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Perceived Physician Empathy in Pediatric Orthopedics: A Cross-Sectional Study

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Abstract

Empathy is the cornerstone of the patient–physician relationship and is consistently ranked by patients as one of the most important factors in the quality of their care. In this paper we examine the degree to which perceived physician empathy is associated with the characteristics of the caregiver (parent or legal guardian) and physician in pediatric orthopedic surgery. This was a cross-sectional survey study of 200 English-speaking caregivers of pediatric patients at a large children's hospital. The Consultation and Relational Empathy (CARE) Measure was used to measure perceived physician empathy. Only if the caregiver felt carefully listened to by the physician (p-value < 0.001), and if the physician showed respect for what the caregiver had to say (p-value = 0.007) were statistically significant and positively associated with perceived physician empathy. The most significant determinant of perceived physician empathy is whether the caregiver felt listened to during the encounter. Other factors such as caregiver demographics, health literacy, self-rated mental health, wait time, and time spent with the physician do not significantly affect perceived physician empathy.

Keywords

caregiver, satisfaction, pediatric orthopedic surgery, pediatrics, empathy

Introduction

Empathy is the cornerstone of the patient–physician relationship and is consistently ranked by patients as one of the most important factors in the quality of their care (1–4). It is the foundation of the therapeutic relationship and is necessary for compassionate care. While various definitions exist, in medicine it can be seen as the physician's ability to not only understand the patient's emotional state, but respond in a manner that conveys concern, compassion, and care for the patient's well-being (5).

Empathy has benefits for both the patient and the physician (1). Importantly, it has been demonstrated that there is a large correlation between physician empathy and patient satisfaction (6–9). More than any other factor associated with patient–physician interactions, it has been shown that physician empathy is the most critical for the satisfaction of the patient. Menendez et al. found greater empathy to account for 65% of the variation in satisfaction with the physician among orthopedic surgery patients, while Hojat et al. found a 0.93 correlation between patient satisfaction and patient perception of physician empathy in primary care (6,10). Not even long wait times at the office, something which is frequently a source of frustration for patients, is as responsible for the happiness of the patient as empathy demonstrated by the physician (10).

Furthermore, patient satisfaction is increasingly becoming tied with physician reimbursement. The Centers for Medicare and Medicaid Services explicitly incentivize improvements in patient experience through value-based purchasing, under which providers' scores on an outpatient experience survey such as the Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CG-CAHPS) survey are

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considered a quality outcome that influences accountable care organization reimbursement (11).

The empathy of the physician as perceived by the caregiver has been determined to be the most significant predictor of patient satisfaction in pediatric orthopedic surgery (12). However, the impact of factors outside of the physician's control such as wait time to see the physician or the health literacy of the caregiver on the perceived empathy of the physician has not been previously studied in a pediatric orthopedic population. In this paper, we examine the degree to which perceived physician empathy is determined by factors extrinsic to the physician as well as by factors intrinsic to the physician such as behavior during the visit. This is the first paper to examine such a relationship in a pediatric orthopedic population.

Methods

This was a cross-sectional survey study of 200 English-speaking caregivers of pediatric patients at a large children's hospital from March 1, 2017 to November 1, 2018. Caregivers were defined as the parent or legally approved guardian accompanying the pediatric patient on their visit. The caregivers of all new and follow-up patients who presented to the pediatric orthopedic clinic were asked to participate in the study. All clinic patients were included in the study, encompassing the full range of complaints normally seen by a pediatric orthopedic surgeon including trauma follow-up visits. Patients presenting for preoperative and postoperative visits were excluded from the study. Patients with complex neuromuscular patients such as cerebral palsy were seen in a specialized clinic outside of general pediatric orthopedics and thus were not included. Caregivers were only allowed to fill out the packet once. Informed consent was provided, and written consent was obtained from all caregivers.

After a medical assistant roomed the patient, informed consent and HIPAA consent were obtained from the caregivers. They were given a demographic survey which included the chief complaint, patient age, and whether the caregiver had ever worked in a healthcare field. The Newest Vital Sign (NVS) and the Literacy in Musculoskeletal Problems (LiMP) surveys were then given to measure general and musculoskeletal health literacy, respectively. The NVS is a validated tool that was developed to evaluate a patient's general health literacy using a standard nutrition label about which the patient is asked six questions (13). It was designed for primary care, but is now utilized in a variety of settings (13,14). A significant strength of the tool is that it can be administered in approximately 3 minutes. Adequate health literacy is defined as an NVS score of 4–6, with less than 4 indicating the possibility of limited health literacy (13). The LiMP is a self-administered, validated survey that consists of nine questions specifically designed to measure musculoskeletal health literacy. Its themes of anatomy, terminology, diagnosis, and treatment for musculoskeletal injuries were based on the most emphasized information found in the patient education section of the American Academy of Orthopedic Surgeons (AAOS) website (15). For the LiMP survey, adequate musculoskeletal literacy is defined as scores greater than or equal to 6 (15).

After the aforementioned forms were filled out by the caregiver the physician completed the visit. One physician completed all visits involved in the study. The caregiver then completed the Consultation and Relational Empathy (CARE) Measure to determine perceived physician empathy, and the CG-CAHPS to evaluate the caregiver's experience. The CARE Measure is a patient-rated measure of the interpersonal skills and relational empathy of healthcare providers and was used as the measure of perceived physician empathy for this study. It asks how the healthcare provider performed in ten categories, such as "showing compassion and care" and "making you feel at ease." Five responses were available ranging from "poor" to "excellent," with "poor" being assigned 1 point and "excellent" 5 points. The scores for the 10 items were then summed, yielding a minimum score of 10 and a maximum score of 50, with higher scores indicating greater empathy. It has been validated for both primary and specialty care (16). CG-CAHPS is a standardized survey instrument developed by the Agency for Healthcare Research and Quality to assess patients' experience and perception of care in an ambulatory setting (17,18). Fourteen questions were used from this questionnaire, including caregiver age, gender, race, level of education, and self-rated mental/emotional health. Also completed was the Wait Time Questionnaire, which asked the caregiver to estimate the time spent waiting for the surgeon, if the surgeon appeared rushed, how long the surgeon spent in the room, or if a resident was involved in their care. The true wait time was calculated from the time the patient checked in at the front desk to the time when the surgeon entered the room.

Statistical Analysis

The data were summarized using frequencies and proportions for categorical variables and mean, standard deviation, median, and range for quantitative variables. The group comparisons were conducted using the Wilcoxon rank-sum or the Kruskal-Wallis tests for quantitative variables. The linear association between continuous variables was conducted using the Pearson correlation coefficient. The multivariable linear regression model for caregiver satisfaction score was obtained by entering the risk factors with a p-value < 0.15 in the univariate analysis. The final multivariable linear regression model was obtained using forward stepwise selection method. For the multivariable analysis, all categorical risk factors were dichotomized before being entered into the model for easier interpretability of the result and to address low cell frequencies. The results were summarized using the mean estimates, standard errors, p-values, and the R^2. R^2 is the proportion of the variability of the CARE scores that is explained by the regression model. The significance level was set at 0.05.

Results

A convenience sample of 200 caregivers of orthopedic pediatric patients was recruited. The CARE scores of 195 caregivers were adequately completed and included in the study, with the other five scores excluded due to being

Table 1. Risk Factors for Perceived Physician Empathy Intrinsic to the Caregiver.

Risk Factor	N	Mean CARE Score (SD)	*P*-value
Age			0.581[a]
18-24	22	40.4 (11.1)	
25-34	59	41.9 (8.5)	
35-44	71	43.4 (9.1)	
45-54	23	44.7 (7.0)	
55-64	3	43.0 (6.1)	
65-74	3	41.0 (2.7)	
Gender			0.737[b]
Male	44	42.7 (7.9)	
Female	146	42.4 (9.1)	
Race			0.790[a]
White	125	42.9 (8.6)	
Black or African American	8	41.0 (10.3)	
Asian	8	43.3 (7.6)	
Other	41	41.7 (9.8)	
Ethnicity			**0.004**[b]
Hispanic	49	40.0 (9.3)	
Not Hispanic	137	43.5 (8.4)	
Health care employee/ profession			0.379[b]
Yes	63	43.4 (8.4)	
No	134	42.2 (8.9)	
Highest level of education			0.311[a]
Eighth grade or less	3	38.3 (2.9)	
Some high school	11	41.3 (8.8)	
High school or GED	31	39.8 (10.5)	
Some college or 2-year associates	57	42.9 (8.6)	
4-year college graduate	44	43.0 (8.2)	
More than 4-year college	38	44.4 (8.5)	
General health literacy (NVS)			**0.007**[b]
Inadequate literacy	35	39.0 (9.5)	
Adequate literacy	160	43.3 (8.5)	
Musculoskeletal health literacy (LiMP)			0.400[b]
Inadequate literacy	90	41.9 (9.0)	
Adequate literacy	104	43.1 (8.6)	
Mental health			0.095[a]
Excellent	86	43.6 (8.8)	
Very good	70	41.7 (9.3)	
Good	28	42.3 (7.3)	
Fair	7	37.0 (9.7)	
Poor	1	35.0 (0.0)	
Mental health (dichotomized)			0.095[b]
Excellent	86	43.6 (8.8)	
Very good, good, fair, or poor	105	41.5 (8.7)	

Note:[a]Kruskal–Wallis, [b]Wilcoxon rank-sum. CARE = Consultation and Relational Empathy Measure, NVS = Newest Vital Sign, LiMP = Literacy in Musculoskeletal Problems, SD = standard deviation.

Table 2. Risk Factors for Perceived Physician Empathy Extrinsic to the Caregiver.

Risk Factor	N	Mean CARE Score (SD)	*P*-value
If the doctor seemed rushed			**<0.001**[b]
No	178	43.7 (7.6)	
Yes	17	29.6 (10.3)	
Resident in before doctor			0.151[b]
No	37	40.5 (9.6)	
Yes	159	43.0 (8.6)	
Did the provider explain things in a way that was easy to understand?			**<0.001**[b]
Yes, definitely	93	45.7 (6.1)	
Yes, somewhat	26	32.4 (9.2)	
Did the provider listen carefully to you?			**<0.001**[a]
Yes, definitely	94	46.1 (5.5)	
Yes, somewhat	23	31.4 (7.2)	
No	2	18 (4.2)	
Did the provider listen carefully to you? (dichotomized)			**<0.001**[b]
Yes, definitely	94	46.1 (5.5)	
Yes, somewhat or No	25	30.3 (7.9)	
Did you talk with the provider about any health questions or concerns?			0.547[b]
Yes	102	43.5 (8.4)	
No	16	37.4 (9.8)	
Did the provider give you easy to understand information about health questions or concerns?			**<0.001**[b]
Yes, definitely	83	46.0 (5.9)	
Yes, somewhat	20	33.3 (9.4)	
Did the provider seem to know the important information about your medical history?			**<0.001**[a]
Yes, definitely	88	44.8 (6.8)	
Yes, somewhat	25	38.8 (10.5)	
No	5	25.4 (7.5)	
Did the provider seem to know the important information about your medical history? (dichotomized)			**<0.001**[b]
Yes, definitely	88	44.8 (6.8)	
Yes, somewhat or No	30	36.6 (11.1)	
Did the provider show respect for what you had to say?			**<0.001**[a]
Yes, definitely	104	44.7 (6.8)	
Yes, somewhat	13	29.2 (8.5)	
No	1	15 (0)	
Did the provider show respect for what you had to say? (dichotomized)			**<0.001**[b]
Yes, definitely	104	44.7 (6.8)	
Yes, somewhat or No	14	28.1 (9.0)	

(continued)

Table 2. (continued)

Risk Factor	N	Mean CARE Score (SD)	*P*-value
Did the provider spend enough time with you?			**<0.001[a]**
Yes, definitely	93	45.6 (6.3)	
Yes, somewhat	22	32.7 (8.4)	
No	3	25.3 (5.9)	
Did the provider spend enough time with you? (dichotomized)			**<0.001[b]**
Yes, definitely	93	45.6 (6.3)	
Yes, somewhat or No	25	31.8 (8.4)	
How long have you been going to this provider?			0.749[a]
Less than 6 months	92	41.5 (9.1)	
At least 6 months but less than 1 year	16	43.3 (9.2)	
At least 1 year but less than 3 years	42	42.5 (9.5)	
At least 3 years but less than 5 years	14	44.6 (7.2)	
5 years or more	8	43.6 (8.5)	

Note: [a]Kruskal–Wallis, [b]Wilcoxon rank-sum. CARE = Consultation and Relational Empathy Measure, SD = standard deviation.

Table 3. Wait Time and Time Spent with the Physician as Risk Factors for Perceived Physician Empathy.

Risk Factor	N	r	*P*-value
Subjective wait time (minutes)	193	−0.164	**0.023[a]**
True wait time (minutes)	190	−0.065	0.372[a]
Subjective time spent with physician (minutes)	191	−0.001	0.994[a]

Note: [a]Pearson Correlation Coefficient.

incomplete or left blank. The mean and standard deviation of the caregiver CARE score on a scale of 10–50 was 42.6 (8.8), and the median and range were 46 (15–50).

The univariate associations between the risk factors and perceived physician empathy as measured by the CARE score were summarized in Tables 1, 2, and 3. Table 1 lists those risk factors intrinsic to the caregiver such as demographic characteristics, while Tables 2 and 3 list those risk factors extrinsic to the caregiver such as wait time to see the physician. In the univariate analysis the caregiver's subjective estimate of how long they waited to see the physician was negatively associated with the CARE scores ($r = -0.16$, p-value = 0.023). The mean CARE score was lower if the caregiver rated the physician as rushed during the visit (29.6 (10.3) versus 43.7 (7.6), p-value < 0.001), was lower if the caregiver was of Hispanic or Latino descent (40.0 (9.3) versus 43.5 (8.4), p-value = 0.004), and was lower if the general health literacy of the caregiver was inadequate as determined by the NVS (39.0 (9.5) versus 43.3 (8.5), p-value = 0.007). The mean CARE score was higher if during the visit the provider explained things in a way that was easy to understand (45.7 (6.1) versus 32.4 (9.2), p-value < 0.001), and if the provider gave easy to understand information about health questions or concerns (46.0 (5.9) versus 33.3 (9.4), p-value < 0.001). In addition, for the dichotomized variables, the mean CARE score was higher if the provider listened carefully (46.1 (5.5) versus 30.3 (7.9), p-value < 0.001), knew the important information about the medical history (44.8 (6.8) versus 36.6 (11.1), p-value < 0.001), showed respect for what the caregiver had to say (44.7 (6.8) versus 28.1 (9.0), p-value < 0.001), and if the provider spent enough time with the patient (45.6 (6.3) versus 31.8 (8.4), p-value < 0.001).

Table 4. Multivariable Linear Regression for Perceived Physician Empathy.

Risk Factor	Estimate Point Change in CARE Score (SE)	*P*-value
Did the provider give you easy to understand information about health questions or concerns? yes versus not	1.7 (2.1)	0.423
Did the provider listen carefully to you? yes versus not	11.4 (2.1)	**<0.001**
Hispanic or Latino descent versus not	−2.1 (1.3)	0.124
Did this provider show respect for what you had to say? yes versus not	6.6 (2.4)	**0.007**
Self-rate mental health as excellent versus not	2.2 (1.2)	0.061

Note: SE = standard error.

In the multivariable linear regression analysis, the provider listening carefully to the caregiver was positively associated with the CARE score (p-value < 0.001), and the mean CARE score was 11.4 points higher when they felt listened to versus not (Table 4). In addition, the provider showing respect for what the caregiver had to say was also positively associated with the CARE score (p-value = 0.007) and the mean CARE score was 6.6 points higher when they felt respected versus not. This model has an R^2 of 58.1%, the percentage of the variation in CARE scores explained by the model. However, the provider providing easy-to-understand information about health questions or concerns, as well the caregiver being of Hispanic or Latino descent, were not significantly associated with the CARE score. Self-rated caregiver mental health as excellent versus not showed a trend (p-value = 0.061), but was not statistically significant.

Discussion

The most significant determinants of perceived physician empathy in pediatric orthopedic surgery are if the caregiver felt listened to by the physician during the encounter and if the physician showed respect for what the caregiver had to

say. This accounts for over half of the variation in empathy scores. Caregivers who felt both listened to and respected by the physician during the visit increased their empathy score by approximately 18.0 points out of 50 compared to caregivers who did not.

This study demonstrates that the intrinsic characteristics of the caregiver ultimately have little effect on how they perceive the empathy of the physician. The caregivers' demographic characteristics including age, gender, ethnicity, and level of education did not significantly affect how they rated the empathy of the physician. Neither did the caregiver's self-evaluation of their own mental health, nor the objective assessment of the caregiver's general and musculoskeletal health literacy via the NVS and LiMP questionnaires, respectively.

Furthermore, neither the actual time the patient spent waiting to see the physician nor the patient's subjective estimate of the time spent waiting affected perceived empathy. This suggests that longer wait times do not necessarily predispose the patient toward a negative view of the physician. The time the physician spent in the room with the patient or if the caregiver believed the physician to be rushed during the visit did not affect perceived empathy. Kortlever et al. similarly found that in the adult orthopedic population neither wait time nor time spent with the physician was independently associated with perceived physician empathy (19). It seems that caregivers can excuse shorter visits than desired and even the physician visibly rushing through the visit if sufficient empathy is demonstrated. Physicians may feel that increased time spent with the patient will increase the perception of their care, but this study suggests that is not necessarily true and shorter visits with demonstrated empathy may be sufficient.

In addition, although it might be expected that those caregivers who self-identify as healthcare workers possess a higher empathy for other healthcare workers on the basis of shared experience and knowledge of the medical process, this study found no significant association. Furthermore, although Li et al. showed resident involvement in patient care to lower patient-rated physician communication scores in adult orthopedic surgery, in our study a resident seeing the patient beforehand ultimately had no significant effect on perceived empathy (20). Interestingly, the length of time the patient has been going to the physician for care had little effect on perceived physician empathy. This study would suggest that patients do not necessarily view physicians that they have been going to for longer periods in a more favorable manner.

Overall, there is a paucity of research on the factors that contribute to a patient's evaluation of a physician as empathetic or not, and to our knowledge none in pediatric orthopedic surgery. The lack of existing literature presents a challenge in comparing our results to previous findings. Furthermore, this is problematic as empathy is necessary for a therapeutic relationship, and it has been demonstrated that physician empathy is primarily responsible for patient satisfaction in both primary care and adult orthopedic surgery, as well as caregiver satisfaction in the case of pediatric orthopedic surgery (6,10,12). Therefore, there is value in determining which behaviors of the physician can demonstrate empathy and thereby increase patient satisfaction. Although in orthopedic surgery some diagnoses can be made through reviewing the imaging prior to interviewing the patient, this study demonstrates that patients still value a physician who listens to their story. Ultimately, even though the physician may know the diagnosis before entering the room, it is still important to let the patient tell their story and to demonstrate active listening.

There are some potential limitations to our study, foremost that the physician was aware of the ongoing study. Although the physician was blinded as to which caregivers agreed to participate as well as their responses, this still may have influenced the physician to subconsciously alter their behavior to increase patient satisfaction. In addition, this study examined the perceived physician empathy of the caregiver accompanying the pediatric patient in an orthopedic subspecialty, and may have limited generalization to other medical specialties, including other areas of orthopedic surgery or even general pediatrics. In addition, having one attending physician in this study did not allow for the determination of a difference in perceived empathy between male and female physicians, nor the impact of racial/ethnic concordance between caregivers and their child's physician. A future study to confirm the findings of this study and address these limitations would include multiple male and female attendings of differing races and ethnicities. Lastly, our study did not examine socioeconomic risk factors, which previous literature has suggested may have an impact on perceived physician empathy.

The most significant determinants of perceived physician empathy in pediatric orthopedic surgery are whether the caregiver felt listened to during the encounter and whether the physician showed respect for what the caregiver had to say. This accounts for over half of the variation in empathy scores. Caregiver demographics, health literacy, self-rated mental health, wait time, and time spent with the physician do not significantly affect perceived physician empathy. Even if the diagnosis is already known to the physician there is still value in letting the patient tell their story.

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Ethical Approval

Ethical approval for this study was obtained from the author's institutional review board.

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Statement of Human and Animal Rights

All procedures in this study were conducted in accordance with the author's institutional review board approved protocols.

Statement of Informed Consent

Written informed consent was obtained from a legally authorized representative(s) for anonymized patient information to be published in this article.

References

1. Moudatsou M, Stavropoulou A, Philalithis A, Koukouli S. The role of empathy in health and social care professionals. Healthcare (Basel). 2020;8(1):26.
2. Mercer SW, Reynolds WJ. Empathy and quality of care. Br J Gen Pract. 2002;52 Suppl(Suppl):S9-S12.
3. Derksen F, Bensing J, Lagro-Janssen A. Effectiveness of empathy in general practice: a systematic review. Br J Gen Pract. 2013;63(606):e76-84.
4. Irving P, Dickson D. Empathy: towards a conceptual framework for health professionals. Int J Health Care Qual Assur Inc Leadersh Health Serv. 2004;17(4–5):212-20.
5. Decety J, Fotopoulou A. Why empathy has a beneficial impact on others in medicine: unifying theories. Front Behav Neurosci. 2015;8:457.
6. Hojat M, Louis DZ, Maxwell K, Markham FW, Wender RC, Gonnella JS. A brief instrument to measure patients' overall satisfaction with primary care physicians. Fam Med. 2011;43(6):412-7.
7. Smith MJ, Choma TJ. Patient satisfaction in musculoskeletal medicine. Curr Rev Musculoskelet Med. 2017;10(2):207-11.
8. Hojat M, Louis DZ, Maxwell K, Markham F, Wender R, Gonnella JS. Patient perceptions of physician empathy, satisfaction with physician, interpersonal trust, and compliance. Int J Med Educ. 2010;1:83-7.
9. Walsh S, O'Neill A, Hannigan A, Harmon D. Patient-rated physician empathy and patient satisfaction during pain clinic consultations. Ir J Med Sci. 2019;188(4):1379-84.
10. Menendez ME, Chen NC, Mudgal CS, Jupiter JB, Ring D. Physician empathy as a driver of hand surgery patient satisfaction. J Hand Surg Am. 2015;40(9):1860-5.
11. Chaitoff A, Sun B, Windover A, Bokar D, Featherall J, Rothberg MB, et al. Associations between physician empathy, physician characteristics, and standardized measures of patient experience. Acad Med. 2017;92(10):1464-71.
12. Singleton IM, Garfinkel RJ, Malone JB, Temkit MH, Belthur MV. Determinants of caregiver satisfaction in pediatric orthopedics. J Pediatr Orthop B. 2021 Jul 1;30(4):393-398.
13. Weiss BD, Mays MZ, Martz W, Castro KM, DeWalt DA, Pignone MP, et al. Quick assessment of literacy in primary care: the newest vital sign [published correction appears in Ann Fam med. 2006 January–Februaury;4(1):83]. Ann Fam Med. 2005;3(6):514-22.
14. Shealy KM, Threatt TB. Utilization of the newest vital sign (NVS) in practice in the United States. Health Commun. 2016;31(6):679-87.
15. Rosenbaum AJ, Pauze D, Pauze D, Robak N, Zade R, Mulligan M, et al. Health literacy in patients seeking orthopaedic care: results of the literacy in musculoskeletal problems (LIMP) project. Iowa Orthop J. 2015;35:187-92.
16. Mercer SW, Maxwell M, Heaney D, Watt GC. The consultation and relational empathy (CARE) measure: development and preliminary validation and reliability of an empathy-based consultation process measure. Fam Pract. 2004;21(6):699-705.
17. Dyer N, Sorra JS, Smith SA, Cleary PD, Hays RD. Psychometric properties of the consumer assessment of healthcare providers and systems (CAHPS®) clinician and group adult visit survey. Med Care. 2012;50 Suppl(Suppl):S28-34.
18. "CG CAHPS Healthcare Surveys." Studer Group A Huron Solution. www.studergroup.com/industry-impact/cg-cahps-healthcare-surveys.
19. Kortlever JTP, Ottenhoff JSE, Vagner GA, Ring D, Reichel LM. Visit duration does not correlate with perceived physician empathy. J Bone Joint Surg Am. 2019;101(4):296-301.
20. Li SS, Herrick NL, Deshpande RR, Cronin BJ, Reid CM, Brandel MG, et al. The impact of residents on patient satisfaction. Ann Plast Surg. 2018;80(5S Suppl 5):S247-S50.