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Do Pediatrician Interpersonal and Personality Characteristics affect Patient Experience?

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Abstract

Background and Objectives: Previous studies have demonstrated associations between patient experience scores and physician's demographic characteristics such as gender and race. There are a paucity of data, however, on the effect of broader pediatrician characteristics on caregivers' experience of their children's care. This study assessed pediatric caregiver experience of care ratings within a children's hospital and examined the effects of pediatricians' interpersonal and personality traits on caregiver experience ratings.

Methods: This cross-sectional study included caregivers of children under 18 years old (n=26,703) and physicians within children's hospital system (n=65). Caregivers of children who received care from 2017-2019 provided their rating (0-10) of care experience via the standardized National Research Corporation Health Survey. Top box provider ratings were used for analyses. Physician's interpersonal and personality data were collected. Multilevel logistic regression analyses were used to examine the effects of physician interpersonal characteristics (empathy, compassion) and personality (perfectionism, Big Five personality traits [openness, conscientiousness, extraversion, agreeableness, neuroticism]) on experience of care rating.

Results: The odds of caregivers of Spanish-speaking children to provide a high physician rating were 75% higher than the odds for non-Spanish-speaking patients. At the physician level, lower agreeableness (OR=0.63, *p*=.002), and lower narcissistic perfectionism (OR=0.98, *p*=.016) were associated with an increased likelihood of a high care experience rating. The odds of non-emergency medicine (EM) pediatricians receiving high ratings were approximately 4.17 times higher than that of EM pediatricians.

Conclusions: Current results may inform future interventions that address pediatrician personality characteristics associated with caregivers of children experience outcomes.

What's New

There is a paucity of data on the effect of pediatrician characteristics on caregiver experience of care. Pediatricians with higher agreeableness and perfectionism traits were less likely to receive high experience ratings. These findings may inform work aimed at improving children's experience.

Introduction

The shift from a primarily fee-for-service reimbursement model to a focus on value-based care places increased importance on patient experience ratings. In adult patient populations, patient satisfaction and experience indicators are considered core components of the Centers for Medicare and Medicaid Services Hospital Value Based Purchasing Program, which regulates hospital reimbursement rates.[1] Indeed, there is a growing adult literature connecting patient experience metrics to clinical outcomes[2] and a wide adaptation of the adult Consumer Assessment of Healthcare Provider and Systems (CAHPS) survey[3]. Although the routine assessment of pediatric patient experience lags behind that of the adult patient population, pediatric hospitals are now incorporating measures such as the National Research Corporation (NRC) Health Survey[4] and have increased the routine assessment of pediatric patient and their caregiver's experience of care.[4,5]

To date, most adult, children and pediatric caregiver research has focused on characterizing patient satisfaction rates and identifying patient clinical or demographic predictors (e.g., health status, age, gender, race, language) of experience of care.[6,7] In studies of adult patients, higher satisfaction scores tend to be associated with older age, higher income, male sex, and English language fluency, but results are mixed.[7,8] The few pediatric satisfaction studies have demonstrated mixed findings surrounding the effect of demographics, primary language, child health status, and socioeconomic factors on satisfaction scores, with results showing that older children, Spanish-speaking Latino parents, and families with lower income provided higher patient experience ratings.[9–11]

We submit that in addition to the above factors, it is also important to identify physician personality characteristics that may affect the patient and family's experience of care. In adult patient studies, the effects of physician sex and race on adult patient experience scores are mixed.[12,13] Physician interpersonal and personality characteristics also warrant further investigation as they may affect physician performance and patient care practices,[14,15] which collectively may affect patient experience of care. Studies assessing adult patient experience have shown that physician 'Big Five'[16] personality

traits such as openness, conscientiousness and emotional stability[17,18] as well as interpersonal factors such as empathy,[19,20] have a positive effect on patient experience scores; however, these studies are limited by the use of unvalidated personality or patient experience measures, small physician samples, or a lack of appropriate statistical modelling to account for the effect of both patient- and physician-level characteristics on patient experience metrics.

To our knowledge, no study to date has examined whether pediatrician personality characteristics affect parent or other caregiver experience of pediatric care. Further, the effects of broader personality characteristics such as perfectionism, which is common among physicians and may influence patient care,[21] have yet to be examined in the context of pediatric patient experience. The objective of the current study was to model the collective effects of pediatric physicians' interpersonal characteristics (empathy and compassion) and perfectionism and Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism) on caregiver experience of pediatric care. We suggest that identification of pediatrician personality characteristics associated with parent or other caregiver rating of experience of care may inform future intervention development. As such, the current study aims were to 1) describe caregiver and parents experience of care ratings, 2) assess associations among children and caregiver demographic characteristics and caregiver experience scores, and 3) examine the effects of physicians' interpersonal (empathy and compassion) and personality traits (Big Five personality traits and perfectionism) on parent and other caregiver experience ratings after adjusting for caregiver and child demographics.

Methods

Participants and Procedures

This cross-sectional study was conducted with a children's hospital network at Orange County, California. As part of standard of care practice, all caregivers of children 17 years old or younger who received care at CHOC Children's between the years of 2017 and 2019 were contacted via phone and

email within 72 hours of their visit to complete the National Research Corporation (NRC) Health Survey. NRC data were obtained from emergency or ambulatory care patient encounters (n = 26,703). The NRC response rate over this period was 27.9% (standard national rate in these clinical settings).

Physicians were recruited via email communication from the Chief Medical Officer, provided a copy of the study information sheet, and completed consent and study questionnaires using a REDCap survey link. To assure good quality of patient experience data appropriate for multilevel model analyses,[22] only physicians who had seen more than 30 patients were included in this study. Out of the 152 pediatricians contacted, 69 enrolled and 65 saw more than 30 patients (response rate of 45.5%). The Institutional Review Boards approved study procedures.

Interpersonal and Personality Measures

Child demographics (age, race, ethnicity, and primary language) were extracted from the electronic medical record and merged with each patient's NRC patient experience data.

Physician demographics were collected via physician self-report and included age, gender, race, ethnicity, pediatric specialty, average patients seen per day, and years of experience.

Perfectionism was assessed via the Big Three Perfectionism Scale (BTPS), which is a 45-item self-report questionnaire that has demonstrated acceptable reliability and validity.[23] BTPS measures three global perfectionism factors: self-critical perfectionism (tendency for negative reactions to mistakes, self-criticism, assuming others demand perfection), rigid perfectionism (insistence that personal performance is without errors), and narcissistic perfectionism (beliefs that one is superior, and self and others are expected to be perfect). Study sample Cronbach's alphas were 0.88, 0.93, and 0.91, respectively.

Empathy was measured with the Jefferson Scale of Physician Empathy.[24] This 20-item measure is widely used to assess physician empathy[24] and responses (sample $\alpha = 0.50$) are answered on a seven-point Likert-type scale ('*strongly disagree*' to '*strongly agree*').

Compassion was assessed via Relational Compassion Scale,[25] which is a psychometrically robust 16-item measure.[26] Items are rated on a four-point Likert-type scale ('*do not agree'* to '*agree strongly'*) and four subscales assess self-compassion (sample $\alpha = 0.71$), compassion for others (sample $\alpha = 0.72$), how compassionate other people are to each other (sample $\alpha = 0.43$), and how compassionate other people are to the respondent (sample $\alpha = 0.85$).

Personality was assessed using the Big Five Inventory, which is a well-validated,[16,28] 44-item that measure that assesses the 'Big Five' dimensions of personality reflected in the established Five Factor Model of personality[29]: openness (open to new experiences, flexible, curious; sample $\alpha = 0.77$), conscientiousness (careful, organized, efficient; sample $\alpha = 0.83$), extraversion (sociable, energetic, adventurous; sample $\alpha = 0.88$), agreeableness (trusting, warm, compliant; sample $\alpha = 0.72$), and neuroticism (tense, rigid, vulnerable to stress; sample $\alpha = 0.87$). The personality dimension subscale total scores were used for analyses.

Primary Outcome

The National Research Corporation (NRC) Health Survey[4], which utilizes over 30 CAHPS pediatric patient experience items, was sent to caregivers of children who were part of this study. As is the standard in the patient experience literature,[30] we designated the overall provider rating question *a priori* as the study primary outcome. Caregivers of children responded to the question: "Using a number from 0 to 10, where 0 is the worst doctor/provider possible and 10 is the best doctor/provider possible, what number would you use to rate this doctor/provider?".

Analyses

Descriptive analyses were conducted to characterize children's caregiver experience (Aim 1). For analyses, the caregiver experience 0-10 rating was converted to a binary score using the 'top box' approach where responses of 9 or 10 are categorized as a high provider care experience rating and responses of 0-8 represent a low rating. This top box approach is utilized in the patient experience

literature and derived from the Centers for Medicaid and Medicare Services, Hospital Consumer Assessment of Healthcare Providers and Systems standards for patient experience surveys.[30] For Aim two, bivariate analyses were conducted to examine effects of patient-level variables on caregiver experience. Bivariate analyses also assessed associations among pediatrician demographic variables and personality characteristics to identify covariates to include in multilevel analyses. Total scale scores were used for pediatrician interpersonal and personality variables. Given the sample nested design and non-independence within data points, we did not conduct bivariate analyses to assess associations between pediatrician variables and caregiver experience. There was a wide range in the number of NRC patient experience surveys that were collected for each pediatrician (Range, 37-1476*).*

We conducted multilevel logistic regression analyses to examine the effects of pediatrician traits on caregiver experience rating (Aim 3). Four multilevel regression models were fitted to account for the nested structure of experience data where patients (Level 1) are nested within pediatricians (Level 2). First, we ran an intercept only model to assess whether there was significant variability across intercepts, which justifies the use of multilevel analyses. The second model adjusted for patient-level variables, the third model adjusted for pediatrician-level variables, and the fourth model included statistically significant patient and pediatrician variables from the previous models. A robust estimation was used for fixed effects and coefficients and variables were grand mean centered. Low experience rating was coded as 0 and high experience was coded as 1. Thus, results reflect the likelihood of receiving a high experience rating. Statistical significance threshold was set at $p < .05$ and statistical analyses were conducted using IBM SPSS Statistics for Windows, Version 27.0. Armonk, NY:IBM Corp.

Results

Physician and children demographics statistics are presented in Tables 1 and 2 respectively. Across physicians, 80.6% of caregivers reported a high experience rating (scores 9 and 10). Children of

caregivers that endorsed high experience were more likely to be older (t = -6.70, p < .001) and Spanish speaking (X^2 = 21.24, p < .001).

Physician Sample: Effects of demographics on personality traits

Next, we examined the effects of physician demographics such as age, gender, and years of experience on personality traits. Table 3 presents only significant findings. Female pediatricians scored higher on self-critical perfectionism (Z = -2.20, p = .028) and neuroticism (Z = -2.69, p = .007) and lower on openness (Z = -3.55, p <.001). Emergency medicine (EM) pediatricians scored lower on agreeableness (Z = -2.65, p = .008).

Multilevel Modeling: Physician Characteristics & Caregiver Satisfaction Scores (*Table 4*)

Four multilevel logistic regression models were fitted to account for the nested structure of caregiver care experience data where patients are nested within physicians. Model 1 indicates significant variability across intercepts (ICC = 0.122, σ^2 = 0.458 (0.09), p < .001) which confirmed the presence of clustering across physicians and justified the use of multilevel analyses. Model 2, which included only child level predictor variables, indicates that caregivers of patients who were Spanish speaking were more likely to provide a high physician care experience rating (OR = 1.69, p < .001).

Model 3, which included only physician level predictor variables, shows that higher extraversion (OR = 1.25, p = .005) and other-to-other compassion (OR = 1.11, p = .007) were associated with an increased likelihood of receiving a high experience rating. Lower agreeableness (OR = 0.63, p = .002), and lower narcissistic perfectionism (OR = 0.98, p = .016) were associated with an increased likelihood of receiving a high experience rating.

The fourth model included statistically significant child and physician predictor variables identified in models 2 and 3 and indicates that the odds of caregivers of Spanish speaking patients to provide a high experience rating were 75% higher than the odds for non-Spanish speaking patients. At the physician level, for every one-SD decrease in agreeableness and narcissistic perfectionism, the odds

of receiving a high experience rating increased by 41.5% and 1.2%, respectively. Also, the odds of non-EM pediatricians receiving high experience ratings were approximately 4.17 times higher than that of EM pediatricians.

Discussion

Under the conditions of this study, we found that parents or caregivers of patients who endorsed Spanish as their primary language were more likely to provide a high rating of their pediatrician. We also found, using multivariable modeling, that lower agreeableness and lower narcissistic perfectionism, and non-emergency medicine specialty increased the likelihood of a high rating by parents of pediatric patients.

Higher narcissistic perfectionism, which reflects a strong expectation for self-perfection and perfection in others, was associated with a decreased likelihood of receiving a high experience rating. Considering the qualities of the different perfectionism dimensions, one explanation for the current results may be that the expectations for others to be perfect and strong self-perfectionistic beliefs within the narcissistic perfectionism dimension may affect patient-provider interactions when navigating challenging patient situations as well as provider wellbeing. Despite the prevalence of perfectionistic culture within medicine,[31,32] limited data exist on the effects of perfectionistic traits on patient care and experience. Our findings suggest that certain characteristics of perfectionism may affect the patient experience and data from non-physician studies indicate that high levels of perfectionism may increase risk for burnout,[33] which can affect patient experience.[34] As such, the current results highlight the need to further explore the likely interacting effects of perfectionism and pediatrician wellbeing on patient experience.

Pediatrician personality also had an effect on caregiver experience ratings. Compared to large normative and physician samples,[14,29] our pediatrician sample endorsed higher levels of agreeableness and conscientiousness, lower levels of neuroticism, lower to comparable levels of openness, and

comparable levels of extraversion. The few studies that have examined the effects of physician personality on patient experience reported that openness and lower neuroticism were associated with higher satisfaction.[17,18] In our study, however, pediatricians who scored higher on agreeableness, which reflects a tendency to be more trusting, warm, compliant, and altruistic, had decreased likelihood of high caregiver experience scores. It is important to note that pediatricians in our sample reported *much* higher levels of agreeableness.[14,29] Therefore, our data may suggest that caregivers are not necessarily more satisfied with pediatricians who are lower on agreeableness, but instead more satisfied with pediatricians who possess more average agreeableness traits. Recent work on the potential 'dark' and 'bright'-sides of certain personality traits[35,36] may help further explain these findings. Exceedingly high levels of traits such as agreeableness and conscientiousness may have detrimental effects on physician wellbeing and performance, which may have a negative effect on patient experience.[14] Medical and personality literature posits that personality traits can change as a result of training, experience,[36,37] and social-contextual factors.[35,36] Taken together with the current findings, incorporating physician surveys and assessing associations among physician personality characteristics, system-level factors, and patient experience may help organizations better target modifiable drivers of patient experience through training and support.

Data from physician studies have previously reported a positive association between empathy and compassion and adult patient satisfaction.[38,39] Thus, the lack of a significant association between empathy and compassion and caregiver experience scores in our study is worthy of discussion. We indeed found that in the physician-level model, pediatricians that perceived others as being compassionate were more likely to receive higher patient experience ratings. This effect, however, was not significant in the multivariable model when including patient-level variables. A close examination of previous studies has revealed that they did not include patient related variables in their analysis. We submit that further work on this construct may help better explain these relationships.

It is also important to consider the effects of physician interpersonal and personality characteristics considering the significant effects of specialty and patient characteristics. In our sample, EM pediatricians were significantly more likely to receive a low rating. The EM pediatrician ratings in our study were comparable to rates reported in other pediatric studies.[40] Factors unique to the emergency setting including long wait times, visit acuity, and lack of an established relationship with the EM pediatrician could challenge patient care experiences ratings[41] and may have affected the current study results. Healthcare systems could use these results to focus additional resources towards improving satisfaction in these specialty areas and consider limitations of specific specialty care environments when establishing satisfaction goals for separate specialty areas. The patient-level results are consistent with previous work. Although data are mixed from adult care centers, data from pediatric studies also show that Hispanic/Latinx and Spanish-speaking families are more likely to endorse high satisfaction.[42] The current study was conducted within a health care system that is well-resourced to serve Spanish-speaking families and 38.5% of pediatricians in this study reported the ability to speak Spanish. Previous research indicates that language concordant care has a positive effect on patient experience,[43] which may have played a role in our study caregiver experience ratings and have implications for the generalizability of current results to other patient populations and medical settings.

The current results should be considered in light of potential limitations in the study design. Other studies have documented caregiver-child experience discordance but given the age range of our sample and inclusion of young children, child caregiver report was appropriate for this study. This study is unique in that we assessed satisfaction across pediatrician specialties, however the 45% pediatrician response rate paired with high pediatrician-reported agreeableness may have implications for response bias and generalizability of results. Further, the 27.9% caregiver response rate is comparable to other pediatric studies and the national HCHAPS response rate, however, recent research suggests that caregivers who are non-Latinx white and privately insured may be more likely to respond to patient

experience surveys.[44] Given the voluntary nature of the patient and physician surveys, self-selection biases and potential differences between responders and non-responders (e.g., respondent demographics, satisfaction with care)[45] have implications for the interpretation and generalizability of the current results. Other physician-level (e.g., knowledge and communication skills) as well as clinical (e.g., patient care time constraints, acuity) and patient encounter (e.g., continued care vs. single provider encounter, routine vs. surgical procedure encounter) factors not assessed in the current study may also have influenced caregiver ratings and warrant further examination.

Conclusion

The current results suggest that there may be a detrimental side of agreeableness and certain dimensions of perfectionism. The potential negative effects of higher agreeableness and narcissistic perfectionism highlight the importance of future work considering different dimensions of personality characteristics in the examination of drivers of pediatric patient experience. Current results may inform the development of individual and contextual-level interventions that address aspects of personality characteristics. Interventions could target aspects of the medical environment that may be reinforcing perfectionistic expectations surrounding performance and outcomes as well as provide individual support to providers to mitigate potential effects of perfectionism on provider wellbeing.

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Table 1. Pediatrician Sample Characteristics

	Mean (SD)
Age	44.57 (9.93)
	Median (IQR)
Patients Per Day	20.00 (15.00)
Years of Experience	10.00 (14)
	N (%)
Specialty	
General Pediatrician	12 (18.5%)
Emergency Medicine	23 (35.4%)
Hospitalist	2 (3.1%)
Subspecialist	15 (23.1%)
Surgery	13 (20.0%)
Gender	
Female	39 (58.2)
Male	28 (41.8)
Ethnicity	
Latinx/Hispanic	3 (4.6)
Non-Latinx/Hispanic	60 (92.3)
Prefer Not Answer	1 (1.5)
Race	
African American, Black	1 (1.5)
Asian, Pacific Islander	26 (40.0)
White	30 (46.2)
Multi-Racial	7 (10.8)
Prefer Not Answer	1 (1.5)
Spanish Speaking	25 (38.5)
	Mean (SD)
Empathy	122.0 (12.50)
Personality	
Extraversion	3.31 (1.22)
Agreeableness	4.11 (0.64)
Conscientiousness	4.28 (0.89)
Neuroticism	2.50 (1.13)
Openness	3.50 (0.70)
Perfectionism	
Rigid	24 (13.50)
Narcissistic	33 (9.00)
Self-Critical	32 (11.50)
Compassion	
Self-Self	9.00 (1.50)
Other-Self	12.0 (2.50)
Self-Other	17.0 (3.00)
Other-Other	13.00 (2.00)

Table 2. Patient Sample Characteristics

	Mean (SD)
Age	7.35 (5.31)
	N (%)
Gender	
Female	11,561 (43.3)
Male	15,135 (56.7)
Other	7 (<.01)
Primary Language	
English	19,736 (73.9)
Spanish	6,967 (26.1)
Race and Ethnicity	
African American, Black	331 (1.2)
Asian	1599 (6.0)
Hawaiian/Pacific	130 (0.5)
Hispanic [a]	76 (0.3)
Native American	30 (0.1)
White	12,408 (46.5)
Unknown	12,129 (45.4)

[a] Race and ethnicity were combined in the medical record. Population data indicate that 49.1% of children within the children's hospital's primary service area are Hispanic/Latinx.[46]

Table 3. Significant Pediatrician Demographic Effects on Interpersonal and Personality Traits

Pediatrician Variable	Female Mean (SD)	Male Mean (SD)	*Z*-value	*p*-value
Self-Critical Perfectionism (n=62)	37.00 (10.40)	31.73 (5.75)	-2.20	.028
Personality Factors (n=61)				
Neuroticism	2.71 (.83)	2.13 (.61)	-2.69	.007
Openness	3.32 (.45)	3.82 (.52)	-3.55	<.001
	EM Specialty	Non- EM Specialty		
Agreeableness Personality (n=61)	3.90 (.46)	4.22 (.42)	-2.65	.008

Table 4. Multilevel Logistic Regression Models

Fixed effects	**Model 1**	**Model 2 OR (95% CI)**	**Model 3 OR (95% CI)**	**Model 4 OR (95% CI)**
Patient Variables				
Spanish Speaking		1.69 (1.54-1.85)**		1.74 (1.59-1.90)**
Patient Age		1.00 (0.96-1.01)		
Pediatrician Variables				
Gender Male			1.14 (0.92-1.41)	
Age			1.01 (0.97-1.04)	
Years of Experience			0.99 (0.96-1.02)	
EM Specialty			0.26 (0.21-0.33)**	0.24 (0.20-0.29)**
Empathy			1.00 (0.99-1.02)	
Extraversion			1.25 (1.07-1.46)**	1.15 (0.99-1.34)
Agreeableness			0.63 (0.47-0.84)**	0.59 (0.46-0.74)**
Conscientiousness			0.84 (0.70-1.02)	
Neuroticism			0.96 (0.79-1.15)	
Openness			0.87 (0.71-1.07)	
Rigid Perfectionism			1.02 (0.99-1.04)	
Narcissistic Perfectionism			0.98 (0.96-0.9)*	0.988 (.98-.99)**
Self-Critical Perfectionism			1.00 (0.98-1.02)	
Self-Self Compassion			0.98 (0.91-1.05)	
Other-Self Compassion			1.01 (0.96-1.06)	
Self-Other Compassion			0.99 (0.94-1.05)	
Other-Other Compassion			1.11 (1.03-1.20)**	1.07 (0.99-1.14)
Random Effects				
Variance (SE)	0.458 (0.09)**	0.491 (0.09)**	0.123 (0.04)**	0.091 (0.03)**
ICC	0.122	0.119	0.033	0.024

** $p < .001$
* $p < .05$
EM indicates emergency medicine