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Factors associated with patient–physician relationships: perspectives of medical personnel in Guangxi Zhuang Autonomous Region, China

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Abstract

Background Disputes between physicians and patients is a global problem. In this study, we aimed to explore the factors associated with patient–physician relationships from the perspective of medical personnel in the Guangxi Zhuang Autonomous Region, China.

Methods This is a cross-sectional study in Guangxi, which was conducted from April 1, 2023, to April 30, 2023. We relied on Health Committees to collect the online questionnaires. Self-administered questionnaire was used, including: general information, perception of the patient-physician relationship, health education behavior and health service satisfaction. Description analyses, chi-square test, the Mantel-Haensel chi-square test, Spearman correlation and ordinal logistic regression were used. Statistically significant was considered at P values < 0.05.

Results A total of 176,398 valid questionnaires were recovered. A total of 52.4% of the medical personnel perceived the patient–physician relationship as harmonious, 39.2% perceived it as average, and 8.4% perceived it as disharmonious. Statistically significant results in the univariate analysis were included in the ordinal regression analysis. Sex, education, professional categories, years of experience, titles, health status, creation of health education works, participation in health education activities, satisfaction with medical services are factors associated with the perception of patient–physician relationships among medical personnel.

Conclusion In conclusion, encouraging medical personnel to engage in health education activities, enhancing service quality in medical institutions, and prioritizing the health of medical personnel can contribute to a more positive patient–physician relationship. In the future, further support should be provided to medical personnel for health education activities and training in patient–physician relationship.

Keywords Patient–physician relationship, Medical personnel, Associated factors, Cross-sectional study

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Introduction

Disputes between physicians and patients is a global problem, and it is a key occupational hazard faced by healthcare professionals worldwide [1, 2]. A harmonious patient–physician relationship is the important for successful therapeutic outcomes, as it influences compliance with treatment and shapes subjective perception about the doctor, patient, and medical services [3, 4]. The public is dissatisfied with patient–physician relationships in multiple countries [5–9], including China. Physicians and patients have different perceptions of the doctor-patient relationship because of their different social, cultural, and system contexts [10]. Previous studies have shown that physicians scored lower than patients on their perceptions of the doctor-patient relationship [3, 11]. Sang, et al. conducted a survey of 154 medical personnel, and there was only 11.04% believed that the current patient–physician relationship was harmonious [12]. Job satisfaction of medical personnel is influenced by interpersonal relationships and career development [13, 14]. Poor patient–physician relationships affect physicians' well-being, work attitudes [15], and indicator of job burnout [16]. Physicians hold that they face pressures due to from various social and economic aspects of healthcare while providing care; thus, addressing the problem of improving the patient–physician relationship in healthcare has become particularly urgent and necessary [17]. As healthcare providers, most of the previous studies have focused on their influence on the patient–physician relationship in terms of factors such as communication skills [18–20], fewer studies on factors related to medical personnel perceptions of the patient–patient relationship.

Patient–physician relationships have steadily improved during the COVID-19 pandemic in China; physicians were treated with more respect than before and [21–23]. The General Office of the State Council of the People's Republic of China issued *Opinions on Further Improving the Medical and Health Service System* in 2023, pointing out the importance of "Building a harmonious patient–physician relationship" [24]. In this study, we aimed to explore the factors associated with the patient–physician relationship from the perspective of medical personnel in Guangxi to provide scientific evidence for building a harmonious patient–physician relationship.

Methods

Participants and procedures

This cross-sectional study was conducted from April 1, 2023 to April 30, 2023, in the Guangxi Zhuang Autonomous Region, China. Guangxi is the province with the largest number of ethnic minorities in China. We relied on the Health Committees of 14 cities in Guangxi to distribute documented notices to healthcare organizations, including hospitals, specialized public health organizations, primary healthcare organizations, and so on. Each healthcare organization was asked to explain in detail the precautions for completing the questionnaire to the participants before the survey. We used a web-based platform, Questionnaire Star Survey (https://www.wjx.cn/), to generate a quick-response code (QR code). Medical staff participated in this survey by scanning a QR code. Participants fill in the questionnaire online after signing the informed consent. It was an anonymous survey. Each completed questionnaire was assigned a unique ID automatically. In order to prevent duplicate responses, we allow only one submission through one IP address with identical electronic device. The platform recorded the location where questionnaire was collected and the time consumption by each participant to fill out the questionnaire.

The participates of the study were all personnel of medical and health institutions aged 18 years and above (born before March 31, 2005) and work position in Guangxi. A total of 177,625 questionnaires were returned. After excluding questionnaires with logical errors and incomplete information, 176,398 valid questionnaires remained. The validity of the questionnaire was 99.30%. *The Guangxi Health Care Development Statistics Bullet* [25] showed that in 2022, the total number of personnel in Guangxi's healthcare institutions was 517,100, and the number of effective samples in this survey group accounted for only 34.11% of the total sample.

Measurement

General information included ethnicity, sex, age, education level, institution categories, professional categories, years of working experience and titles. The question, "Do you think the current patient–physician relationship is harmonious?" was used to measure the medical personnel's perception of the patient–physician relationship, and the response options included "harmonious," "average," and "unharmonious." The participant's current health status was self-assessed, using the options including "poor," " average," and "good. " Health education behavior included the questions, "Have you participated in health education creations?" and "Have you participated in health education activities?" Health service satisfaction included two questions, "Are you satisfied with the health care services provided by your local health care organization?" and "Are you satisfied with the public healthcare services currently provided by the local CDC (Center for Disease Control and Prevention)?" The response options include "dissatisfied, " "average, " and "satisfied".

Data analysis

Description analyses and chi-square test were used to compare whether there was statistical significance in the

perception of patient–physician relationship in terms of different demographic characteristics, health education behavior and satisfaction of health service.

The perception of the patient–physician relationship is an ordinal variable with three response categories (1 = Unharmonious; 2 = Average; 3 = Harmonious), ordinal logistic regression was used to assess the associations of the perception of the patient–physician relationship with the independent variables. The independent variables were analyzed for correlation using Spearman correlation, strongly correlated [26] (Correlation Coefficient ≥ 0.7) variables were excluded, and the remaining independent variables were included in the ordered regression analysis. Generalized linear regression analysis was used to measure the multicollinearity of the independent variables. Multicollinearity among variables was considered to occur if the variance inflation factor VIF was larger than 5 or tolerance values was less than 0.2 [27]. All these analyses were conducted using SPSS 24.0. Statistically significant was considered at P values < 0.05.

Results

General description

A total of 176,398 valid questionnaires were recovered, of which 44,758 were from males (25.4%), and 131,640 were from females (74.6%). Han Chinese accounted for 57.8%, Zhuang Chinese 34.2%, and other ethnic minorities 7.9%. Perceptions of the patient–physician relationship among medical personnel were classified as unharmonious, average, and harmonious, accounting for 8.4%, 39.2%, and 52.4%, respectively. Table 1 shows the details different demographic characteristics, career information and health status of perceptions of patient–physician relationship.

Table 1 Basic information of medical personnel and their perceptions of patient–physician relationship

Basic Information	Unharmonious (n = 14808)	Average (n = 69196)	Harmonious (n = 92394)	Total (n = 176398)	χ^2	P
Demographic Characteristics						
Sex						
Male	4621(10.3%)	16,679(37.3%)	23,458(52.4%)	44,758(25.4%)	324.949	< 0.001
Female	10,187(7.7%)	52,517(39.9%)	68,936(52.4%)	131,640(74.6%)		
Age						
18–35	8253(8.5%)	37,744(39.1%)	50,575(52.4%)	96,572(54.7%)	6.941	0.031
> 35	6555(8.2%)	31,452(39.4%)	41,819(52.4%)	79,826(45.3%)		
Education						
Junior college and below	4245 (6.0%)	23,878 (34.0%)	42,137 (60.0%)	70,260(39.8%)	3253.289	< 0.001
Bachelor's degree	9422 (9.6%)	41,357 (42.2%)	47,131 (48.1%)	97,910 (55.5%)		
Master's degree and above	1141(13.9%)	3961 (48.1%)	3126 (38.0%)	8228 (4.7%)		
Career information						
Institution categories						
Hospitals	11,763 (8.8%)	52,728 (39.6%)	68,590 (51.5%)	133,081 (75.4%)	221.553	< 0.001
Other medical institutions	3045 (7.0%)	16,468 (38.0%)	23,804 (55.0%)	43,317 (24.6%)		
Professional categories						
Clinical physician	6881(10.4%)	26,978(40.7%)	32,376(48.9%)	66,235(37.5%)	811.224	< 0.001
Other specialties	7927(7.2%)	42,218(38.3%)	60,018(54.5%)	110,163(62.5%)		
Years of working experience						
≤ 10	7632 (8.3%)	35,481 (38.4%)	49,181 (53.3%)	92,294 (52.3%)	84.560	< 0.001
11–20	4424 (8.9%)	19,833 (39.7%)	25,692 (51.4%)	49,949 (28.3%)		
>20	2752 (8.1%)	13,882 (40.6%)	17,521 (51.3%)	34,155 (19.4%)		
Titles						
No title	1773 (5.1%)	10,843 (31.2%)	22,192 (63.8%)	34,808 (19.7%)	3337.892	< 0.001
Junior	5866 (8.1%)	27,977 (38.5%)	38,805 (53.4%)	72,648 (41.2%)		
Intermediate professional	4655 (10.1%)	20,092 (43.4%)	21,515 (46.5%)	46,262 (26.2%)		
Senior	2514 (11.1%)	10,284 (45.3%)	9882 (43.6%)	22,680 (12.9%)		
Health status						
Self-reported health status						
Poor	1224 (31.9%)	1710(44.6%)	901(23.5%)	3835 (2.2%)	10521.326	< 0.001
Average	5614 (13.5%)	21,307 (51.1%)	14,801 (35.5%)	41,722 (23.7%)		
Good	7970 (6.1%)	46,179 (35.3%)	76,692 (58.6%)	130,841 (74.2%)		

The situation of health education behavior and health service satisfaction

Table 2 show shows the details of the situation of health education behavior and health service satisfaction. Of the medical personnel, 15.2% had engaged in creating health education work and 48.7% had participated in health education activities. The creation of health education and participation in health education activities impacted the perception of the patient–physician relationship among medical personnel, and these differences were statistically significant ($P<0.001$). A total of 77.9% of the medical personnel were satisfied with the medical services provided by local organizations, and 75.1% of the medical personnel were satisfied with the public health services offered by local institutions. The difference between the satisfaction of medical personnel with medical services and public health services provided by local institutions and their perception of the patient–physician relationship was statistically significant ($P<0.001$).

Associated factors of perceived patient–physician relationships: ordinal regression

The perception of the patient–physician relationship by medical personnel was classified as unharmonious, average, and harmonious as the dependent variable and was carried out with the number of sex, education, institution categories, professional categories, years of working experience, titles, health status, the creation of health education, the participation in health education activities and the satisfaction with healthcare services as the independent variables, and was analyzed using ordinal regression analysis. We did not include public health satisfaction in the ordered regression analyses due to the strong correlation ($r=0.838$) between satisfaction with healthcare services and public health services. Table 3 shows the result of ordinal regression analysis.

Discussion

This study investigated the perception of the patient–physician relationship and its associated factors among medical personnel in the Guangxi Zhuang Autonomous Region, China. A total of 52.4% of the medical personnel perceived the current patient–physician relationship as harmonious, 39.2% perceived it as average, and 8.4% perceived it as unharmonious. In China, despite conflicts between physicians and patients continue to occur [28], the results of this study show that most medical personnel have a positive perception of the patient–physician relationship. *2021 Survey of Chinese Physicians* show that 50.7% of physicians believe that the patient–physician relationship is unharmonious, 36.2% average, and 13.1% harmonious [29]. This study was conducted after the end of the COVID-19 pandemic, and patient–physician relationships in China have improved [21–23].

Sex and education level are factors associated with the perception of patient–physician relationships among medical personnel. Chen et al. surveyed 329 physicians in a general hospital, and there was no significant difference in the perception of the patient–physician relationship between different age, sex, education, and title [23], which is inconsistent with the results of this study. The reason for the conflicting results may be that the population of this study was not limited to physicians, but also included medical personnel at all categories medical institutions. Male medical professionals have poorer perceptions of the patient–physician relationship than females, possibly because of male physicians had suffered

Table 2 The situation of health education behavior and health service satisfaction

Variant	Unharmonious ($n=14808$)	Average ($n=69196$)	Harmonious ($n=92394$)	Total ($n=176398$)	χ^2	*P*
Health Education Behavior						
Creation of health education						
Yes	1490 (5.6%)	7211 (26.9%)	18,056 (67.5%)	26,757 (15.2%)	2885.689	< 0.001
No	13,318 (8.9%)	61,985 (41.4%)	74,338 (49.7%)	149,641 (84.8%)		
Participate in health education activities						
Yes	5317 (6.2%)	29,075 (33.9%)	51,426 (59.9%)	85,818 (48.7%)	3997.949	< 0.001
No	9491 (10.5%)	40,121 (44.3%)	40,968 (45.2%)	90,580 (51.3%)		
Health Service Satisfaction						
Satisfaction with local medical services						
Dissatisfied	888 (20.8%)	1308 (30.7%)	2071 (48.5%)	4267 (2.4%)	20285.241	< 0.001
Average	6448 (18.6%)	21,208 (61.0%)	7101 (20.4%)	34,757 (19.7%)		
Satisfied	7472 (5.4%)	46,680 (34.0%)	83,222 (60.6%)	137,374 (77.9%)		
Satisfaction with local public health services						
Dissatisfied	1077 (22.7%)	1537 (32.4%)	2130 (44.9%)	4744 (2.7%)	22820.757	< 0.001
Average	7131 (18.2%)	23,677 (60.5%)	8337 (21.3%)	39,145 (22.2%)		
Satisfied	6600 (5.0%)	43,982 (33.2%)	81,927 (61.8%)	132,509 (75.1%)		

Table 3 Results of ordinal regression analysis of perception of patient–physician relationship

	b	*P*	OR	OR (95%CIs)	Tolerance	VIF
Sex					0.975	1.025
Male	-0.101	< 0.001	0.904	(0.884–0.924)		
Female	-	-	-	-		
Education					0.615	1.625
Junior college and below	0.640	< 0.001	1.897	(1.806–1.992)		
Bachelor's degree	0.298	< 0.001	1.347	(1.287–1.410)		
Master's degree and above	-	-	-	-		
Institution categories					0.938	1.066
Hospitals	0.010	0.403	1.010	(0.987–1.034)		
Other institutions	-	-	-	-		
Professional categories					0.779	1.283
Clinical physician	-0.158	< 0.001	0.854	(0.837–0.871)		
Other specialties	-	-	-	-		
Years of experience					0.95	1.052
≤ 10	-0.298	< 0.001	0.742	(0.717–0.767)		
10-	-0.090	< 0.001	0.914	(0.886–0.943)		
20-	-	-	-	-		
Titles					0.538	1.860
No title	0.928	< 0.001	2.530	(2.418–2.646)		
Junior	0.565	< 0.001	1.760	(1.692–1.829)		
Intermediate professional	0.284	< 0.001	1.329	(1.283–1.376)		
Senior	-	-	-	-		
Health status					0.955	1.047
Poor	-1.373	< 0.001	0.253	(0.238–0.270)		
Average	-0.697	< 0.001	0.498	(0.487–0.509)		
Good	-	-	-	-		
Creation of health education works					0.919	1.088
Yes	0.573	< 0.001	1.774	(1.722–1.827)		
No	-	-	-	-		
Participation in health education activities					0.893	1.120
Yes	0.406	< 0.001	1.500	(1.470–1.531)		
No	-	-	-	-		
Satisfaction with medical services					0.958	1.044
Dissatisfied	-0.769	< 0.001	0.464	(0.437–0.492)		
Average	-1.475	< 0.001	0.229	(0.223–0.235)		
Satisfied	-	-	-	-		

more physical assaults than female [30]. There is a significant negative correlation between education level and perceptions of the patient–physician relationship [22, 31, 32]. The results of the present study showed that the higher the education level of the medical personnel, the more negative the perception of the patient–physician relationship. This may be because highly educated physicians work in higher-level hospitals and have higher workloads, more stress, and more incidents of patient–physician conflict [33, 34]. A study using the Difficult Doctor–Patient Relationship Questionnaire to assess patient–physician relationships showed that the number of medical disputes was higher in provincial hospitals than in city hospitals, and physicians in provincial hospitals scored significantly lower regarding patient–physician relationships than those in city hospitals [31].

Working experience, professional categories and titles are career information. The present study showed that the higher the working experience, in years of medical personnel, the more positive their perception of the patient–physician relationship. However, the higher the titles of the personnel, the more negative the perception of the patient–physician relationship. This may be because medical personnel with more working years are more experienced, more likely to be trusted by patients, and have a more positive attitude towards patient–physician relationship [35, 36]. Clinical physician perceive patient–physician relationship more negatively than other categories of medical professional. Clinicians communicate directly with patients and have a negative perception of the patient–physician relationship relative to other healthcare professionals. Some patients resorting

to violence might seem a way to express dissatisfaction with specific physician in particular [28]. Consistent with previous study, personnel with higher technical title had more negative attitude towards patient–physician relationship [35]. Perceived patient–physician relationship as an evaluative dimension of job stress, in addition to routine diagnostic and treatment tasks, medical staff with higher titles often have to engage in activities such as scientific research and clinical teaching, which results in a high workload leading to a higher level of work stress [37]. In addition, the study also found that the poorer the health status of the healthcare personnel, the more discordant the patient–physician relationship would be, which suggests that the government and facility administrators need to pay attention to the health of medical personnel as well as the outcome of patient care.

Health education for patients is an integral part of healthcare management and can lead to better health outcomes and promote a harmonious patient–physician relationship [38, 39]. Most medical personnel in our study participated in health education activities; however, only 15.2% had created health education. Accepting that information asymmetry exacerbates patient–physician conflict, which affects medical personnel's satisfaction with the patient–physician relationship, health education narrows the information gap between medical personnel and patients [40, 41]. The patient–physician relationship is enhanced when patients perceive similarities with their physicians [42]. Physicians are medical experts, and patients trust physicians to provide accurate information and advice to improve their health [43], medical personnel should be encouraged to develop health education activities and scientific creations in the future. The Action for a Healthy China (2019–2030) states that medical personnel should have knowledge of health education that is appropriate to their positions and take the initiative to provide health guidance in the diagnosis and treatment processes [44]. The National Health Commission of the PRC's Publicity Department's Guidelines on *Establishing and Improving the Mechanism for Publishing and Disseminating Health Popularization Knowledge Across the Media* states that it "supports and encourages the medical and healthcare industry and related practitioners to create and publish more and better quality health popularization works" [45]. In 2020, the Guangxi Health Commission issued a circular on the Action for Healthy Guangxi (2020–2030), which called for the establishment of a performance appraisal mechanism for healthcare organizations and medical personnel to conduct health education and promotion [46]. Medical institutions and personnel are the leading forces in carrying out health education activities, which are conducive to promoting patient–physician relationships.

The results of this study showed that 77.9% of health personnel were satisfied with the medical services provided by local healthcare organizations and 75.1% were satisfied with the public healthcare services offered by local disease prevention and control organizations. In this study, there was a positive correlation between satisfaction with local health care services and perceived harmony in the patient–physician relationship. The Job Demand-Resource Model [17, 47, 48] shows that the degree of matching between job demands and job resources affects jobs. When work resources cannot meet the demand for an extended period; local medical and public healthcare services do not meet the expectations of medical personnel. In these cases, it will have a negative impact on the motivation of the medical personnel to work and provide services and increase the likelihood of disputes between physicians and patients. China's healthcare industry has carried out many medical reforms, which have improved the quality of healthcare services and public health [17, 49, 50], these reforms have a positive effect on improving the perception of the doctor-patient relationship among medical personnel.

Limitations

This study had some limitations. Firstly, this study is a cross-sectional study of cluster random sampling, but the total number of our survey reaches 176,398, accounting for 1/3 of the medical personnel in Guangxi. Second, this study was conducted using an online survey method, which has limitations related to quality control. We used methods such as allowing each device to submit a questionnaire only once, monitoring of time to complete questionnaires and excluding questionnaires with logical errors and incomplete information.

Conclusions

This study was conducted to understand the cognitive attitudes toward the patient–physician relationship of medical personnel in healthcare institutions by investigating the nature of healthcare institutions at all levels and types in Guangxi from the medical personnel's perspective. In conclusion, encouraging increased health education activities and improving medical personnel's satisfaction with medical services are essential ways to promote their cognitive attitudes toward the patient–physician relationship. We have two suggestions. Firstly, funding for health education for medical staff should be increased, and secondly, training courses related to patient–physician relationship should be conducted for medical staff with different characteristics to help medical staff and the public establish a friendly relationship. These initiatives will help the future development of the Healthy Guangxi Initiative Action.

Supplementary Information

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Supplementary Material 1.

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Bai X, Chen W, Nie F and Li J conducted the analysis, drafted the manuscript, and revised the draft. Bai X and Liu D undertook the statistical analysis. Chen W and Pan L designed the study. All authors contributed to and have approved the final manuscript.

Authors' contributions
Bai X, Chen W, Nie F and Li J conducted the analysis, drafted the manuscript, and revised the draft. Bai X and Liu D undertook the statistical analysis. Chen W and Pan L designed the study. All authors contributed to and have approved the final manuscript.

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Data availability
The data that support the findings of this study are available from the corresponding author, [Wuzhao Chen], upon reasonable request.

Declarations

Ethics approval and consent to participate
The study was approved by the institutional review boards of The People's Hospital of Guangxi Zhuang Autonomous Region (Approval number: KY-KJT-2023-308). This study in compliance with the Helsinki Declaration. All participants signed the informed consent at the time of participation. Clinical trial number: not applicable.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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