6. doi:10.1186/s12909-018-1129-y
28. Marar SD, Al-Madaney MM, Almousawi FH. Health information on social media: perceptions, attitudes, and practices of patients and their companions. *Saudi Med J.* 2019;40(12):1294. doi:10.15537/smj.2019.12.24682
29. Peck BM, Denney M. Disparities in the conduct of the medical encounter: the effects of physician and patient race and gender. *Sage Open.* 2012;2(3):2158244012459193. doi:10.1177/2158244012459193
30. Noordman J, Post B, Van Dartel AAM, Slits JMA, Olde Hartman TC. Training residents in patient-centred communication and empathy: evaluation from patients, observers and residents. *BMC Med Educ.* 2019;19(1):1–11. doi:10.1186/s12909-019-1555-5
31. Ratanawongsa N, Federowicz MA, Christmas C, et al. Effects of a focused patient-centered care curriculum on the experiences of internal medicine residents and their patients. *J Gen Intern Med.* 2012;27(4):473–477. doi:10.1007/s11606-011-1881-8
32. Yasein NA, Shakhathreh FM, Shroukh WA, Farah MS, Jaber RM. A Comparison between patients' and residents' perceptions of patient centeredness and communication skills among physicians working at Jordan University Hospital. *Open J Nurs.* 2017;7(6):698–706. doi:10.4236/ojn.2017.76052
33. Campanini I, Mastrangelo S, Bargellini A. Feasibility and predictive performance of the Hendrich Fall Risk Model II in a rehabilitation department: a prospective study. *BMC Health Serv Res.* 2018;18(1):18. doi:10.1186/s12913-017-2815-x
34. Mohiuddin SI, Thorakkattil SA, Abushoumi F, Nemr HS, Jabbour R, Al-Ghamdi F. Implementation of pharmacist-led tele medication management clinic in ambulatory care settings: a patient-centered care model in COVID-19 Era. *Explor Res Clin Soc Pharm.* 2021;4:100083. doi:10.1016/j.resop.2021.100083
35. Thorakkattil SA, Nemr HS, Al-Ghamdi FH, Jabbour RJ, Al-Qaane AM. Structural and operational redesigning of patient-centered ambulatory care pharmacy services and its effectiveness during the COVID-19 pandemic. *Res Soc Adm Pharm.* 2021;17(1):1838–1844. doi:10.1016/j.sapharm.2020.06.017