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Original Article

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The Association of Name Recognition, Empathy Perception, and Satisfaction With Resident Physicians' Care Amongst Patients in an Academic Emergency Department

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Abstract

Background: Recognition of the provider's name, provider empathy, and the patient's satisfaction with their care are patient-provider rapport measures. This study aimed to determine: 1) resident physicians' name recognition by patients in the emergency department; and 2) name recognition in association with patient perception of the resident's empathy and their satisfaction with the resident's care.

Methods: This was a prospective observational study. A patient recognizing a resident physician was defined as the patient remembering a resident's name, understanding the level of training, and understanding a resident's role in patient care. A patient's perception of resident physician empathy was measured by the Jefferson Scale of Patient Perception of Physician Empathy (JSPPPE). Patient satisfaction of the resident was measured utilizing a real-time satisfaction survey. Multivariate logistic regressions were performed to determine the association amongst patient recognition of resident physicians, JSPPPE, and patient satisfaction after adjustments were made for demographics and resident training level.

Results: We enrolled 30 emergency medicine resident physicians and 191 patients. Only 26% of studied patients recognized resident physicians. High JSPPPE scores were given by 39% of patients recognizing resident physicians compared to 5% of those who were not recognized (P = 0.013). High patient satisfaction scores were recorded in 31% of patients who recognized resident physicians compared to 7% who did not (P = 0.008). The adjusted odds ratios of patient recognition of resident physicians to high JSPPPE and high satisfaction scores were 5.29 (95% confidence interval (CI): 1.33 - 21.02, P = 0.018) and 6.12 (1.84 - 20.38, P = 0.003) respectively.

Conclusions: Patient recognition of resident physicians is low in our study. However, patient recognition of resident physicians is associated with a higher patient perception of physician empathy and higher patient satisfaction. Our study suggests that resident education advocating for patient recognition of their healthcare provider's status needs to be emphasized as part of patient-centered health care.

Keywords: Name; Resident Physicians; Empathy; Satisfaction

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Introduction

When a provider first meets a patient, it is common to introduce oneself to the patient using their name, their specialty, and role in that patient's care [1]. The provider's introduction is essential to initiate good patient-provider rapport. Studies have shown that patient-provider rapport impacts patient-centered care [2-4]. Specifically, an excellent patient-provider rapport has the ability to improve patient-provider communication, patient trust about providers, and patient perceptions of provider empathy, helping to create increased satisfaction with providers and improved patient clinical outcomes (e.g., improved medical management compliance) [4-7].

Several measures have been utilized to assess patient-provider rapport including patient satisfaction and patient perception of provider empathy [8, 9]. The Jefferson Scale of Patient Perception of Physician Empathy (JSPPPE) is a validated tool used commonly to assess physician empathy by patients [10]. Previous studies have reported a high consistency between physician empathy determined by patients and patient satisfaction with the physicians [8, 9]. Higher JSPPPE scores associated with higher patient satisfaction scores are validated in different healthcare settings including clinics, hospitals, and emergency departments (EDs) [8, 9, 11]. Another indicator to measure patient-provider rapport is patients' recollection of healthcare provider names and their roles in their care [12]. Previous studies have found that hospitalized patients are often able to correctly identify members of their physician team [12-14]. When patients recognize their physician's names, they have a better understanding of their healthcare management

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plans, and a better association of their physician's empathy and quality of communication [15]. In the ED, one study showed that improved patient satisfaction was linked to patients who recognized their attending physician names [16]. It remains uncertain whether patient recognition of provider names and roles has specific associations with patient perceptions of their provider's empathy and satisfaction with their provider's care. In the past, studies focused on reporting name recognition, patient perception of empathy, and providing satisfaction surveys to the attending physicians [15, 16], but little is known in these areas about resident physicians. These associations have not been reported in an academic emergency care setting where both attending and resident physicians participate in the care of the patient.

In an academic healthcare setting where both the attending and resident physicians deliver patient care, patients often feel that it is important to know their physicians' levels of training [17]. Recognizing resident names and their level of training has been shown to have equal importance as recognizing attending physician names [17]. Acknowledging any lack of patient awareness as to who is in charge of their care can erode patient-provider rapport [17]. Understanding the patient-resident physician relationship status may help better determine the role of resident in patient-centered care.

Therefore, we aimed to determine: 1) resident physicians name recognition by patients in the ED; and 2) name recognition in association with patient perception of the resident's empathy and their satisfaction with the resident's care.

Materials and Methods

Study design and setting

This study utilized secondary data analysis. This data set was retrieved from a previous prospective observational study which focused on patient who perceived provider empathy and patient satisfaction [18]. The current study serves as an extended study to further investigate name recognition affecting patient perception of resident physicians' empathy and patient satisfaction towards resident physicians. The study hospital is a tertiary, level one trauma center and a chest pain center. The study hospital sponsors an Accreditation Council for Graduate Medical Education (ACGME) accredited 3-year emergency medicine (EM) residency program with an annual patient volume in its ED of more than 125,000. The regional Institutional Review Board approved this study. The study was conducted in compliance with the ethical standards of the responsible institution on human subjects as well as with the Helsinki Declaration.

Study participants

From January 2019 to August 2019, ED patients were consented after being randomly selected as study participants as previously reported [18]. During randomly selected 4-h time-blocks, convenient patient samples were created. We enrolled all patients and completed all surveys within these 4-h time-blocks. EM attending and resident physicians, who took care of enrolled patients were also consented for participation in the study. Study coordinators administered the JSPPPE and a patient satisfaction survey to each participating patient, utilizing either paper or tablet-based platforms, after their care was completed but before discharge from the ED. Since ED policy requires both attending physicians and resident physicians to take care of the same patient, to avoid any recognition bias, patients were asked to evaluate attending and resident physicians separately (i.e., patients provided separate JSPPPE scores and satisfaction scores for attendings and for residents). Our study team excluded patients who: 1) were less than 18 years old; 2) declined to participate; 3) had language barriers; 4) were unable to evaluate resident performance due to patient disease conditions (e.g., altered mental status); 5) did not complete their care at ED (e.g., eloped, left against medical advice, left without being seen, etc.); 6) completed less than 20% of study survey questions; and 7) were evaluated by a resident physician who did not participate in this study. We also excluded resident physicians who: 1) declined to participate; and 2) were not EM residents.

Key variables

The primary variable of interest was patient recognition of resident physicians. Patients who qualified to participate were interviewed by study coordinators who had received training from the study principal investigator. All resident physicians were required to introduce themselves verbally in a standard format to the patients including their roles of patient care (i.e., being a resident physician and how many years of training they have received) and their names. During the survey interview by study coordinators, all patients were asked to provide the name of their treating resident physician. If multiple resident physicians provided care to a certain patient, the patient was required to complete multiple surveys (i.e., one survey per resident physician). Resident physician name recognition was defined by three levels: 1) patients recognized providers as resident physicians, their role of patient care, and were either able to write or correctly pronounce resident physicians' names (referred to as a recognized group); 2) patients recognized providers as resident physicians and could describe residents by personal characteristics (e.g., sex, race, personal body habit, etc.) sufficient to identify, but were unable to write or correctly pronounce resident physicians' names (referred to as a partially recognized group); and 3) patient could not write/pronounce resident physicians' names correctly, or patients could not describe resident physicians' personal characteristics sufficient to identify them, or patients provided wrong information (referred to as a non-recognized group). This study did not investigate whether resident physicians remembered patients' names. Other variables collected included age, sex, race, and ethnicity of both patients and resident physicians. We divided age into three categories (18 - 39, 40 - 49, and $\geq$ 50), sex into two categories (male and female), races and ethnicity into four categories (non-Hispanic White, non-Hispanic Black, Hispanic, and others). Information regarding resident physicians' different levels of training was also collected (i.e., postgraduate year (PGY)-1, PGY-2, and PGY-3).

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Other outcome measures

Patient perception of resident physician empathy and patient satisfaction to resident physicians were measured as previously reported [18]. The JSPPPE instrument measures patient perception of resident physician empathy and can have scores ranging from 5 to 35. Higher JSPPPE scores indicate higher physician empathy as determined by the patients. If patients were cared for by multiple resident physicians, patients were offered the opportunity to complete multiple surveys to determine if they could differentiate individual resident physician names or characteristics. Immediately upon completing JSPPPE, a real-time patient satisfaction survey was then provided. Patients were asked to answer the question "are you satisfied with our resident who took care of you" with a 5-point Likert Scale ("very dissatisfied" = 1, "dissatisfied" = 2, "neither satisfied nor dissatisfied" = 3, "satisfied" = 4, and "very satisfied" = 5). If patients were cared for by multiple resident physicians, they were asked to score each resident separately.

Study protocol and data analysis

Patients were divided into three groups based upon the degree of recognition of resident physicians (group 1: recognized, group 2: partially recognized, and group 3: non-recognized). JSPPPE scores were categorized into two groups (high and low). Scores equal to or greater than 30 were considered high JSPPPE scores, whereas scores less than 30 were considered low JSPPPE scores. Due to skewed data (i.e., most patients were very satisfied with resident physicians' care), we classified patient satisfaction scores into two groups (group 1: very satisfied, and group 2: not very satisfied). We compared JSPPPE and patient satisfaction with different groups of patients recognizing resident physicians using a Chi-square test. Since physician-patient demographic concordance/discordance could potentially affect the patient perception of empathy or patient satisfaction to physicians, our study paired patients' and resident physicians' demographic characteristics as previously reported [19]. Paired demographics were rendered for age (in the same age categories), sex, race and ethnicity. Multivariate logistic regressions were performed to determine the associations between the patient perception of resident physician empathy (JSPPPE), patient satisfaction to resident physicians, and patient recognitions of resident physicians adjusting for both patient and physician demographics and the different levels of resident training. Adjusted odds ratio (AOR) with a 95% confidence interval (CI) was reported to determine such associations. All analyses were performed using Stata v14.2 (College Station, Texas) with $P < 0.05$ indicating statistically significant differences.

Reporting guidance

This study utilized the strengthening the reporting of observational studies in epidemiology (STROBE) reporting guidelines [20].

Results

In this study, we enrolled 191 adult patients who were cared for by 30 EM resident physicians at different levels of training. There were a total of 33 EM resident physicians and we excluded three EM resident physicians due to missing key variables (e.g., unable to place their patients into either recognized or partially recognized groups). Among these 191 patients, 59% of patients were older than 50, 40% of patients were non-Hispanic White. However, sex distribution was equal (male 50% vs. female 50%). Among 30 EM resident physicians, most were younger than 40 years old, male predominant, and most (73%) were non-Hispanic White (Table 1).

When patients were divided into three groups based on the degree of resident physician recognition (recognized, partially recognized, non-recognized), we found that only 26% (50/191) patients recognized resident physicians (Table 2). No statistically significant differences between age or sex were found among the three groups. Non-Hispanic Black patients tended to recognize resident physician names more often than other patient populations. High scores of patient perception of resident physician empathy were found among patients who recognized resident physicians compared with ones who partially recognized or did not recognize resident physicians ($P = 0.013$). Higher real-time patient satisfaction scores for resident physicians were noted among patients who recognized resident physicians more than ones who partially recognized or did not recognize resident physicians ($P = 0.008$) (Table 2).

The pairing of patient demographics with resident physician demographics (age, sex, race, and ethnicity) did not show patient-resident demographic concordance association with either patient perception of resident physician empathy or patient satisfaction with resident physicians (Table 3). When determining the association between resident physician empathy and patient recognition of resident physicians, the AOR of recognizing resident physicians with high JSPPPE scores was 5.29 (95% CI: 1.33 - 21.02, $P = 0.018$). Similarly, the AOR of recognizing resident physicians with high patient satisfaction scores was 6.12 (1.84 - 20.38, $P = 0.003$) (Table 3).

Discussion

Patient-provider rapport can affect patient-centered care [21, 22]. In an academic setting, dynamic relationships exist between patients and attending physicians as well as the resident physicians. Few studies have focused on resident physicians and their rapport with patients. Compared with previous studies focused on attending physicians, our study showed similar findings between patients and resident physicians uniquely both in an academic setting and in an emergency care environment [15, 16]. Our findings showed a high patient perception of resident physician empathy and higher patient satisfaction when patients recognized their resident physicians. Once validated, name recognition could be used as another easily accessed indicator for quality of care. Additionally, our study extended these findings to resident physicians in an academic emergency care setting, expanding their role in the evaluation

Table 1. Study Participants General Information

	EM resident physicians (N = 30)	ED patients (N = 191)
Age (year), n (%)		
18 - 39	29 (97)	58 (30)
40 - 49	1 (3)	20 (10)
50 -		113 (59)
Sex, n (%)		
Male	22 (73)	95 (50)
Female	8 (27)	96 (50)
Race and ethnicity, n (%)		
Non-Hispanic White	24 (80)	77 (40)
Non-Hispanic Black		53 (28)
Hispanic		58 (30)
Others	6 (20)	3 (2)
Resident physician level of training, n (%)		
PGY-1	11 (37)	
PGY-2	8 (27)	
PGY-3	11 (37)	

EM: emergency medicine; ED: emergency department; PGY: postgraduate year.

Table 2. Patient Perception of Resident Physician Empathy and Patient Satisfaction to Resident Physician Care Received Among Patients With Different Recognition of Resident Physicians

	Recognized	Partially recognized	Non-recognized	P value
Patient number, n (%)	50 (26)	122 (64)	19 (10)	
Age, n (%)				0.810
18 - 39	13 (22)	38 (66)	7 (12)	
40 - 49	7 (35)	11 (55)	2 (10)	
50 -	30 (27)	73 (65)	10 (9)	
Sex, n (%)				0.879
Male	26 (27)	59 (62)	10 (11)	
Female	24 (25)	63 (66)	9 (9)	
Race and ethnicity, n (%)				0.040
Non-Hispanic White	17 (22)	52 (68)	8 (10)	
Non-Hispanic Black	23 (43)	27 (51)	3 (6)	
Hispanic	9 (16)	41 (71)	8 (14)	
Other	1 (33)	2 (67)	0 (0)	
Patient perception of resident physician empathy, n (%)				0.013
Low JSPPPE scores (5 - 29)	26 (20)	87 (67)	16 (12)	
High JSPPPE scores (30 - 35)	24 (39)	35 (56)	3 (5)	
Patient satisfaction to resident physician care, n (%)				0.008
Not very satisfied	8 (14)	39 (68)	10 (18)	
Very satisfied	42 (31)	83 (62)	9 (7)	

JSPPPE: Jefferson Scale of Patient Perception of Physician Empathy.

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Table 3. Patient Recognition of Resident Physicians Associated with Patient Perception of Resident Physician Empathy and Patient Real-time Satisfaction to Resident Physicians

	Patient perception of resident physician empathy		Patient real-time satisfaction to resident physicians	
	AOR (95% CI)	P	AOR (95% CI)	P
Patient recognition of resident physician names				
Non-recognized	Reference		Reference	
Partially recognized	2.36 (0.63, 8.86)	0.202	2.44 (0.89, 6.66)	0.082
Recognized	5.29 (1.33, 21.02)	0.018	6.12 (1.84, 20.38)	0.003
EM resident level of training				
PGY-1	Reference		Reference	
PGY-2	0.87 (0.39, 1.93)	0.737	0.58 (0.25, 1.35)	0.207
PGY-3	0.51 (0.24, 1.11)	0.092	0.81 (0.36, 1.82)	0.617
Patient-resident age concordance	0.93 (0.44, 1.94)	0.844	0.74 (0.36, 1.54)	0.423
Patient-resident sex concordance	1.23 (0.65, 2.32)	0.519	0.88 (0.46, 1.69)	0.710
Patient-resident race/ethnicity concordance	0.87 (0.46, 1.67)	0.683	0.84 (0.44, 1.62)	0.607

Patient and resident physician age, sex, race/ethnicity were included in the multivariate logistic regression analysis. AOR: adjusted odds ratio; EM: emergency medicine; PGY: postgraduate year; CI: confidence interval.

of patient-centered care for physicians in training.

Patient recognition of provider names has been reported in many studies, either passively (i.e., showing providers' picture, writing down providers' names on a board) or actively (patients able to write or pronounce providers' name) [13, 16, 23]. In this study, we chose to measure patients' active recognition of provider names as name recognition performed better than face recognition in previous studies [24]. In addition, "call by name" has been approved to have better patient-provider communication [25]. Our study found lower percentages of patient full recognition by providers' name. Toole et al reported over 50% of patients did not know the name of their attending physicians, and over 70% of patients did not know the name of their resident physicians [15]. Similar findings were also reported in other studies [26, 27]. Our findings (i.e., only 26% of patients fully recognized resident physicians' names) are consistent with these reports. Our study only reported the outcome of patient-provider relationship (i.e., recognizing provider name) without investigating the mechanism(s) of how patients recognize provider names. Multiple factors could affect patients recognizing providers' names which would be difficult to collect and analyze in our study. Patients might be impacted by their disease conditions, medication effect, hospital environment, or by brief patient-provider encounter time, and thus may not be able to recognize providers' names. On the other hand, patients with different education backgrounds might have different levels of understanding (such as patients with language barriers or illiteracy) [28, 29]. Therefore, patient-provider relationships might differ among individual physicians based on how physicians introduce themselves to patients and how they communicate with them, which can affect patients' recognition of provider names. Our study was not able to look at such causative effects. Under these circumstances, our study focused on the investigation of potential associations among different patient-provider rapport outcomes (empathy, satisfaction, and recognition). If highly correlated, one could choose the best measure of patient-provider rapport.

Apart from physician empathy measures, our study utilized a real-time patient satisfaction survey. Real-time satisfaction surveys have been reported to have many advantages, including a high compliance rate and less biases (e.g., recall bias or recollection bias) [30, 31]. In addition, patients usually reported higher satisfaction when a real-time satisfaction survey was performed compared with other survey methods (e.g., traditional mail-in satisfaction survey) [30, 31]. The mechanisms of this finding are not fully understood. Since patient satisfaction of providers is an essential patient care quality measure, one may determine an association that links patient recognition of providers to patient satisfaction.

Patient satisfaction to physicians can be affected by several factors including patient-centered communication. Previous studies [32, 33] showed positive correlation between efficient patient-provider communication, sharing decision making with the patients, and patients understanding and adherent to their treatment plans, etc. In addition, patient and provider demographics could also affect patient perception of empathy and provider satisfaction [34]. Some studies showed demographic concordance between patients and providers can improve healthcare management with optimal clinical outcomes due to the similar cultural background and better communications [35, 36]. In our study, this concordance did not seem to play an important role on patient perception of physician empathy and patient satisfaction (Table 3). However, due to the small sample size, such findings need to be validated extensively. Previous studies have reported a positive association between providers' empathy and patient satisfaction. It has also been reported that empathy scores were reversely proportional to the level of training among residents/medical students [37, 38]. First-year residents/medical students tended

to have higher empathy scores and higher satisfaction when compared with ones who had more years of training [37, 38]. Though the mechanism(s) of such changes were unclear, this may be attributed to more interaction with the patients. First-year residents may have less stress, spend longer time with the patients to harvest the medical history, perform more thorough physical exams, and show greater enthusiasm when communicating with the patients, leading to higher empathy scores and better patient satisfaction [39]. Though multiple factors can affect patient satisfaction scores, building the patient-provider relationship should be considered the initial step [40, 41]. Our study may serve as a foundation for future determination of factors that affect patient-provider relationships and patient satisfaction.

Our study has several strengths. First, it focuses on resident physicians in an emergency care setting, which has rarely been studied in the past. Second, it links patient recognition of resident physicians to physician empathy measures by using an externally validated empathy measurement tool, the JSPPPE. Third, the study uses real-time satisfaction measurement, which has been emphasized recently in the patient satisfaction literature. If our study findings can be validated externally, our future research will be focused on how to improve provider name recognition with the other adjunct services such as writing names on a visible board to remind patients, using providers' badges to show patient pictures of providers, or advertising providers through visible computer or television screens connected with hospital.

Limitations

Our study also has several limitations. First, our study findings can only determine the association between patient-provider recognition, provider empathy, and patient satisfaction without determining the causative effects. Second, this is a single-center study with a relatively small sample size which could potentiate sample selection bias. Third, we excluded patients with language barriers, such exclusions might generate patient selection bias. Fourth, though resident physicians introducing themselves while initiating their patient care was randomly checked by our study coordinators, we did not monitor every resident physician during their patient care. Fifth, patients describing resident physicians' personal characteristics (such as age, gender, race/ethnicity, others) might have recognition bias and this information might not be completely correct. Sixth, our study used convenient sampling in this study and patients selected by study coordinators which could be subjective. Since study coordinators determined the appropriateness of patient enrollment, we did not investigate patient baseline mental status nor analyze factors potentially affecting patients' mental status such as patient illness, severity of disease, and sedative medications used at ED. Patient perception of provider empathy and patient satisfaction can also be affected by multiple other factors, such as ED crowding, ED length of stay, and nursing staff [42, 43]. Our study could not analyze all these factors. Therefore, a large-scale, prospective multi-center study would be warranted to evaluate these factors.

Conclusions

Full patient recognition of resident physicians is relatively low. However, patient recognition of resident physicians is associated with higher patient perception of resident physician empathy and higher patient satisfaction with resident physicians.

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Financial Disclosure

None to declare.

Conflict of Interest

All authors report no conflict of interest.

Informed Consent

Informed consent for publication from the study participants was obtained.

Author Contributions

Chad T. Holmes: study concept and design, data acquisition, data interpretation, drafting the initial manuscript, and manuscript revision. Charles Huggins: study concept and design, data acquisition, data interpretation, drafting the initial manuscript, and manuscript revision. Heidi Knowles: data interpretation, and manuscript revision. Thomas K. Swoboda: data interpretation, and manuscript revision. Ryan Kirby: data interpretation, and manuscript revision. Naomi Alanis: study concept and design, data acquisition, administrative, technique support, manuscript revision. Alexandra Bulga: data interpretation, and manuscript revision. Chet D. Schrader: manuscript revision. Cita Dunn: manuscript revision. Hao Wang: study concept and design, data acquisition, data analysis and interpretation, statistical analysis, study supervision, drafting the initial manuscript, critical revision of the manuscript.

Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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