

Attitudes and practices of Mongolian medical professionals toward patient-centered care

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Objective: To assess the attitudes of healthcare professionals in public and private hospitals in Mongolia toward patient-centered care (PCC) and to identify factors influencing its implementation. **Methods:** An institution-based analytical cross-sectional study was conducted from August 1 to November 1, 2023, involving 218 physicians and healthcare professionals. Patient-centered care (PCC) was assessed using the Provider–Patient Relationship Questionnaire (PPRQ-16), which covers four domains. Multiple linear regression identified associated factors, with multicollinearity assessed using tolerance and VIF. **Results:** Overall, 43.1% of participants demonstrated moderate knowledge of PCC. The mean PCC score was 3.79 ± 0.64 . Among the four domains, information exchange scored highest (4.09 ± 0.70), while empathy scored lowest (3.59 ± 0.71). No significant differences were found between public and private hospitals. PCC was positively correlated with knowledge of PCC, time spent with patients, nurse cooperation, low patient health literacy, and job interest ($r = 0.137–0.323, p < 0.01$). Regression models showed no multicollinearity (tolerance: 0.653–0.967; VIF: 1.034–1.532). **Conclusion:** PCC implementation was not associated with hospital ownership. However, nurse cooperation and patients' health literacy were significant factors influencing PCC. Strengthening these areas may enhance patient involvement and care quality.

Key words: Exchange of information, Empathy, Patient involvement, Public hospitals, Private hospitals

Introduction

Patient-centered care is a core component of the healthcare system.¹ In recent years, healthcare organizations worldwide have been shifting away from “hospital- and provider-centered” approaches and increasingly adopting patient-centered care practices. In many countries, the concept of “patient-centeredness” has been extensively studied, and its findings have been implemented in practice. For instance, about 30 years ago, Levinson et al. identified that the primary cause of complaints in healthcare services was not the lack of



clinical competence among physicians, but rather issues related to communication. This finding highlights the importance of patient-centered communication.²

Then, the results of these studies were incorporated into policies and management strategies aimed at improving healthcare quality, leading to various positive outcomes, as consistently reported in later research. For example, studies by Levinson and Roter emphasized that the quality of physician–patient communication is directly associated with physicians’ underlying attitudes and communication styles. A physician’s attitude toward patients positively influences patients’ psychological well-being, increases satisfaction, and plays a crucial role in improving treatment outcomes.

In Mongolia, the relatively low level of patient satisfaction with healthcare services and the frequent occurrence of complaints may be partly explained by the nature of physician–patient interactions, particularly the relatively low level of empathy demonstrated by healthcare providers.³ Moreover, patient-centered care has been shown to significantly improve healthcare quality, patient satisfaction, and treatment outcomes. Studies indicate that patient-centered approaches enhance physician–patient relationships, improve information exchange, increase adherence to treatment plans, reduce hospital stay duration, and lead to better clinical outcomes.⁴ It is also suggested that healthcare services delivered without understanding patients’ needs and expectations may become ineffective and even negatively impact patients’ emotional well-being.⁵

Patient-centered care does not simply mean fulfilling all patient demands or merely providing information. Rather, it involves considering patients’ preferences, values, family circumstances, social context, and lifestyle; recognizing them as individuals; and collaborating to develop appropriate solutions.^{6–8} In other words, patient-centered care is more about partnership than consumption. Evidence has shown that patient-centered care improves outcomes and reduces the burden on healthcare systems.^{9–10} Patients who actively participate in their care tend to receive safer services, report higher satisfaction and better experiences, adhere more closely to treatment plans, and demonstrate improved self-management behaviors with fewer decisional conflicts. This, in turn, contributes to reduced healthcare utilization and costs.¹¹

However, most of these studies have been conducted in high-income countries, and there is relatively limited research on the implementation of patient-centered care and its

influencing factors in healthcare settings of developing countries. Therefore, it is necessary to investigate patient-centered care implementation by considering the specific characteristics of the national healthcare system, organizational culture, healthcare professionals’ knowledge, and workplace factors. Accordingly, this study aims to assess patient-centered care among healthcare professionals and identify its influencing factors, which is essential for improving healthcare quality and informing policy and management decisions to support the implementation of patient-centered care.

According to Resolution No. 52 of the State Great Khural of Mongolia, the long-term development policy “Vision–2050”, and its action plan for implementation during 2021–2030, Objective 2.2 states that Mongolia aims to develop a high-quality, accessible, and effective healthcare system by fostering citizens with healthy habits and an active lifestyle. Within this objective, Action 2.2.12 specifies that through public–private partnerships, healthcare service burdens will be balanced and healthcare institutions with the capacity to provide high-quality, safe, equitable, and patient-centered care to the population will be supported.¹² Delivering high-quality, safe, and patient-engaged healthcare services to the population is a core mission not only for Mongolia but also for healthcare systems worldwide.¹³

In Mongolia, healthcare services provided to the population are organized into primary and referral levels, and healthcare delivery is guided by principles of mutual benefit, fairness, equity, and respect for patients, and involves the state, citizens, and legal entities.¹⁴ Improving the quality of healthcare services has become a major priority in Mongolia’s national health policies and strategic plans, which emphasize the implementation of patient-centered healthcare services. However, despite these policy directions, healthcare organizations and professionals still demonstrate limited understanding and application of the patient-centered care approach. Consequently, healthcare delivery in many settings remains predominantly hospital- and provider-centered rather than patient-centered. Previous studies conducted in Mongolia on healthcare quality have primarily focused on patient satisfaction, accounting for more than 80% of the existing research.

Although these studies consistently recommend the need to improve healthcare quality, there remains a lack of clearly articulated policy frameworks and practical strategies to facilitate a systematic transition from a hospital- and provider-centered model toward a more advanced human-centered

healthcare approach that reflects contemporary global trends in healthcare delivery. Therefore, it is essential for physicians and healthcare professionals working in both public and private healthcare institutions in Mongolia to adopt and implement patient-centered healthcare services by recognizing patients' needs and promoting their active participation in the care process. Strengthening communication and interaction between healthcare professionals and patients across all stages of healthcare delivery is crucial for achieving this goal. Thus, we aimed to assess the attitudes of healthcare professionals in public and private hospitals in Mongolia toward patient-centered care (PCC) and to identify factors influencing its implementation in this study.

Material and Methods

Study Design

This study employed a hospital-based analytical cross-sectional design with a quantitative research approach to assess the provision of patient-centered care among physicians and other healthcare professionals. Ethical approval for this study was granted by the Research Ethics Review Committee of the Mongolian National University of Medical Sciences (approval no. 2023/3-07; June 16, 2023).

Study Population and Sample

The study included physicians and nurses providing healthcare services in both public and private hospitals in Ulaanbaatar. Participants were selected using a random sampling method.

Sample Size Determination

The sample size was calculated using Cochran's formula for a known population size

The following parameters were applied:

$$n = \frac{N \times S^2 \times Z_{\alpha}^2}{(N-1) \times e^2 + S^2 \times Z_{\alpha}^2}$$

(N) a population size of 1,047,

(S) a standard deviation of 13.3,

corresponding to a 95% confidence level ($Z = 1.96$).

(e) margin of error of 1.7.

(n) sample size 197.

The sample size was calculated using healthcare statistical

data obtained from official reports. To account for potential participant withdrawal, incomplete questionnaire responses, and study attrition, an additional 10% was added to the calculated sample size. As a result, a total of 218 physicians and nurses were required to be included in the study.

Participants were selected from the total study population using a simple random sampling method to achieve the required sample size.

Inclusion Criteria

- Being a citizen of Mongolia
- Providing written informed consent after reviewing the study information
- Holding a valid license to practice medicine or nursing
- Age >20 years

Exclusion Criteria

- Declining to participate in the study
- Being a foreign national
- Not holding a valid license to practice medicine or nursing
- Age under 20 years

Measurement Instrument

Patient-centered care was assessed using the Provider–Patient Relationship Questionnaire (PPRQ-16), developed and validated by Gremigni et al.¹⁵ The instrument consists of 16 items grouped into four domains: information exchange, respect for patients, empathy, and patient involvement. Each item was measured on a five-point Likert scale ranging from 1 ("not at all important") to 5 ("very important"). The information exchange domain included items PPRQ-1 to PPRQ-4; respect for patients included items PPRQ-5 to PPRQ-8; empathy included items PPRQ-9 to PPRQ-12; and patient involvement included items PPRQ-13 to PPRQ-16. Domain scores were calculated as the mean of the corresponding items, with possible scores ranging from 1 to 5. Scores were categorized as low (1.00–3.00), moderate (3.01–4.00), and high (4.01–5.00). The internal consistency of the overall questionnaire was excellent (Cronbach's $\alpha = 0.944$). Cronbach's alpha values for individual domains ranged from 0.827 to 0.883, indicating good to excellent reliability.¹⁶

Data Collection and Statistical Analysis

Data were analyzed using SPSS version 25.0. Descriptive statistics were used to summarize participants' demographic characteristics and patient-centered care scores. The internal reliability of the questionnaire was evaluated using Cronbach's

alpha coefficient. Differences in categorical variables between groups were examined using Pearson's chi-square test. Differences in continuous variables between two independent groups were assessed using independent samples t-tests. Correlations between patient-centered care and associated factors were analyzed using Pearson's correlation coefficient. A p -value of less than 0.05 was considered statistically significant for all analyses. Factors influencing patient-centered care indicators were analyzed using multivariate linear regression. Multiple linear regression analysis was conducted to identify factors influencing patient-centered care. Multicollinearity was assessed using tolerance variance inflation factor (VIF), with tolerance values ≤ 0.2 and VIF values ≥ 5 indicating the presence of multicollinearity.

Ethical Statement

The study was approved by the Research Ethics Review Committee of the Mongolian National University of Medical Sciences on June 16, 2023 (Approval No. 2023/3-07). All participants provided written informed consent before participating in this study.

Results

Study Sample Demographics and Characteristics

A total of 218 physicians and healthcare professionals participated in the study, with equal representation from public and private hospitals ($n = 109$ each). When categorized by age, 29 (13.3%) were 20–25 years old, 102 (46.8%) were 26–35 years old, 44 (20.2%) were 36–45 years old, and 43 (19.7%) were 46 years or older. No significant differences in age distribution were observed between participants from public and private hospitals ($p = 0.400$). Regarding gender, 54 (24.8%) were male and 164 (75.2%) were female, with no significant differences between public and private hospitals ($p = 0.530$). Regarding marital status, 146 (67.0%) were married and 72 (33.0%) were unmarried, again with no significant differences between hospital types ($p = 0.150$). Educational level, 157 (72.0%) had a bachelor's degree, while 61 (28.0%) held a master's or doctoral degree. No significant differences were observed between public and private hospitals regarding education ($p = 0.175$). Concerning work experience, 99 (45.4%) had 2–5 years, 47 (21.6%) had 6–10 years, 36 (16.5%) had 11–15 years, and 36 (16.5%) had more than 16 years of experience. No significant differences in work experience were noted between hospital

types ($p = 0.422$) (Table 1).

As shown in the Table 2, overall, 94 (43.1%) physicians and healthcare professionals demonstrated a moderate level of knowledge regarding patient-centered care. A good of knowledge was reported by 31.2 % (34), physicians and nurses working in public hospitals and 48.6% (53) in private hospitals. The proportion of respondents with good knowledge was higher among physicians and nurses in private hospitals than among those working in public hospitals, and this difference was statistically significant ($p = 0.015$) (Table 2).

In the table 3, the mean score for information exchange was 4.03 (SD = 0.69) for physicians and healthcare professionals from public hospitals and 4.15 (SD = 0.71) for those from private hospitals. Although the mean score for private hospital staff was 0.12 points higher than that of public hospital staff, the difference was not statistically significant ($p = 0.237$). This indicates that private hospital professionals slightly outperform public hospital professionals in providing patients with information and educating them about their illness. The mean score for individualization was 3.78 (SD = 0.72) for public hospitals and 3.80 (SD = 0.73) for private hospitals. The mean difference of 0.02 points was not statistically significant ($p = 0.870$).

For empathy, the mean score was 3.61 (SD = 0.70) for public hospitals and 3.57 (SD = 0.73) for private hospitals. Public hospitals professionals scored slightly higher by 0.04 points, although the difference was not statistically significant ($p = 0.653$). This suggests that public hospitals may be slightly more attentive in exploring and discussing patients' feelings of anxiety or fear.

The mean score for patient involvement was 3.77 (SD = 0.75) for physicians and healthcare professionals from public hospitals and 3.65 (SD = 0.75) for those from private hospitals. Public hospitals scored slightly higher by 0.12 points than private hospitals, although the difference was not statistically significant ($p = 0.249$). This suggests that public hospital professionals may provide slightly more information to patients' families and involve them more actively in decision-making regarding the course of treatment (Table 3).

In the Table 4, we shown presents the results of Pearson's correlation analysis examining the associations between patient-centered care (PCC) dimensions exchange of information, Individualization, empathy, and patient involvement and the relevant independent variables.

Table 1. Socio-Demographic Characteristics of the doctors and medical professionals in Public and Private Hospital.

Indicator	Total n (%)	Hospital		p-value
		Public n (%)	Private n (%)	
Age group				0.400
20-25	29 (13.3)	16 (14.7)	13 (11.9)	
26-35	102 (46.8)	50 (45.9)	52 (47.7)	
36-45	44 (20.2)	18 (16.5)	26 (23.9)	
Above 46	43 (19.7)	25 (22.9)	18 (16.5)	
Gender				0.530
Male	54 (24.8)	29 (26.6)	25 (22.9)	
Female	164 (75.2)	80 (73.4)	84 (77.1)	
Married status				0.150
Married	146 (67.0)	78 (71.6)	68 (62.4)	
Unmarried	72 (33.0)	31 (28.4)	41 (37.6)	
Education status				0.175
Bachelor	157 (72.0)	83 (76.1)	74 (67.9)	
Master and PhD	61 (28.0)	26 (23.9)	35 (32.1)	
Occupation				0.892
Doctor	117 (53.7)	59 (54.1)	58 (53.2)	
Nursing	101 (46.3)	50 (45.9)	51 (46.8)	
Age group				0.400
2-5	99 (45.4)	50 (45.9)	49 (45.0)	
6-10	47 (21.6)	24 (22.0)	23 (21.1)	
11-15	36 (16.5)	14 (12.8)	22 (20.2)	
Above 16	36 (16.5)	21 (19.3)	15 (13.8)	
Total	218 (100)	109 (100)	109 (100)	

Table 2. Level of knowledge of patient-centered care among doctors and medical professionals.

Indicator	Total n (%)	Hospital		p-value
		Public n (%)	Private n (%)	
Level of knowledge of patient centered care				0.015
Low	37 (17.0)	18 (16.5)	19 (17.4)	
Average	94 (43.1)	57 (52.3)	37 (33.9)	
Good knowledge	87 (39.9)	34 (31.2)	53 (48.6)	
Total	218 (100)	109 (100)	109 (100)	

The p-value shows the statistical significance of Pearson's chi squared test.

Table 3. Comparison of mean patient-centered care domain scores among physicians and medical specialists in public and private hospitals

Indicator	Total	Public	Private	p-value
	Mean±SD	Mean±SD	Mean±SD	
Exchange of information	4.09 ±0.7	4.03 ± 0.69	4.15 ± 0.71	0.237
Individualization	3.79±0.72	3.78 ± 0.72	3.80 ± 0.73	0.870
Empathy	3.59±0.71	3.61 ± 0.70	3.57 ± 0.73	0.653
Patient involvement	3.71±0.75	3.77 ± 0.75	3.65 ± 0.75	0.249
Total	3.79± 0.64	3.80± 0.63	3.79± 0.65	0.926

SD-Standard deviation. The p-value was obtained using an independent two-sample t-test.

Knowledge of patient-centered care demonstrated a statistically significant positive correlation with all PCC dimensions, including Exchange of information ($r = 0.233, p = 0.001$), Individualization ($r = 0.221, p = 0.001$), empathy ($r = 0.224, p = 0.001$), and patient involvement ($r = 0.184, p = 0.006$). These findings indicate that higher levels of PCC knowledge among physicians and healthcare professionals are associated with more effective information exchange, greater respect for patients, enhanced empathic skills, and increased patient participation in the care process.

Time spent with patients is positive for all indexes of patient-centered care and services. The highest is empathy ($r = 0.243, p < 0.001$). This shows that satisfactory time spending of a medical staff for a patient is an important factor for effectively implementing patient-centered care.

Nursing collaboration showed statistically significant positive associations with all patient-centered care (PCC) dimensions, indicating a direct and favorable influence as perceived by physicians. Specifically, nursing collaboration was positively correlated with information sharing ($r = 0.262$), respect for patients ($r = 0.293$), empathy ($r = 0.323$), and patient involvement ($r = 0.249$), with all associations reaching statistical significance ($p < 0.001$). These findings demonstrate that stronger physician–nurse teamwork and higher levels of interdisciplinary collaboration are associated with more advanced implementation of patient-centered care practices.

Job satisfaction and professional interest demonstrated statistically significant positive correlations with all dimensions of patient-centered care ($r = 0.176–0.249, p < 0.009$). This finding suggests that physicians' motivation and satisfaction with their work play an important role in the effective delivery of patient-centered care.

Lower levels of patient health literacy were also significantly

associated with higher scores across several PCC dimensions, including information sharing ($r = 0.137, p = 0.043$), respect for patients ($r = 0.198, p = 0.003$), empathy ($r = 0.247, p < 0.001$), and patient involvement in shared decision-making ($r = 0.253, p < 0.001$). These results indicate that when caring for patients with limited health knowledge, healthcare professionals tend to provide more detailed explanations, demonstrate greater respect and empathy, and actively involve patients in the care and decision-making processes.

In contrast, other variables including age, years of professional experience, work environment, workload, patients' tendencies to withhold information, and physicians' communication styles were not statistically significantly associated with PCC dimensions ($p > 0.05$). Higher educational attainment showed a weak but statistically significant positive correlation with the dimension of respect for patients ($r = 0.17, p = 0.012$) (Table 4).

Table 5 showed the results of multiple linear regression analysis examining factors influencing the dimensions of patient-centered care, including information exchange, respect for patients, empathy, and patient involvement. For the exchange of information model, the overall regression was statistically significant but explained only a small proportion of the variance ($R^2 = 0.162, F = 6.818, p < 0.05$). Among the individual predictors, knowledge of patient-centered care ($\beta = 0.141, p = 0.008$) and nurse collaboration ($\beta = 0.147, p = 0.013$) were statistically significant positive predictors. The remaining variables did not reach statistical significance.

The overall regression of individualization model explained 19.7% of the variance and was statistically significant ($R^2 = 0.197, F = 8.635, p < 0.05$), demonstrating higher explanatory power than the previous model. Knowledge of patient-centered care ($\beta = 0.135, p = 0.012$), time spent communicating with patients ($\beta = 0.151, p = 0.014$), nurse collaboration ($\beta = 0.182,$

Table 4. Correlations between patient-centered care and associated factors.

Variables	Exchange of Information		Individualization		Empathy		Involvement	
	r	p-value	r	p-value	r	p-value	r	p-value
Age	0.031	0.647	0.034	0.614	0.024	0.722	-0.024	0.723
Education	0.021	0.754	0.17	0.012	0.104	0.126	0.093	0.17
Experience	0.056	0.411	0.059	0.382	0.05	0.46	-0.025	0.709
PCC knowledge	0.233	0.001	0.221	0.001	0.224	0.001	0.184	0.006
Time spent with patients	0.142	0.036	0.203	0.003	0.243	<0.001	0.18	0.008
Administration support	-0.079	0.248	-0.008	0.901	-0.031	0.652	0	0.999
Workload	-0.129	0.058	-0.118	0.083	-0.06	0.376	-0.109	0.109
Nurses cooperation	0.262	<0.001	0.293	<0.001	0.323	<0.001	0.249	<0.001
Patients tend to hide information	0.01	0.88	0.002	0.978	0.077	0.258	0.059	0.388
Low level of health literacy	0.137	0.043	0.198	0.003	0.247	<0.001	0.253	<0.001
Level of job satisfaction	0.239	<0.001	0.213	0.002	0.201	0.003	0.185	0.006
Level of job interest	0.249	<0.001	0.246	<0.001	0.176	0.009	0.233	0.001
Physicians' communication style	0.07	0.304	0.038	0.577	0.061	0.368	0.077	0.26

r - Pearson's correlation coefficient.

Table 5. Multiple linear regression.

Model	Exchange of Information				Individualization				Empathy				Involvement			
	$\beta \pm S.E$	Tolerance	VIF	p-value	$\beta \pm S.E$	Tolerance	VIF	p-value	$\beta \pm S.E$	Tolerance	VIF	p-value	$\beta \pm S.E$	Tolerance	VIF	p-value
PCC knowledge	0.141 $\pm$ 0.053	0.921	1.085	0.008	0.135 $\pm$ 0.053	0.921	1.085	0.012	0.146 $\pm$ 0.051	0.921	1.085	0.005	0.115 $\pm$ 0.056	0.921	1.085	0.039
Time spent with patients	0.093 $\pm$ 0.06	0.967	1.034	0.125	0.151 $\pm$ 0.061	0.967	1.034	0.014	0.187 $\pm$ 0.058	0.967	1.034	0.002	0.133 $\pm$ 0.064	0.967	1.034	0.037
Nurses' cooperation	0.147 $\pm$ 0.059	0.847	1.18	0.013	0.182 $\pm$ 0.059	0.847	1.18	0.002	0.225 $\pm$ 0.057	0.847	1.18	<0.001	0.145 $\pm$ 0.062	0.847	1.18	0.021
Low level of health literacy	0.106 $\pm$ 0.057	0.958	1.043	0.063	0.156 $\pm$ 0.057	0.958	1.043	0.007	0.203 $\pm$ 0.055	0.958	1.043	<0.001	0.216 $\pm$ 0.06	0.958	1.043	<0.001
Level of job satisfaction	0.117 $\pm$ 0.072	0.68	1.471	0.105	0.094 $\pm$ 0.073	0.68	1.471	0.196	0.127 $\pm$ 0.07	0.68	1.471	0.069	0.086 $\pm$ 0.076	0.68	1.471	0.262
Level of job interest	0.07 $\pm$ 0.083	0.653	1.532	0.399	0.065 $\pm$ 0.083	0.653	1.532	0.437	-0.064 $\pm$ 0.08	0.653	1.532	0.425	0.08 $\pm$ 0.087	0.653	1.532	0.357
Constant	1.808 $\pm$ 0.38			<0.001	1.22 $\pm$ 0.383			0.002	0.976 $\pm$ 0.368			0.009	1.12 $\pm$ 0.401			0.006

β - Unstandardized beta coefficient, s.e - Standard error. Exchange of Information: $F = 6.818$, $R^2 = 0.162$; Individualization: $F = 8.635$, $R^2 = 0.197$; Empathy: $F = 11.269$, $R^2 = 0.243$; Patient Involvement: $F = 7.647$, $R^2 = 0.179$.

$p = 0.002$), and lower patient health literacy ($\beta = 0.156$, $p = 0.007$) emerged as significant positive predictors. This indicates that spending more time with patients, collaborating with nurses, and having higher knowledge of patient-centered care enhance the delivery of care tailored to patients' needs and characteristics.

Notably, lower patient health literacy also predicted greater individualization, suggesting that clinicians may adapt their approach when patients have limited health knowledge. Job satisfaction and work interest were not significant predictors in this model.

As for the empathy model, the overall regression was statistically significant and demonstrated the highest explanatory power among all four dimensions, accounting for 24.3% of the variance ($R^2 = 0.243$, $F = 11.269$, $p < 0.001$). Among the individual predictors, knowledge of patient-centered care ($\beta = 0.146$, $p = 0.005$), time spent with patients ($\beta = 0.187$, $p = 0.002$), nurse collaboration ($\beta = 0.225$, $p < 0.001$), and lower patient health literacy ($\beta = 0.203$, $p < 0.001$) were all significant positive predictors. Nurse collaboration exhibited the strongest standardized coefficient ($\beta = 0.225$), highlighting the critical role of teamwork in enhancing empathetic clinical practice. In contrast, job satisfaction ($p = 0.069$) and job interest ($p = 0.425$) were not statistically significant predictors.

The overall regression of patient involvement model explained 17.9% of the variance and was statistically significant ($R^2 = 0.179$, $F = 7.647$, $p < 0.05$). Knowledge of patient-centered care ($\beta = 0.115$, $p = 0.039$), time spent with patients ($\beta = 0.133$, $p = 0.037$), nurse collaboration ($\beta = 0.145$, $p = 0.021$), and lower patient health literacy ($\beta = 0.216$, $p < 0.001$) emerged as statistically significant positive predictors. The strongest effect was observed for health literacy, indicating that lower patient health literacy was associated with greater clinician engagement. This suggests that clinicians may be more likely to actively engage patients with limited health knowledge in the care process. Job satisfaction and job interest were again not statistically significant ($p > 0.05$).

Overall, knowledge of patient-centered care, nurse collaboration, time spent with patients, and patients' health literacy were significant predictors across the main dimensions of patient-centered care. Job satisfaction and work interest did not show independent significant effects. The regression models indicated no multicollinearity, with tolerance values ranging from 0.653 to 0.967 and VIF values ranging from 1.034 to 1.532. (Table 5).

Discussion

This study represents one of the first investigations to assess how physicians and healthcare professionals in both public and private sectors deliver patient-centered care. The results reveal that physicians' understanding of patient-centered care is at a moderate level. These findings are consistent with previous international and regional studies and underscore the influence of multiple factors, including systemic constraints, organizational support, and physicians' communication skills.

A study conducted by Wasim I. M. Sultan, et al. in 2016 among Palestinian physicians reported that 55% of the participants were not aware of the importance of patient-centered care.¹⁷ In contrast, findings from our study indicate that, on average, only 2.3% of participants lacked awareness, suggesting a relatively more favorable outcome. In the Palestinian study, 32.4% of physicians demonstrated a good level of understanding, 47.5% a moderate level, and 20.1% a poor level of understanding of patient-centered care. Comparatively, our study found that 39.8% of participants had a good understanding, 43.1% a moderate understanding, and 17.0% a poor understanding. These differences may be attributed to contextual factors, including economic instability resulting from prolonged conflict, limitations in public healthcare services, increased workload, and heightened occupational stress among physicians, all of which may influence perceptions and implementation of patient-centered care.

Our study demonstrates that higher levels of physicians' knowledge of patient-centered care are associated with improved information sharing with patients, greater respect for patients, stronger empathy skills, and increased patient involvement in the care process. These findings are consistent with studies conducted in Palestine, which similarly reported that physicians with greater understanding and knowledge of patient-centered care communicate more effectively with their patients.

Furthermore, the core dimensions of patient-centered care—information sharing, empathy, and patient involvement—were found to be positively and significantly correlated with healthcare professionals' knowledge of patient-centered care ($r = 0.233$, $p = 0.001$), job satisfaction ($r = 0.239$, $p < 0.001$), and collaboration with nursing staff ($r = 0.323$, $p < 0.001$). Notably, collaboration with nursing staff demonstrated the strongest associations with empathy ($r = 0.323$) and respect for patients ($r = 0.293$), underscoring the critical role of interdisciplinary teamwork in strengthening key relational aspects of patient-centered care.

Previous studies have similarly reported that effective collaboration among physicians, nurses, and other healthcare professionals facilitates the implementation of patient-centered care.¹⁸⁻¹⁹

B. Azjargal, et al. (2018) reported that faculty members responsible for training health professionals demonstrated generally positive attitudes toward interprofessional education (IPE), with mean scores ranging from 3.41 to 4.1. This finding is consistent with the average level of attitudes toward patient-

centered care (PCC) observed in our study. Barriers to IPE implementation, including scheduling constraints, inflexible curricula, limited institutional support, and resource limitations, were identified, which aligns with the organizational factors affecting the implementation of PCC in our study. These findings suggest that the implementation of patient-centered care depends not only on individual factors but also on the broader health system, including organizational culture, management, and policy support.²⁰

In addition, job satisfaction ($p = 0.239$, $p < 0.001$) and professional interest ($p = 0.233$ – 0.249 , $p < 0.001$) were positively associated with patient-centered care dimensions, indicating that physicians' motivation and engagement with their profession play a significant role in delivering patient-centered care. These findings are consistent with evidence from a study conducted among physicians in China.²¹

L.Odgerel, et al. (2021) found that the overall satisfaction level of caregivers of psychiatric patients in Mongolia was relatively high (mean score 4.0); however, communication and information exchange with healthcare professionals were rated comparatively lower. This supports our findings on the importance of effective communication and information exchange as key components of patient-centered care. Although professional competence and environmental conditions were highly rated, lower scores in communication indicate that PCC implementation relies not only on technical skills but also on effective interaction with patients and their caregivers.²²

An online survey conducted in 2022 involving 2,071 participants from four countries-Hong Kong, the Philippines, Australia, and the United States-revealed cross-cultural differences in patient-centered care preferences. While participants across all four countries reported similar levels of empathy and shared decision-making, respondents from the Philippines placed greater emphasis on interpersonal communication, whereas Australian participants valued autonomy more strongly. Participants from Hong Kong tended to prefer physician-led care and placed less emphasis on communication. In contrast, respondents from the United States rated individualized care and bidirectional information exchange as the most important aspects of care.²³

Our findings indicate that levels of empathy and shared decision-making were below average, underscoring the need to strengthen physicians' communication skills and to institutionalize patient-centered care as an integral component of organizational culture and health policy. Although physicians and healthcare

professionals recognize the importance of patient-centered care, high workload appears to hinder its effective implementation.

Consistent with our results, Su, et al. (2022) reported that clear explanations, respectful communication, and attentiveness from physicians enhance patients' trust and satisfaction.²⁴

Similarly, Zhou, et al. (2021) found that patients place the greatest importance on physicians' attitudes and the quality of information provided.²⁵

Sharkiya, et al. (2023) reported that both verbal and non-verbal communication strategies among older adults positively influenced patient-centered outcomes, including patient satisfaction, quality of care, quality of life, and physical and mental health. These findings are consistent with the results of our study.²⁶

Similarly, Kwame and Petrucka, et al. (2021) emphasized that healthcare professionals should understand patients' needs and preferences, engage them in decision-making, and demonstrate active listening skills. They also highlighted that a higher level of health literacy facilitates patients' understanding of health information, participation in discussions about treatment, and involvement in decision-making processes. These findings are in agreement with our results, which showed that patients' health literacy was significantly associated with several dimensions of patient-centered care.²⁷

Furthermore, Guan, et al. (2023), in a study conducted among dental students in New Zealand, found that greater knowledge of patient-centered care was associated with a better understanding of patients' needs and preferences and with the development of empathetic communication skills. This finding is consistent with our study, which demonstrated a statistically significant positive association between knowledge of patient-centered care and the empathy dimension.²⁸

Consistent with these findings, the present study observed that information sharing achieved higher scores than other patient-centered care dimensions, indicating a comparable emphasis on effective communication in physician-patient interactions.

Santana, et al. (2018) noted that implementing patient-centered care depends not only on physicians' communication skills but also on organizational environment and policy support.²⁹

L. Baasandorj, et al. (2023) reported that the 30-day hospital readmission rate in referral hospitals in Mongolia was 6.3%, with higher rates observed among patients aged 46–64

years, particularly those with cancer and chronic diseases. This suggests that implementing patient-centered care is essential for improving continuity of care, enhancing self-management among patients with chronic conditions, and strengthening post-discharge follow-up.³⁰

The findings indicate that the implementation of patient-centered care is not solely determined by individual factors, but is also strongly influenced by organizational culture, management structure, and healthcare policy. Similarly, in the context of Mongolia, the widespread development of patient-centered care requires policy-level interventions such as communication training for healthcare professionals, workload management, leadership support, and enhanced transparency of information. These measures can facilitate meaningful patient and family participation in healthcare decision-making, strengthen respectful physician–patient interactions, and ultimately improve the quality and outcomes of healthcare services.

Several limitations should be acknowledged. First, the cross-sectional design precludes establishing causal relationships between variables. Second, data were collected through self-administered questionnaires, which may introduce response bias. Third, the public and private healthcare facilities included in this study may not fully represent all healthcare institutions in Mongolia, limiting the generalizability of the findings.

Future research should include a broader range of primary and referral-level healthcare facilities and conduct a deeper investigation into systemic factors influencing the implementation of patient-centered care such as financing mechanisms, time constraints, and workforce burden using qualitative or mixed-methods approaches. Furthermore, it is advisable to implement interventions aimed at fostering a culture of patient-centered care and evaluate their therapeutic outcomes and cost-effectiveness through longitudinal studies.

Conclusion

Patient-centered care (PCC) among healthcare professionals was not associated with hospital ownership type. Instead, nurse collaboration and lower patient health literacy emerged as the key drivers of PCC implementation, showing strong associations with both increased patient involvement and improved quality of care.

Conflict of Interest

The authors declare that they have no conflict of interest concerning this study.

Authors Contribution

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