

Relationship Between Orthopedic Surgeon's Empathy and Inpatient Hospital Experience Scores in a Tertiary Care Academic Institution

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Abstract

Studies have examined the relationship between physician empathy and patient experience, but few have explored it in surgeons. The purpose of this study was to report on orthopedic surgeon empathy in a multispecialty practice and explore its association with *orthopedic* patient experience. Patients completed the consultation and relational empathy (CARE) measure (March 2017-August 2018) and Canadian Patient Experience Survey-Inpatient Care (CPES-IC; March 2017-February 2019) to assess empathy and patient experience, respectively. Consultation and relational empathy measures were correlated to CPES-IC for 3 surgeon-related questions pertaining to respect, listening, and explaining. Surgeon CARE scores ($n = 1134$) ranged from 42.0 ± 9.1 to 48.6 ± 2.4 with 50.4% of patients rating their surgeon as perfectly empathic. There were no significant differences between surgeons for CPES-IC continuous and topbox scores ($n = 834$) for respect and correlations between CPES-IC questions. The CARE measure for both continuous and topbox scores were weak to moderate, but none were significant. Empathy was associated with surgeon respect and careful listening, despite lack of significant correlation. Possible future work could use an empathy tool more appropriate for this surgeon population.

Keywords

empathy, patient experience, orthopedic surgeon, CARE measure, Canadian patient experience survey

Introduction

The term empathy has been widely defined in the context of patient care (1, 2). An often-cited definition of empathy emphasizes the ability to visualize oneself in the situation of another, by imagining thoughts, feelings, and state of being from their perspective (3). Empathy is the ability to recognize and validate worries, anxieties, and emotional needs that facilitate an appropriate response and exemplifies that a patient is more than their diagnosis. Empathy has been recognized by the American Association of Medical Colleges as a necessity for a patient-centered and therapeutic patient-physician relationship. This has been increasingly recognized in health-care training by incorporation into medical school and residency curricula (4).

From a patient's perspective, empathy is often acknowledged as a desired attribute of their physician and a

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constituent of a reputable bedside manner (2, 5–7). In numerous studies, empathy in the care–provider relationship when perceived by the patient has been shown to have tangible results, including improved patient outcomes, care–provider trust, and increased patient compliance with care (1, 8, 9). Literature has shown that empathy also significantly influences the patient’s perceived quality of care and their satisfaction with the physician–patient relationship (10). More importantly, physician empathy has been associated with better patient outcomes, fewer malpractice claims, and greater patient safety, and remains an essential attribute of the patient–physician relationship, which is a key determinant of the patient experience (11).

Historically, surgeons are reputed to have inferior empathic skills in comparison to their medical counterparts (12). Surgeon empathy has been identified as a key factor in determining patient satisfaction regarding clinic visits, with wait times and patient expectations following closely behind (13–17). Research has also shown that empathetic practice measurably improves patient outcomes in the surgical specialties. Although a positive correlation between surgeon empathy and improved patient outcomes has been well established (12, 18, 19), few studies have examined empathy’s impact on patient experience with respect to surgeons. Further, no studies to date have examined orthopedic surgeon empathy in multiple subspecialties and how it relates to the patient experience. Positive patient experience has been linked to decreased postoperative complications and decreased return to the hospital. Understanding the link between surgeon empathy and patient experience will enable future interventions to improve overall patient care. The purpose of this study was to: (1) describe orthopedic surgeon empathy and (2) explore that empathy’s association with patient experience in a large tertiary care centre.

Methods

This was a prospective case series of patients undergoing elective orthopedic procedures approved under the quality improvement portfolio of our institution. Data were collected prospectively on 19 surgeons, with an average 46.2 years of age and 11.5 years in practice from 7 different subspecialties of orthopedics: adult reconstruction, foot and ankle, hand and wrist, hip preservation, spine, sports medicine, and upper extremity. There were a total of 28 orthopedic surgeons (27 male and 1 female) at the time of data collection. The 19 surgeons for this study (66% of the division) were selected based on a representative sampling for age, sex, and year of practice reflective of the whole division of orthopedic surgery.

Consultation and Relational Empathy Measure

The Consultation and Relational Empathy (CARE) measure was developed by Mercer et al to assess provider empathy as perceived by the patient during a one-on-one

consultation (10). The CARE measure has been used in multiple empathy-related studies and demonstrated as a reliable and valid tool in the family medicine, internal medicine, and some surgery settings (8, 13, 18, 20, 21). It is composed of 10 items each being rated on a 5-point Likert scale, ranging from 1 (poor) to 5 (excellent), adding up to the lowest possible score of 10 and the highest possible score of 50. All patients presenting to the orthopedic outpatient clinic for an initial consultation between March 2017 and August 2018 were given a CARE measure by the front desk clerk after seeing their surgeon. The CARE measure was completed anonymously by patients to avoid social desirability bias and the surgeons were not aware which patients completed and returned the survey to the front desk clerk. Patients were told by the front desk clerks that their responses would in no way impact their surgical care. Inclusion criteria were fluency and literacy of the English and French languages.

The CARE measure was adapted to collect age category and sex of the patient. To ensure the CARE measures were only completed by a patient who had been seen by a staff surgeon, opposed to a resident or fellow, the following additional question was added to the beginning of the measure: “did you see the surgeon? If no, please return the survey to the clerk; if yes, please answer the following questions based on only your interaction with your surgeon, not with the fellow/resident” (see Online Appendix A for full CARE measure).

Canadian Patient Experience Survey

To study the association between surgeon empathy and patient experience, we used the validated and reliable Canadian Patient Experience Survey–Inpatient Care (CPES-IC) data collected by the Canadian Institute for Health Information. This questionnaire was completed by patients between March 2017 to February 2019 and is based on the Adult version of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey (22). We focused on 3 CPES-IC questions specific to the care obtained from the staff surgeon. The following questions were of particular interest to measure experience related to surgeon care: (1) “During this hospital stay, how often did doctors treat you with courtesy and respect? (2) “During this hospital stay, how often did doctors listen carefully to you?”; (3) “During this hospital stay, how often did doctors explain things in a way you could understand?”. There were 4 possible options: Never, Sometimes, Usually, and Always; scored from 1 (never) to 4 (always). The remainder of the questions focus on patient demographics and other health-care topics and were not analyzed in this study.

Analyses

To attribute an empathy score to each surgeon, the generalizability theory was used (23). An empathy score can be

attributed to a surgeon if it is shown to be sufficiently reliable between patients of a given surgeon (21). Intraclass correlation coefficients (ICCs) were used to assess the reliability of CARE scores per surgeon, where ICCs were deemed reliable if greater than 0.70 (24). Average CARE scores of each surgeon were used in the analyses.

For each of the 3 aforementioned CPES-IC questions, both topbox (the highest possible score) and continuous scores were used to calculate scores per surgeon (25). The topbox scoring was determined by dividing the total number of “Always” responses over the total number of patients for each surgeon. Question responses were also converted to continuous scores according to the HCAHPS adjustment, where “Never,” “Sometimes,” “Usually,” and “Always” became 0, 33.33, 66.66, and 100, respectively, and surgeon averages were calculated.

Table 1. Patient Demographics for 1134 CARE Measures and 834 CPES-IC Scores.

Variable	Count (%)	
	CARE	CPES-IC
Age		
18-35	136 (12.0%)	23 (2.8%)
36-50	196 (17.3%)	52 (6.2%)
51-65	402 (35.4%)	301 (36.1%)
66-80	335 (29.5%)	380 (45.6%)
81 and over	65 (5.7%)	78 (9.4%)
Sex		
Male	565	330
Female	569	504

Abbreviation: CARE, consultation and relational empathy.

Patient demographics were reported using descriptive statistics. Descriptive analyses of both CARE measure and CPES-IC scores were also completed. The Kruskal-Wallis and χ^2 tests were used to compare surgeons for continuous and categorical variables, respectively. Since it was not possible to associate both a CARE measures and CPES-IC for each individual patient due to the anonymity of both questionnaires, correlations were run between the CARE surgeon averages and CPES-IC surgeon scores, using non-parametric Spearman correlations (ρ). A ρ between 0.1 and 0.39 was considered weak, 0.4 and 0.69 as moderate, and 0.7 and above as strong (26). A P value $<.05$ was considered statistically significant. The Statistical Package for the Social Sciences (v 26, IBM, New York, NY) was used for all analyses.

Results

There were a total of 1968 patients in the study cohort: 1134 patients who completed and returned the CARE measure (surgeon range from 27 to 189 patient surveys) and 834 patients for the CPES-IC (surgeon range from 18 to 138 patient surveys; Table 1). Out of 19 surgeons, 15 demonstrated reliable CARE measures, with ICCs ranging from 0.70 to 0.95, with the other 4 having ICCs under 0.70. Surgeon CARE scores ranged from 42.0 ± 9.1 to 48.6 ± 2.4 , with Table 2 describing individual scores. In total, 572 out of 1134 (50.4%) patients rated their surgeon as perfectly empathic (CARE score of 50; Figure 1). The CARE measures were statistically significantly different between the surgeons ($P < .001$; Table 2).

For patient experience (CPES-IC), the percentage of patients who indicated that doctors always treated them with

Table 2. Descriptives for CARE Measure and CPES-IC Physician-Related Questions for Each Surgeon.

Surgeon	CARE measure (mean \pm SD)	CPES-IC					
		Doctors always treated me with respect (n, %)	Doctors treated me with respect (mean \pm SD)	Doctors always listened carefully (n, %)	How often doctors listened carefully (mean \pm SD)	Doctors always explained so you could understand (n, %)	How often doctors explained so you could understand (mean \pm SD)
1	44.1 \pm 8.6	16 (88.9)	94.4 \pm 17.2	17 (94.4)	94.4 \pm 23.6	15 (83.3)	90.7 \pm 25.1
2	47.3 \pm 5.2	27 (93.1)	98.8 \pm 6.30	23 (79.3)	94.0 \pm 13.0	22 (75.9)	90.8 \pm 17.6
3	46.0 \pm 6.1	127 (92.0)	97.3 \pm 9.95	113 (81.9)	92.5 \pm 17.6	114 (82.6)	93.8 \pm 16.4
4	47.2 \pm 5.1	65 (89.0)	96.3 \pm 11.9	53 (72.6)	91.1 \pm 15.9	55 (75.3)	90.3 \pm 18.9
5	42.0 \pm 9.1	75 (85.2)	93.94 \pm 16.4	64 (72.7)	87.7 \pm 22.8	65 (73.9)	88.8 \pm 22.1
6	43.8 \pm 8.1	122 (90.4)	96.3 \pm 12.0	111 (82.2)	93.5 \pm 15.6	111 (82.2)	93.4 \pm 16.8
7	45.9 \pm 6.5	33 (84.6)	95.5 \pm 14.0	28 (71.8)	90.1 \pm 19.0	24 (61.5)	86.5 \pm 20.0
8	43.6 \pm 8.0	52 (89.7)	96.6 \pm 10.2	41 (70.7)	87.9 \pm 20.4	39 (67.2)	89.1 \pm 18.2
9	44.1 \pm 8.8	27 (84.4)	91.7 \pm 22.4	25 (78.1)	91.4 \pm 19.2	25 (78.1)	91.1 \pm 23.1
10	46.4 \pm 5.8	26 (83.9)	93.5 \pm 15.9	24 (77.4)	90.3 \pm 19.6	24 (77.4)	93.3 \pm 13.6
11	44.4 \pm 8.1	26 (83.9)	92.5 \pm 18.7	24 (77.4)	91.4 \pm 17.1	24 (77.4)	91.4 \pm 17.1
12	45.0 \pm 7.1	17 (89.5)	96.5 \pm 10.5	14 (73.7)	89.5 \pm 19.4	14 (73.7)	84.2 \pm 30.2
13	45.9 \pm 8.0	19 (90.5)	95.2 \pm 15.9	17 (81.0)	93.6 \pm 13.4	14 (66.7)	88.3 \pm 19.6
14	45.2 \pm 8.0	27 (87.1)	95.7 \pm 11.4	24 (77.4)	92.5 \pm 14.2	25 (80.6)	93.5 \pm 13.4
15	48.6 \pm 2.4	86 (94.5)	98.2 \pm 7.64	80 (87.9)	94.9 \pm 14.8	77 (84.6)	94.8 \pm 15.0

Abbreviations: CARE, consultation and relational empathy; CPES-IC, Canadian Patient Experience Survey-Inpatient Care; SD, standard deviation.

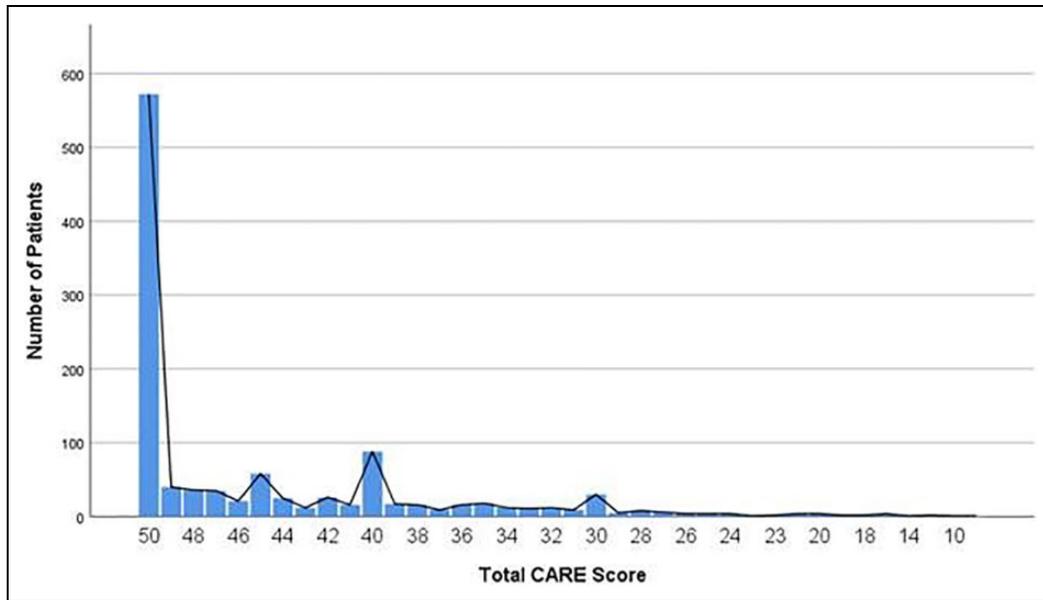


Figure 1. Number of patients over total average CARE score. CARE indicates consultation and relational empathy.

Table 3. Spearman Correlations Between the CARE Measure and CPES-IC.

Variable	Mean ± SD	Correlation coefficient (ρ)	P value ^a	Strength of correlation
CARE measure	44.8 ± 7.6	–	–	
Doctors always treated me with respect	88.4 ± 3.5	0.351	.199	Weak
Doctors treated me with respect	95.5 ± 2.0	0.429	.110	Moderate
Doctors always listened carefully	78.6 ± 6.4	0.183	.513	Weak
How often doctors listened carefully	91.7 ± 2.3	0.412	.127	Moderate
Doctors always explained so you could understand	76.0 ± 6.7	0.129	.647	Weak
How often doctors explained so you could understand	90.7 ± 2.9	0.288	.297	Weak

Abbreviation: CARE, consultation and relational empathy; CPES-IC, Canadian Patient Experience Survey-Inpatient Care; SD, standard deviation.

^aStatistical significance set at $P < .05$.

respect varied from 83.9% to 94.5% between surgeons, with continuous scores ranging from a mean of 91.7 ± 22.4 to 98.8 ± 6.30 . Doctors always listened carefully varied from 70.7% to 94.4% of patients between surgeons, with scores ranging from a mean of 87.7 ± 22.8 to 94.9 ± 14.8 . Doctors always explained so you could understand varied from 61.5% to 84.6% of patients between surgeons, with scores ranging from a mean of 84.2 ± 30.2 to 94.8 ± 15.0 (Table 2). There were no statistically significant differences between surgeons for the CPES-IC continuous scores for respect, listening, and explanation given by the surgeons with P values of .833, .650, and .331, respectively. Similarly, there were no statistically significant differences between surgeons for the CPES-IC topbox scores with P values of .714, .371, and .186, respectively. There were 2 moderate, 4 weak with 1 trending toward moderate correlations between the CARE measure and CPES-IC questions for both continuous and topbox scores. None were statistically significant (Table 3).

Discussion

Empathy is considered a basic component of all therapeutic relationships (27), yet has never been evaluated in a multi-specialty orthopedic surgery setting. In an orthopedic hand surgeon outpatient clinic, patient-rated physician empathy was found to be the strongest driver of patient satisfaction (14). Our study was the first to explore the association between patient-rated physician empathy and patient experience in a multispecialty orthopedic surgery population.

Although CARE empathy scores statistically significantly varied between surgeons, the range was relatively small, varying from 42 to 48.6. With an average CARE score of 44.8 ± 7.6 , our study findings show greater empathy scores in orthopedic surgeons than a recent meta-analysis of 64 studies evaluating health-care professionals' empathy with the CARE measure. The meta-analysis demonstrated an average CARE score of 40.48 across physician, medical students, and allied health-care professionals (28). In the

aforementioned study, being a female practitioner and an allied health professional was associated with predominantly higher empathy scores, while being a physician was associated with lower scores. Further, no differences in empathy scores were found between different physician specialties (primary care physicians, specialists, complementary, and alternative medicine providers) (28). Interestingly, the orthopedic surgeons in our study were more empathic than physicians previously studied and more in line with allied health professionals. Another study demonstrated that being a specialist, a female, practising in an outpatient practice setting, and being an osteopathic doctor were predictors of high empathy scores (29). As our study only included male orthopedic surgeons, we were unable to make the comparison between male and female surgeons. Nevertheless, our study is important as it provides insight into the empathy levels of different subspecialty orthopedic surgeons at a large tertiary care center.

Our study found high patient experience scores across all surgeons, with no significant differences between surgeons found. Surgeons had the highest score for treating patients with courtesy and respect, which was closely followed by carefully listening to patients, and finally explaining things in a way that the patient could understand. This is an important lesson learned, as it identifies the stronger and weaker associations between empathy and patient experience factors in our surgeon population. The high patient experience scores in our study are not surprising, since studies have demonstrated that empathy scores are positively and strongly correlated with overall patient satisfaction which is closely linked to patient experience (14, 30–32). Further, it was demonstrated that being older than 65 years, having had a surgical procedure, and having a positive impression of the hospital environment were significantly associated with high patient satisfaction (33), factors which are concordant with our study findings.

A previous study by Chaitoff et al found an association between patient-rated empathy and experience. Using the Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPE) tool, their study found that higher patient-rated empathy was associated with higher patient experience scores (29). Although nonsignificant, some correlations between empathy and experience were deemed moderate when using the continuous scoring of the CPES-IC, which allows a greater range in scoring than the top-box method. The lack of significant correlation found in our study could be due to the limited variability of CARE and CPES-IC scores between surgeons, and the relatively low number of participating surgeons. It, however, appears empathy is more associated with patient experience regarding surgeon respect and careful listening than with clear explanations. Demonstrating appropriate empathy could, therefore, lead to better patient experience.

The clustering of data seen in our study population could make us question the appropriateness of the CARE measure tool for orthopedic surgeons, suggesting its limited ability to

discriminate. A recent study by Bikker et al found that the CARE measure demonstrated a ceiling effect when used to assess the empathy of nurses (34). Similarly, Kootstra et al used the CARE measure to assess empathy in hand surgeons and found that almost half of the study participants (54/126; 43%) rated their surgeon as perfectly empathic (CARE measure score = 50) (15). Similarly, over half (50.4%) of our patients rated their surgeon as perfectly empathic, highlighting the ceiling effect. A more recent study by Bikker et al found that the CARE measure has a notably greater ceiling effect (55%) than the JSPPE (18%), suggesting that the CARE had a limited ability to discriminate variations in high perceived empathy (35). Furthermore, the JSPPE showed better distribution (35), suggesting that it may be more suitable for the orthopedic surgery context. Because the CARE measure has been widely used in other populations as opposed to the JSPPE, which was specifically adapted only to the physician (nonsurgeon), the CARE measure was deemed the most appropriate measure for our study. That being said, in order to establish interventions to improve orthopedic surgeon empathy, it is imperative to use an appropriate tool for the type of practitioner under study.

Studying a multispecialty group of orthopedic surgeons has its challenges. With all 7 orthopedic subspecialties included in our study, patient volumes varied between surgeons and, therefore, the number of CARE measures completed differed between each surgeon. This variation in patient volume is generally reflected in the length of the consultation appointment, with higher volume subspecialties often having shorter consultation appointments. Although previous studies of the CARE measure suggest that a reliable estimate of physician empathy requires a minimum of 50 completed questionnaires per physician (20), our study was able to demonstrate reliability in as little as 27 completed surveys per surgeon using the ICC. It is important to note that due to the confidential nature of the CPES-IC questionnaire and the CARE measure, it was not possible to study the level of empathy and experience with the same patient. This further led to an inability to distinguish patient-rated empathy between the inpatient and outpatient setting, unlike studied by Chaitoff and colleagues (29). Additionally, this distinction would not be possible given that the CPES-IC is used in an inpatient setting only. In our study, patients who completed the CPES-IC were significantly older than patients who completed the CARE measure. The CPES-IC is completed by patients who stay overnight in an acute tertiary care setting, which is often the case for older patients with complex medical histories and/or surgeries. Young orthopedic patients often undergo day surgery, which could partially explain the age variation between the 2 surveys in our study. Based on Keulen et al, younger patients tend to place lower importance on empathy than older patients (36). Therefore, exploring how age influences the rating of provider empathy should be further explored. Finally, this study needs to be replicated in other orthopedic surgery sites.

Conclusion

In conclusion, orthopedic surgeons included in this study tended to demonstrate strong empathic skills according to patients. Empathy was associated with patient experience with regards to surgeon respect and careful listening, despite the lack of statistically significant correlation. Further studies with a larger sample size of orthopedic surgeons from multiple centers are necessary. Possible future work could use an empathy tool more appropriate for this surgeon population.

Authors' Note

All authors confirm and consent to the submission of this version of the manuscript. Given that this study was approved by the Quality Improvement portfolio of our institution, patients were not required to sign an informed consent form to participate in the study. Approved under the Quality Improvement portfolio of the Ottawa Health Sciences Network Research Ethics Board.

Declaration of Conflicting Interests

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Supplemental Material

Supplemental material for this article is available online.

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