Association of Demographics and Hospital Stay Characteristics With Patient Experience in Hospitalized Pediatric Patients

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Abstract
There is limited research on patient experience in hospitalized pediatric patients. Our aim was to investigate the association of patient demographics and hospital stay characteristics with experience in a tertiary-care, freestanding children’s hospital. We conducted a retrospective cross-sectional study of patient experience surveys. We designated the highest rating as “top-box” and examined data across 8 domains, including overall assessment (OA). A total of 4602 surveys were analyzed. Top-box percentages were lower for younger patients in 6 domains, including OA (0–<1 year old: 57.6%; 1–<4 years old: 61.3%; 4–<12 years old: 68.4%; ≥12 years old: 70.2%; \(P < .001\)), and were lower for patients with private insurance in 5 domains, including OA (private 63.2%, public 68.9%; \(P < .001\)). There was no association between other demographics (gender, race/ethnicity, primary language) and OA. Overall assessment was also not associated with length of stay (\(P = .071\)) and number of consulting services (\(P = .703\)). The most important domain predictor of OA was personal issues (odds ratio = 4.79), which assessed concern, sensitivity, and communication from staff. In conclusion, patient experience was associated with age and insurance status but not hospital stay characteristics.

Keywords
patient satisfaction, pediatrics, patient feedback, HCAHPS, survey data, communication

Introduction
Patient-centered care is defined as care that is “respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions” and is a key component of health care quality (1). Patient-centered care has been linked to improved patient compliance with agreed-upon treatment plans (2), more cost-effective health care (3), and willingness to return for subsequent care (4). Patient experience refers to any process observable by patients, including subjective experiences, objective experiences, and observations of physician and staff behavior (5). Patient experience surveys offer a standardized means by which hospitals can evaluate patient-centeredness and quality of delivered care (5,6).

In the adult literature, studies show that positive patient experience is associated with better clinical outcomes in patients with acute myocardial infarction (7) and decreased hospital readmission rates for acute myocardial infarction and pneumonia (8). One study reported an association between better patient experience and increased mortality (9), but a subsequent analysis found that the association was significant only for nonamenable deaths and not for amenable deaths (10). In other words, clinicians may provide more attention to and therefore foster a more positive experience for patients near the end of life (5).

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In pediatrics, there is a need to deliver both patient- and family-centered care. There has been a corresponding interest in measuring and assessing contributors to patient experience among children and their families. Most studies to date have examined patient experience in the pediatric ambulatory setting, assessing healthy children (11), children with special health care needs (12), and patients in pediatric subspecialty clinics, such as cardiology (13), oncology (14), neurology (15), nephrology (16), surgery (17), and otolaryngology (18,19). Generally, these studies strongly support that communication between patients, families, and healthcare staff is a strong predictor of patient experience.

A few studies have explored the association between patient experience and demographics in the pediatric inpatient setting, examining neonatal intensive care units (20,21), pediatric intensive care units (22), pediatric emergency departments (23), and entire children’s hospitals (24–27). An analysis of Child Hospital Consumer Assessment of Healthcare Providers (C-HCAHPS) data from a tertiary-care hospital demonstrated that lower overall patient experience was correlated with younger age (26), and an analysis of different pediatric inpatient experience data showed that lower patient experience across most domains was associated with medical patients (vs surgical) and repeat patients (vs first visit) (27). To our knowledge, the relationship between patient experience and hospital stay characteristics such as length of stay (LOS) and number of consultants has not been explored.

The primary aim of this study was to investigate the association of patient demographics and hospital stay characteristics with patient experience. We hypothesized that younger age, repeat visits to the hospital, increased LOS, and a higher number of consulting services would be associated with lower patient experience. The secondary aim was to evaluate the contribution of individual domains of patient experience to an overall measure. We hypothesized that the strongest predictors of overall patient experience would be the domains that pertained to communication between families and healthcare staff.

**Methods**

**Design**

This was a retrospective cross-sectional study of pediatric patient experience survey data from a single center between 2010 and 2016. The study was approved by the Arnold Palmer Hospital Institutional Review Board, with waiver of informed consent (# 1035985-1).

**Setting**

Our institution is a 158-bed, not-for-profit, teaching, tertiary-care freestanding children’s hospital in a major metropolitan area and includes the regional pediatric level-1 trauma center. Two weeks after discharge, patient experience surveys were sent by mail to all caregivers and/or guardians of patients discharged from our inpatient floors. Patients eligible to receive surveys included those who were hospitalized on a medical or surgical service in any area, including the general inpatient ward, stepdown unit, pediatric intensive care unit, and pediatric cardiovascular intensive care unit.

**Sources of Data**

Surveys used in this study were developed, collected, and managed by Press Ganey Incorporated, an independent, US-based patient experience research organization. Reading level of the survey is aligned with national recommendations (sixth- to eighth-grade level). Surveys were available in English and in Spanish for patients who reported Spanish as their primary language.

Each survey item was evaluated on a polytomous scale from 5 (very good) to 1 (very bad). A priori, it was determined that any survey item with ≥5% of missing data would be omitted from analyses. Two domains of patient experience (Meals and Family and Visitors) had all of their survey items meet this criterion and were omitted, likely because not all patients ate meals from the hospital or took advantage of the visitation policy. The remaining 8 domains (Admission, Discharge, Nursing Care, Personal Issues, Tests and Treatments, Your Child’s Physician, Your Child’s Room, and OA) included 39 total survey items; we removed 8 due to missing data, leaving a total of 31 survey items (Table 1). We linked survey data to patient demographic information (age, gender, race/ethnicity, primary language, insurance, in-state vs out-of-state, and first-visit patients vs repeat-visit patients) and hospital stay characteristics (LOS, number of consulting services).

**Data Management**

For each survey item, we designated a rating of 5 as “top-box” and designated all other ratings (1-4) as “not top-box.” The Centers for Medicare and Medicaid Services reports HCAHPS data nationally in this manner. We then developed a dichotomous outcome measure for each domain of patient experience by assigning a composite top-box rating when all survey items within the domain were rated as top-box. For example, the overall assessment (OA) outcome was assigned as top-box when all 4 items in the domain were rated top-box.

Gender, primary language, in-state versus out-of-state, and first-visit versus repeat-visit were used in their original form. A priori, age was stratified into a 4-level categorical variable (infants 0-<1 year old, toddlers 1-<4 years old, children 4-<12 years old, and adolescents ≥12 years old). Race/ethnicity was categorized into a 5-level variable for univariate analyses (Asian, Black, Hispanic, White, and Other) and dichotomized (white and non-white) for multivariate analyses. Insurance was dichotomized into private and public insurance. Private insurance included commercial insurance plans and self-pay; public insurance included Medicaid,
Table 1. Domains of Patient Experience and Survey Items.

| Patient experience domain | Survey item                                                                 |
|---------------------------|-----------------------------------------------------------------------------|
| Admission (3 items)       | Speed of admission process                                                  |
|                           | Courtesy of the person who admitted your child                              |
|                           | Courtesy of the person who took your personal insurance information*         |
| Discharge (3 items)       | Degree to which you felt ready to have your child discharged                 |
|                           | Speed of the discharge process after you were told your child could go home |
|                           | Instructions given about how to care for your child at home                  |
| Nursing care (6 items)    | Friendliness/courtesy of the nurses                                         |
|                           | Promptness in responding to the call button                                  |
|                           | Nurses’ attitude toward requests                                             |
|                           | Amount of attention paid to you and your child’s special or personal needs  |
|                           | Degree to which nurses kept you informed using language you could understand|
|                           | Skill of the nurses                                                         |
| Personal issues (9 items) | Staff concern for your and your child’s privacy                              |
|                           | Staff sensitivity to the inconvenience that a child’s health problems and hospitalization can cause |
|                           | Degree to which hospital staff addressed your emotional needs               |
|                           | Response to concerns/complaints made during your child’s stay*               |
|                           | Staff efforts to include you in decisions about your child’s treatment      |
|                           | Degree to which staff respected your knowledge of your own child            |
|                           | Staff concern not to frighten your child                                     |
|                           | How well your child’s pain was controlled*                                   |
|                           | Staff concern to make your child’s stay as restful as possible               |
| Tests and treatments (4 items) | Skill of person who took your child’s blood (eg, did it quickly, with minimal pain, and was responsive to child)* |
|                           | Skill of person who started IVs (eg, did it quickly, with minimal pain, and was responsive to child)* |
|                           | Concern for your child’s comfort during tests or treatments                  |
| Your child’s physician (6 items) | Degree to which tests and treatments were explained using language you could understand |
|                           | Time the physician spent with your child                                     |
|                           | Degree to which the physician kept you informed using language you could understand |
|                           | Physician’s concern for your and your child’s questions and worries          |
|                           | How friendly and caring the physician was toward your child                  |
|                           | Trust you had in your child’s physician                                     |
|                           | Your rating of the hospital*                                                |
| Your child’s room (4 items) | Appearance of room*                                                          |
|                           | Room cleanliness                                                            |
|                           | How well things worked (eg, TV, call button, lights, bed, etc)              |
|                           | Courtesy of the person who cleaned the room*                                |
| Overall assessment (4 items) | Overall cheerfulness of the hospital                                         |
|                           | How well staff worked together to care for your child                        |
|                           | Overall rating of care given at this hospital                               |
|                           | Likelihood of recommending this hospital to others                          |

*Caregivers rated items on a polytomous scale: 5 “very good,” 4 “good,” 3 “fair,” 2 “poor,” 1 “very poor.”

*Excluded from analyses due to ≥5% missing data.

Medicare, and other government insurance plans. Length of stay (<1, 1-2, 3-4, and ≥5 days) and number of consulting services (no consults, 1, and ≥2) were also stratified as categorical variables.

Statistical Analyses

Patient demographics, hospital stay characteristics, and top-box ratings by patient experience domain were reported as frequencies and percentages. Associations of demographic and hospital stay characteristics with patient experience were assessed with Pearson’s χ² or Fisher’s exact test.

Simultaneous multivariate logistic regression was used to determine whether top-box percentages were associated with demographic and hospital stay characteristics. Models were conducted with the full sample and separately for first-visit patients and repeat patients, since patient experience has been shown to differ for first-visit patients (27). Factors for model inclusion were selected based on clinical relevance and statistical significance from univariate analyses. Simultaneous multivariate logistic regression was also used to assess the predictability of the 8 domains of patient experience for OA. Final models with odds ratios (OR), 99.9% confidence intervals (CI), and standardized betas (β) were reported. To decrease type I error caused by the large number of comparisons, we selected P < .001 (2-tailed) as our threshold for statistical significance. SPSS version 25.0 was used for analyses.
| Variable                      | Sample (n = 4602) |
|-------------------------------|-------------------|
| Age, years                    |                   |
| Infants (0-<1)                | 858 (18.6)        |
| Toddlers (1-<4)               | 827 (18.0)        |
| Children (4-<12)              | 1478 (32.1)       |
| Adolescents (≥12)             | 1439 (31.3)       |
| Gender                        |                   |
| Female                        | 2169 (47.1)       |
| Male                          | 2433 (52.9)       |
| Race/ethnicity                |                   |
| Asian                         | 198 (4.3)         |
| Black                         | 523 (11.4)        |
| Hispanic                      | 166 (3.6)         |
| White                         | 2786 (60.5)       |
| Other                         | 929 (20.2)        |
| Primary language              |                   |
| English                       | 4405 (95.7)       |
| Spanish                       | 197 (4.3)         |
| Insurance                     |                   |
| Private                       | 2571 (55.9)       |
| Public                        | 2031 (44.1)       |
| State                         |                   |
| In-state                      | 4378 (95.7)       |
| Out-of-state                  | 224 (4.9)         |
| First or repeat visit         |                   |
| First                         | 3342 (74.1)       |
| Repeat                        | 1168 (25.9)       |
| Length of stay, days          |                   |
| <1                            | 281 (6.1)         |
| 1-2                           | 2550 (55.4)       |
| 3-4                           | 945 (20.5)        |
| ≥5                            | 825 (17.9)        |
| Number of consulting services |                   |
| No consults                   | 3377 (73.4)       |
| 1                             | 917 (19.9)        |
| ≥2                            | 308 (6.7)         |

*aFlorida  
*bkh = 4510.

**Results**

**Patient and Survey Data**

In total, 4602 surveys were included in analyses. The survey response rate was 8.9%. Most patients were between age 4 and 11 years old (32.1%), male (52.9%), white (60.5%), had private insurance (55.9%), were first-visit patients (74.1%), had a 1- to 2-day LOS (55.4%), and no consultations (73.4%; Table 2).

**Demographics and Hospital Stay Characteristics in Relation to Domains of Patient Experience**

Younger patients had lower top-box percentages in 6 domains of patient experience, including OA (0-<1 years old: 57.6%; 1-<4 years old: 61.3%; 4-<12 years old: 68.4%; ≥12 years old 70.2%; P < .001; Table 3). Patients with private insurance had lower top-box percentages than patients with public insurance in 5 domains, including OA (63.2% vs 68.9%, P < .001). Black patients (54.4% vs 39.8%-52.0% for other races, P < .001) and Spanish-speaking patients (61.5% vs 46.5% for English-speaking patients, P < .001) had higher top-box percentages in the domain Your Child’s Room. There were no associations with gender, in-state versus out-of-state, and first-visit versus repeat-visit patients.

Regarding hospital stay characteristics, patients with longer hospital stays had lower top-box percentages for nursing care (<1 day: 71.2%; 1-2 days: 65.0%; 3-4 days: 59.8%; ≥5 days: 59.7%, P < .001). Patients with a <1-day LOS had higher top-box percentages for Your Child’s Room (64.4%, all others 45.1%-47.0%, P < .001), but only 6.1% of patients had a 0- to 1-day LOS. No other domains demonstrated significant associations with LOS, including OA (<1 day: 73.0%; 1-2 days: 65.5%; 3-4 days: 65.3%; ≥5 days: 64.4%, P = .071). No domains were associated with the number of consulting services, including OA (0 consults: 65.4%; 1 consult, 65.9%; ≥2 consults, 67.8%, P = .703).

**Multivariate Analysis of Demographics and Hospital Stay Characteristics as Predictors of OA**

In the full sample, it was determined that age, insurance, and first-visit versus repeat-visit patient were the best predictors of OA (Hosmer and Lemeshow test, χ² (8) = 6.120, P = .634; Cox and Snell R² = .016; Nagelkerke R² = .023; Table 4). Toddlers (OR = 1.23, CI = 0.95-1.60), children (OR = 1.69, CI = 1.33-2.15), and adolescents (OR = 1.86, CI = 1.46-2.38) were more likely than infants (OR = 1.00, reference) to have top-box ratings for OA. Patients with public insurance versus private insurance were more likely to have top-box ratings for OA (OR = 1.34, CI = 1.13-1.58). Finally, repeat-visit patients (OR = 0.80, CI = 0.66-0.96) were less likely than first-visit patients to have top-box ratings. Age and insurance type were significant predictors for first-visit patients, but not for repeat patients.

**Multivariate Analysis of Domains of Patient Experience as Predictors of OA**

All domains of patient experience were statistically significant predictors of top-box percentages for OA (P < .001; Table 5). The domains of patient experience that most influenced OA were personal issues, which primarily included questions
Table 3. Top-Box Percentages for Domains of Patient Experience and Overall Assessment by Demographics and Hospital Stay Characteristics.

| Variable                      | Admission | Discharge | Nursing care | Personal issues | Tests and treatments | Your child's physician | Your child's room | Overall assessment |
|-------------------------------|-----------|-----------|--------------|-----------------|----------------------|------------------------|-------------------|--------------------|
| Age, years                    | Infants (0-<1) | 58.0%     | 43.1%        | 57.1%           | 3.08 .081            | 66.2% 1.63 .208     | 60.4% 0.07 .806   | 46.1% 2.53 .114   | 67.1% 4.52 .035  |
|                               | Toddlers (1-<4) | 57.6%     | 50.2%        | 60.9%           | 1.31 .256            | 52.8% 5.13 .002     | 68.1% 60.0%       | 48.4%              | 61.7%             |
|                               | Children (4-<12) | 60.6%     | 52.4%        | 64.9%           | 12.27 .15           | 50.6% 5.37 .252     | 63.4% 12.21 .016  | 55.4% 5.87 .209   | 39.8% 28.81 .001 |
|                               | Adolescents (≥12) | 65.6%     | 55.7%        | 66.3%           | 1.31 .165            | 56.9% 7.32 .014     | 73.2% 63.5%       | 50.2%              | 70.2%             |
| Gender                        | Female     | 60.6%     | 54.0%        | 63.8%           | 1.47 .233            | 62.3% 1.31 .256     | 52.8% 3.08 .081   | 66.2% 1.63 .208   | 60.4% 0.07 .806   | 46.1% 2.53 .114   | 67.1% 4.52 .035  |
|                               | Male       | 61.7%     | 52.2%        | 64.0%           | 1.31 .256            | 55.6% 5.13 .002     | 68.1% 60.0%       | 48.4%              | 61.7%             |
| Race/ethnicity                | Asian      | 55.4%     | 52.6%        | 58.2%           | 12.27 .15           | 50.6% 5.37 .252     | 63.4% 12.21 .016  | 55.4% 5.87 .209   | 39.8% 28.81 .001 |
|                               | Black      | 56.8%     | 50.1%        | 58.4%           | 12.27 .15           | 52.7% 5.13 .002     | 68.1% 60.0%       | 48.4%              | 61.7%             |
|                               | Hispanic   | 57.8%     | 58.5%        | 58.4%           | 12.27 .15           | 52.7% 5.13 .002     | 68.1% 60.0%       | 48.4%              | 61.7%             |
|                               | White      | 60.8%     | 52.5%        | 63.7%           | 12.27 .15           | 53.7% 5.13 .002     | 68.1% 60.0%       | 48.4%              | 61.7%             |
|                               | Other      | 61.7%     | 56.1%        | 66.3%           | 12.27 .15           | 57.0% 5.13 .002     | 63.7% 61.7%       | 50.2%              | 67.5%             |
| Primary language              | English    | 60.7%     | 54.4%        | 63.0%           | 1.47 .233            | 62.3% 1.31 .256     | 52.8% 3.08 .081   | 66.2% 1.63 .208   | 60.4% 0.07 .806   | 46.1% 2.53 .114   | 67.1% 4.52 .035  |
|                               | Spanish    | 51.6%     | 46.7%        | 56.0%           | 1.47 .233            | 55.6% 5.13 .002     | 68.1% 60.0%       | 48.4%              | 61.7%             |
| Insurance                     | Private    | 58.4%     | 50.1%        | 62.2%           | 1.47 .233            | 62.2% 1.31 .256     | 52.8% 3.08 .081   | 66.2% 1.63 .208   | 60.4% 0.07 .806   | 46.1% 2.53 .114   | 67.1% 4.52 .035  |
|                               | Public     | 64.6%     | 57.0%        | 64.4%           | 1.47 .233            | 58.4% 5.13 .002     | 68.1% 60.0%       | 48.4%              | 61.7%             |
| State                         | In-state   | 60.9%     | 52.0%        | 63.1%           | 1.47 .233            | 63.1% 1.31 .256     | 54.1% 1.70 .215   | 66.7% 10.43 .016  | 60.5% 2.53 .119   | 47.2% 0.66 .47   | 65.5% 1.9 .308   |
|                               | Out of state | 66.5%    | 55.4%        | 65.0%           | 1.47 .233            | 58.8% 5.13 .002     | 77.4% 55.0%       | 50.0%              | 69.1%             |
| First or repeat visit         | First stay | 62.0%     | 53.7%        | 63.2%           | 1.47 .233            | 62.3% 1.31 .256     | 52.8% 3.08 .081   | 66.2% 1.63 .208   | 60.4% 0.07 .806   | 46.1% 2.53 .114   | 67.1% 4.52 .035  |
|                               | Repeat     | 58.3%     | 51.0%        | 62.3%           | 1.47 .233            | 52.9% 3.08 .081     | 67.4% 61.6%       | 47.8%              | 63.9%             |
| Number of consulting services | No consults | 60.5%     | 54.4%        | 63.1%           | 1.47 .233            | 62.2% 1.31 .256     | 53.7% 3.68 .159   | 66.7% 1.44 .486   | 59.1% 6.13 .047   | 46.7% 2.33 .32   | 65.4% 0.71 .703 |
|                               | 1          | 62.3%     | 53.3%        | 65.5%           | 1.47 .233            | 65.5% 5.13 .002     | 68.1% 62.5%       | 49.0%              | 65.9%             |
|                               | ≥2         | 65.2%     | 50.0%        | 67.0%           | 1.47 .233            | 52.3% 5.13 .002     | 69.6% 64.7%       | 49.8%              | 67.8%             |
| Length of stay, days          | <1         | 62.8%     | 50.0%        | 71.2%           | 17.74 .001           | 62.0% 16.72 .001    | 76.5% 10.52 .015  | 65.4% 3.74 .291   | 64.4% 32.13 .001 |
|                               | 1-2        | 60.1%     | 54.4%        | 65.0%           | 17.74 .001           | 56.1% 56.1%         | 67.3% 60.3%       | 46.6%              | 65.5%             |
|                               | 3-4        | 62.2%     | 51.2%        | 59.8%           | 17.74 .001           | 50.7% 56.1%         | 66.0% 58.9%       | 45.1%              | 65.3%             |
|                               | ≥5         | 63.0%     | 49.2%        | 59.7%           | 17.74 .001           | 50.6% 56.1%         | 65.8% 59.7%       | 47.0%              | 64.4%             |

Bold values indicate statistically significant at P < .001.
older children, although the study did not specifically
pediatric otolaryngology clinic found that patient experience
with younger age (26). In addition, a study in an outpatient
demonstrated that lower patient experience was correlated
of patient experience (24, 28). Like our study, an analysis
patient age should be incorporated into case-mix analysis
health care staff toward patients.

related to concern, sensitivity, and communication from
health care staff toward patients.

Studies on C-HCAHPS in the United States show that
patient age should be incorporated into case-mix analysis
of patient experience (24, 28). Like our study, an analysis
of C-HCAHPS data from a tertiary-care children’s hospital
demonstrated that lower patient experience was correlated
with younger age (26). In addition, a study in an outpatient
pediatric otolaryngology clinic found that patient experience
was lowest for the 0- to 5-year-old age-group compared to
older children, although the study did not specifically
examine the infant population versus others (19). However, a study of multiple pediatric hospitals in Norway found that
patient age had weak or no associations with multiple domains of patient experience (25).

Lower patient experience was also associated with
patients having private insurance. In the outpatient setting,
a study of healthy children demonstrated no association
between patient experience and insurance (11), but a study
of children with special health care needs showed that fam-
ilies with public insurance were more likely to be dissatisfied
with care (12). Publicly insured patients with complex health
care needs may face more challenges obtaining adequate
care in the ambulatory setting, but this discrepancy may
disappear in the inpatient setting. In our study, privately
insured caregivers may have been more dissatisfied due to
different expectations for care for patients in the hospital.

In the domain your child’s room, higher patient experience
was associated with black and other races and Spanish as the
primary language, but there was no association between other
domains of patient experience and race/ethnicity. Conversely,
a previous study of C-HCAHPS among Medicaid patients
showed that nonwhites had generally lower patient experience
than whites, but the authors attributed this finding to language
barriers between health care staff, and non-English-speaking
patients in the Hispanic and Asian populations (29).

In our study, there was no association between primary
language and most domains of patient experience. Primary
language may not significantly influence experience as long
as there is language concordance. A study in a pediatric
surgery clinic found that Spanish-speaking families who
communicated with a Spanish-speaking medical team
reported higher experience and showed an improved under-
standing of information compared to those who commun-
icated via an interpreter or with an English-speaking team
(17), and a study in a pediatric intensive care unit found
similar patient experience among non-Latino families and
English-speaking Latino families (22). In our study, the lack
of differences between English and Spanish speakers may be
due to the small percentage of Spanish-speaking caregivers
who returned surveys, the fact that many of our Spanish-
speaking patients are bilingual, and the presence of health
care providers in our institution who speak Spanish.

Overall, the association between patient experience and
certain demographics deserves further investigation. Future
directions could include assessing expectations of patients
and families at the initial point of contact with health care, such as
admission to the hospital, and comparing these expectations
with their subsequent patient experience across demographics.

Longer LOS was associated with lower patient experience
for nursing care but not overall patient experience. Number of consulting services was not at all associated with
patient experience. In a study of long-stay adult surgical
patients, more consultations were associated with worse
satisfaction with physician communication (30). We
hypothesized that longer LOS and a higher number of con-
sulting services may create the potential for communication

### Table 4. Predictors of Overall Assessment for all Patients, First-Visit Patients, and Repeat-Visit Patients.

| Predictors                 | β    | P     | OR (99% CI) |
|----------------------------|------|-------|-------------|
| **All Patients**           |      |       |             |
| **Age**                   |      |       |             |
| Infants (0-<1) Reference   | 0.208| <.001 | 1.23 (0.95-1.60) |
| Toddlers (1-<4) Reference  | 0.526| <.001 | 1.69 (1.33-2.15) |
| Children (4-11) Reference  | 0.622| <.001 | 1.86 (1.46-2.38) |
| Adolescents (≥12) Reference|      |       |             |
| **Insurance**             |      |       |             |
| Private Reference          | 0.292| <.001 | 1.34 (1.13-1.58) |
| Public Reference           | 0.23 | .002 | 0.80 (0.66-0.96) |
| **First-Visit Patients**   |      |       |             |
| Infants (0-<1) Reference   | 0.152| .175  | 1.16 (0.93-1.45) |
| Toddlers (1-<4) Reference  | 0.579| <.001 | 1.79 (1.46-2.18) |
| Children (4-11) Reference  | 0.621| <.001 | 1.86 (1.51-2.28) |
| Adolescents (≥12) Reference|      |       |             |
| **Insurance**             |      |       |             |
| Private Reference          | 0.369| <.001 | 1.45 (1.24-1.68) |
| Public Reference           | 0.092| .459  | 1.09 (0.86-1.40) |

Abbreviation: OR, odds ratio. Bold values indicate statistically significant at P < .001.

### Table 5. Domains of Patient Experience as Predictors for Overall Assessment.

| Predictors                  | β    | P     | OR (99% CI) |
|-----------------------------|------|-------|-------------|
| **Admission**               | 0.817| <.001 | 2.26 (1.59-3.23) |
| **Discharge**               | 0.469| <.001 | 1.60 (1.08-2.36) |
| **Nursing care**            | 0.987| <.001 | 2.68 (1.85-3.90) |
| **Personal issues**         | 1.567| <.001 | 4.79 (3.12-7.36) |
| **Tests and treatments**    | 0.848| <.001 | 2.33 (1.60-3.41) |
| **Your child’s physician**  | 0.486| <.001 | 1.63 (1.11-2.39) |
| **Your child’s room**       | 1.025| <.001 | 2.79 (1.90-4.10) |

Abbreviation: OR, odds ratio. Bold values indicate statistically significant at P < .001.
errors, but in this study, these hospital stay characteristics did not significantly influence patient experience. Perhaps the potential for communication errors was offset by increasing familiarity and camaraderie with the staff and the additional attention that patients would receive from multiple subspecialists during a long hospital stay.

Among the domains of patient experience we examined, we found that personal issues was the most significant driver of OA. Although our survey designated the domain as personal issues, items in the domain pertained more to concern, sensitivity, and communication from health care staff toward patients. While all the domains included a few questions related to communication, personal issues particularly addressed emotional needs, response to complaints, and efforts to include family members in decision-making. This finding is consistent with a qualitative study of family-centered care in a pediatric emergency department, which found that families most value aspects of care such as emotional support, coordination, communication, respect for preferences, and involvement of the patient and family in care decisions (31). Another study in a pediatric emergency department found that the most significant predictor of overall experience was being “informed about delays,” and the most significant predictor of overall dissatisfaction was “perceived poor staff sensitivity to concerns” (23). Similar results were found in studies in pediatric subspecialty clinics, where the strongest correlates to overall experience include the cheerfulness of the practice, a cohesive staff, and a care provider explaining problems and conditions (13–15). The second-most important driver of OA was your child’s room. Studies in adult hospitals have also found that improved room amenities and cleanliness were associated with higher patient experience (32,33). The category of nursing care was the third-most important driver of OA, perhaps because many items in personal issues were directly addressed by nursing (eg, staff concern not to frighten your child). Nursing care has been shown to correlate strongly with overall satisfaction in adult hospitals (4). Children’s hospitals could thus improve patient experience by focusing resources on improving sensitivity and communication from staff toward families, hospitality, and nursing care.

Additional limitations include the fact that these data are from a single center in a specific region of the United States, limiting the generalizability of the results. Patient experience ratings for freestanding teaching hospitals such as ours are generally higher than those for nonfreestanding and nonteaching hospitals (24). Many of the differences seen in top-box percentages across demographics were statistically significant, but the absolute magnitude of the differences was generally low. Although Press Ganey is well known, many institutions (including ours since the completion of this study) have transitioned to C-HCAHPS. The surveys are similar; both include domains such as communication with caregivers and patients from physicians and nurses, attention to safety and comfort, hospital environment, and an overall rating (28).

Conclusion

Among pediatric inpatients, lower patient experience is associated with younger patient age and having private insurance. Hospital stay characteristics including LOS and number of consulting services were not associated with overall patient experience. The most significant predictors of an overall measure of experience include concern, sensitivity, and communication from staff, hospitality, and nursing. Children’s hospitals could improve patient experience by targeting initiatives to patients at risk for low levels of experience and focusing efforts on improving communication between families and staff.

Declaration of Conflicting Interests

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Strengths and Limitations

Strengths of this study include its large sample size. The primary limitation is the possibility of nonresponse bias. Our survey response rate of 8.9% was comparable to the Press Ganey American Hospital Association Region 4 (Southeast Region) rate of 8.4% (34). In a previous study of C-HCAHPS from a tertiary-care children’s hospital, respondents compared to nonrespondents were more likely to be white, non-Hispanic, and privately insured (26). Nonetheless, our findings remain important, since our sample represents surveys that institutions use for quality and benchmarking. Until hospitals make significant strides to obtain more representative samples, it remains imperative to evaluate our existing data.
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