



2020

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Recommended Citation

Barden A, Giammarinaro N, Bashkin N, Lutsky L. Development and reliability of a patient experience inventory tool for hospitals. *Patient Experience Journal*. 2020; 7(1):100-104. doi: 10.35680/2372-0247.1396.

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Cover Page Footnote

The authors thank the participating hospital leaders, physicians, team members and patient and family partners for their participation. The authors also gratefully acknowledge the expert opinion of Kevin Masick from the Northwell Health Krasnoff Quality Management Institute, Claudine Cangiano, Northwell Health for her involvement and Sven Gierlinger, Northwell Health Chief Experience Officer for his ongoing support. This article is associated with the Policy & Measurement lens of The Beryl Institute Experience Framework. (<http://bit.ly/ExperienceFramework>). You can access other resources related to this lens including additional PXJ articles here: http://bit.ly/PX_PolicyMeasure

Development and reliability of a patient experience inventory tool for hospitals

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Abstract

This study explores the development and reliability testing of the newly developed Patient Experience Inventory for Hospitals (PXI-H). Created as an organizational self-assessment patient experience tool, it guides healthcare leaders in evaluating attitudes and behaviors as well as structures and programs impacting patient experience within a hospital setting. The PXI-H is organized within four pillars: Leadership, Education and Development, Data and Analytics and Patient-and-Family Centeredness, which were determined to be internally consistent based on examining coefficient alphas and the item-total correlations. Principal component analysis also determined items with highest loadings aligned onto the pillars in which there were assigned, confirming the hypothesized factor structure.

Keywords

Patient experience, inventory, hospital, self-assessment, reliability

Introduction

Patient experience has become a steadfast area of prioritization attributable to the shift from volume to value-based purchasing.¹ Acute-care hospitals are incentivized based on patient experience, clinical care, safety, efficiency, and cost reduction, each accounting for twenty-five percent of payment adjustments.² The Institute for Healthcare Improvement's (IHI) Always Event Framework® focuses on hardwiring optimal patient experience practices and behaviors that are important, evidence-based, measurable, affordable, and sustainable.³ Alongside policy changes and payment restructuring, the ideology of consumerism within the healthcare continuum has led industry leaders to realize patients are empowered by choice and ultimately, experience, is a differentiator within the highly competitive market.⁴

Northwell Health is a large, integrated healthcare system inclusive of 23 hospitals and 650+ medical practices spanning across New York State. With over 70,000+employees, the organization's mission is to improve the health and quality of life for the people and communities we serve by providing world-class service and patient-centered care. The Northwell Health corporate Office of Patient & Customer Experience (OPCE) aims to inspire, challenge and lead the organization to design and deliver experiences our patients and customers desire. At each site, service line and major shared service entity, there is a dedicated patient experience leader, known as the

Culture Leader, responsible for driving local patient experience strategy around the tenants of culture, care delivery, hospitality and, accountability.⁵

Alongside cultural transformation efforts, the OPCE was determined to systematically perform a baseline assessment – a state of patient experience culture and processes across our system's hospitals. A review of literature sought to identify tool(s), completed by the local interdisciplinary healthcare team, to self-assess attitudes and behaviors as well as structures and programs impacting patient experience. Although assessment tools exist for specific focus areas, such as patient-and-family centeredness and data,^{6,7} there were no tools that we believed captured the full depth and breadth of an operationalized patient experience strategy. A lack of robust findings led to the development of the Patient Experience Inventory for Hospitals (PXI-H). The tool provides insight into key patient experience areas of strength and opportunity and may be beneficial when creating and/or updating patient experience strategic plans and performance improvement efforts.

The purpose of this study was to explore the reliability of the PXI-H as an organizational self-assessment patient experience tool. The specific objectives were to (1) determine if the PXI-H contains the four pillars, as identified, (2) examine the internal consistency of the PXI-H subscales and, (3) consider potential process improvement changes based on study outcomes.

Methods

Development of the PXI-H

The OPCE developed the PXI-H within the construct of four major pillars: Leadership, Education & Development, Data & Analytics, and Patient-and-Family Centeredness. These categories mirror our organization’s patient experience strategy, represent the comprehensive nature necessary for excellence, and aligns with many of the certification of patient experience professional (CPXP) exam domains.⁸ The PXI-H includes 50 specific individual prompts representing core concepts. In developing the prompts, we focused on language that was brief, clear, concise and reflective of the desired future state. In essence, in obtaining a baseline assessment, we were measuring ourselves against established best practices. For example, the PXI-H question within the Leadership category, one prompt reads: “The facility’s strategic plan aligns patient experience, engagement, quality, and safety.”

When developing the PXI-H, two measurement subscales emerged. To assess attitude and behavior, a four-point Likert agreement scale was used, “Strongly Disagree, Disagree, Agree and Strongly Agree.” This enabled each individual completing the tool (“rater”) to provide personal perceptions of foundational patient experience concepts in practice. To measure structure and program implementation, a 5-point maturity scale was created to include the response choices, “Not Doing, Planning Phase, Just Starting (0-6months), Implemented (7-12months) and Implemented and Sustained (over 12 months).” We chose to use this maturity scale to capture implementation timeframes to reinforce that patient experience is an evolving journey. For both sub-scales, an additional response option for “Unknown/Not Applicable” was available. Raters also had the opportunity to provide additional comments through the survey through an open-text space.

Implementation of the PXI-H

Seven Northwell acute care hospitals were selected to participate in this study. Each hospital’s Executive Director (i.e., CEO) and Culture Leader were instructed to select raters based on recommended selection criteria which include diverse roles and responsibilities inclusive of executives, unit/departmental leaders, physicians and

frontline team members, patients and family members. Also, both employees and patient and family members were required to have been employed or active members of the respective hospital’s Patient & Family Partnership Council for at least 12months. This timeframe was essential to define so that raters could objectively attest to programs being “*Implemented and Sustained*” on the maturity scale.

To maintain rater anonymity, the PXI-H was developed within an e-survey platform using a public hyperlink. The OPCE provided Culture Leaders with an email communication which they, in turn, emailed to the selected raters. We chose this methodology because we believed raters would be more trusting and forthcoming in participating if the invitation came from a colleague. The communication included an overview of the PXI-H and the survey hyperlink. To allow for hospital-specific analysis, raters self-identified their hospital and current role from pre-populated drop-down lists. Their role selection, inclusive of C-Suite leader, physician, director, manager/supervisor, staff member, and patient/ family member-initiated survey logic to allow for stratification of results. For example, when a rater self-selected “Patient/Family Member,” embedded survey logic directed them to only complete the Patient & Customer Centeredness category (a total of 18 questions) due to them not having the necessary access, knowledge nor experience to accurately assess the remaining three categories. At the end of the survey, a statement of consent was presented and by the rater clicking “Submit,” they allowed to have their responses aggregately analyzed. Rater participation was voluntary and data collection occurred over a six-week period.

Results

Across the seven hospitals, a total of 380 individuals completed the PXI-H. The study sample was classified into three groups based on self-identification: 1 – Leadership, inclusive of selected role “C-Suite, physician, director and manager/supervisor” (n= 258; 67.9%), 2 – Team, as “staff member” (n= 102; 26.8%) and 3 - Patient or Family Member, as “patient/family member” (n=20; 5.3%) (Table 1). Analyzing all responses as aggregate data, the internal consistency for both PXI-H subscales was

Table 1. Demographic data for question “Select which statement best reflects your current role.”

Group	Current Role	Frequency	Percent	Cumulative Percent
Leadership	I am a C-suite leader	36	9.5	9.5
	I am a physician	22	5.8	15.3
	I am a director	95	25.0	40.3
	I am a manager/supervisor	105	27.6	67.9
Team	I am a staff member	102	26.8	94.7
Patient/Family Member	I am a patient/family member	20	5.3	100
	Total	380	100	100

Table 2. Internal Consistency – Coefficient Alpha

Scale	# Items	Alpha	Item with highest correlation	Item-total correlation	Item mean ¹	Item variance	N size
Leadership Attitude	6	.871	The executive team (C-suite) prioritizes patient experience. - The executive team (C-suite) role models Culture of C.A.R.E./organization's patient experience framework	.771	3.63	.393	303
Leadership Behavior	3	.902	A patient story is shared.	.838	4.68	1.46	302
Education & Develop Behavior	10	.672	Behavioral competencies for the C.O.N.N.E.C.T. model/organization's communication model are completed for all patient and customer-facing staff, at least yearly.	.529	4.81	.947	277
Data & Analytics Attitude	8	.885	Staff can verbalize their unit/departmental-level patient experience targets.	.774	3.35	.764	269
Data & Analytics Behavior	4	.696	Patient experience performance improvement efforts are data driven, both quantitatively and qualitatively. - Teams utilize process improvement methodologies (i.e., Six Sigma)	.569	4.83	1.09	266
Patient & Fam Center Attitude	7	.812	The physical environment is patient and family centered, promoting health and well-being. - There are programs in place to reduce noise and promote rest/respite for patients and families.	.638	3.43	.452	263
Patient & Fam Center Behavior	11	.793	Technology is utilized to support patient-centered care delivery. - Patients are educated regarding available digital resources to support their care	.569	4.89	1.89	266

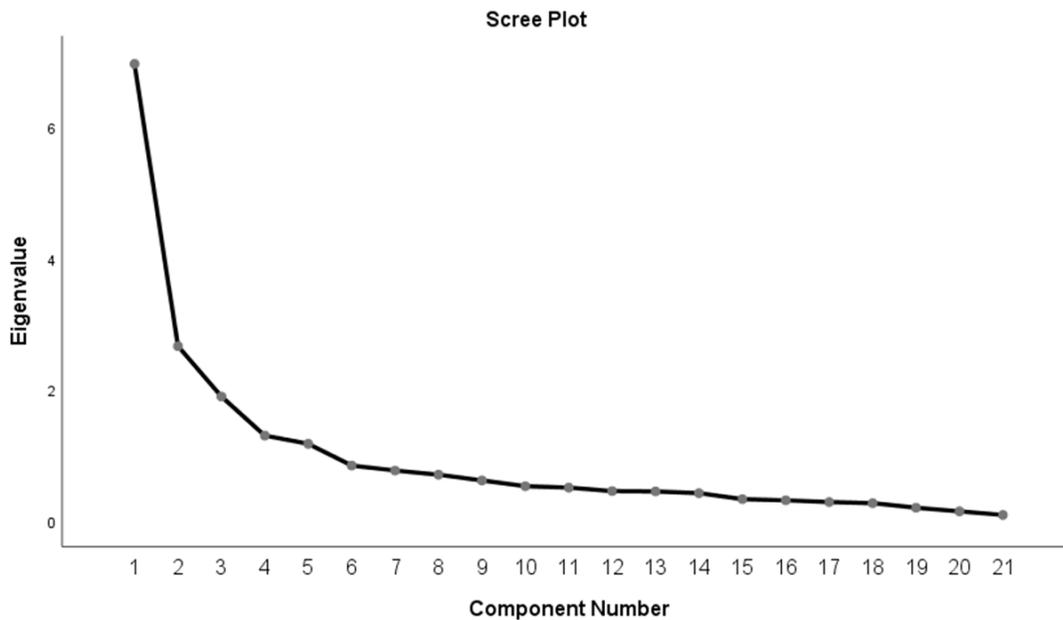
¹Mean for items within each scale. Attitude based on 1-4 point scale and Behavior based on 1-5 point scale.

then explored by examining coefficient alphas and item-total correlations. Coefficient alphas ranged from .696 to .902, which are all within an acceptable range, indicating the subscales were highly interrelated and internally consistent (Table 2).

Next, we subjected the items to a principal component analysis (PCA) using a varimax rotation to determine the loadings of the individual items to the pillars to which they were assigned. Each subscale was analyzed separately. For attitude, the Kaiser-Meyer-Olkin measure of sampling adequacy was .85, above the commonly recommended

value of .6, and Bartlett's test of sphericity was also significant ($\chi^2(210) = 2,867.13, p < .001$). This indicates sampling was adequate for factor analysis. The results best fit in a 3-factor solution and utilizing a rotated component matrix analysis, items loaded high ($\geq .4$) on the pillars to which they were originally assigned (Figure 1). The three components explained over half (55%) of the total variance. The first component consisted of Data & Analytics, the second consisted of Leadership, and the third consisted of Patient & Family Centeredness. There were only two cross-loadings of .3 or above, both within the third component.

Figure 1. Attitude Subscale Scree Plot



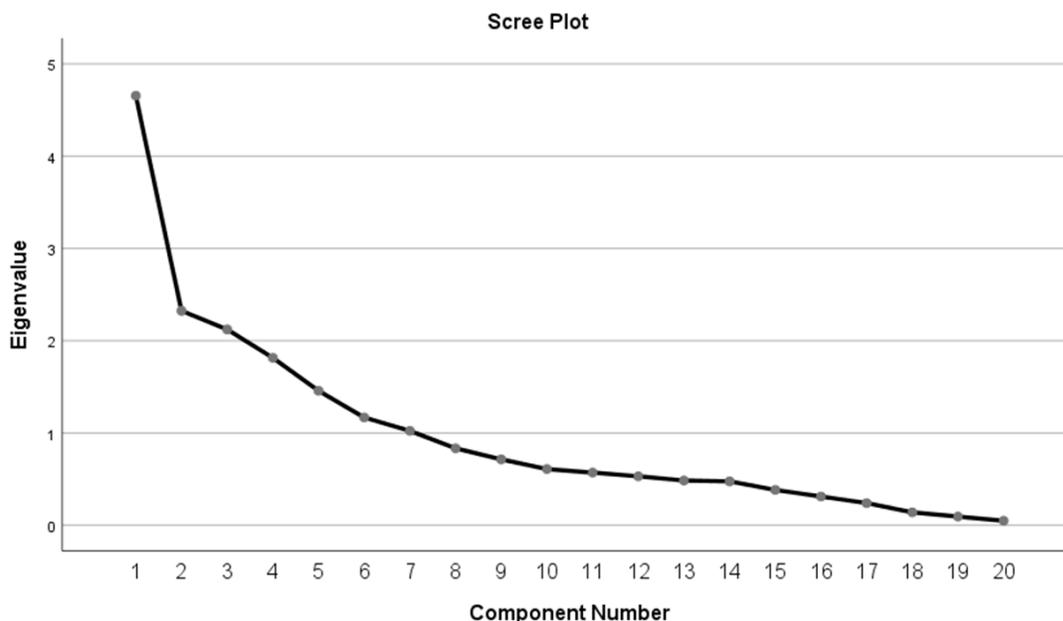
For behavior, the Kaiser-Meyer-Olkin measure of sampling adequacy was .71, again above the commonly recommended value of .6, and Bartlett’s test of sphericity was significant ($\chi^2(190) = 2,577.74, p < .001$). The results best fit in a 2-factor solution which explained about 35% of the variance (Figure 2). The first component was a hybrid of items from all three pillars, while the second

component comprises only three Education & Development items.

Discussion

Organizations often rely heavily on publicly reported data (i.e., HCAHPS) to measure patient experience progression and achievement. Developing and implementing the PXI-

Figure 2. Behavior Subscale Scree Plot



H provided a unique opportunity for our organization to objectively measure the state of patient experience programming. By tapping into our internal stakeholders, we gained valuable insight into key areas that ultimately influence and effectuate patient experience. In reviewing rater demographics, 67.9% of raters self-identified as “leadership.” To uphold a comprehensive and holistic perspective, there may be an opportunity to expand the number of “team” and “patient and family member” raters in future research.

When analyzing internal consistency, the items loaded more in alignment with the pillars to which they were assigned on the attitude subscale than the behavioral subscale. This finding was relatively expected given the diverse maturity of patient experience programming and implementation across the organization. Due to the nature of mergers and acquisitions, our hospitals are engrained with individual and rich culture, atmosphere and historical narrative. We had a sense that some hospitals were further along in their journey to patient experience excellence than others. The PXI-H confirmed initial thoughts and honored such innate differences while holding them accountable to leadership, education, data awareness, and patient-centered best practices.

The study hospitals utilized the PXI-H results to help guide local strategic planning and performance improvement efforts. Areas of opportunity were clearly identified, and in some instances, findings served as positive reinforcement, confirming that their focus areas were gaining traction and awareness. Since the PXI-H has a maturity component, we have recommended our teams periodically complete the tool as a means of re-assessment and monitor progress against goals over time. There are future plans to explore the validity of the PXI-H and any correlations to HCAHPS performance.

Tenants and key drivers of patient experience tend to be universal. We believe the PXI-H can be transferable to other healthcare organizations, by referencing their specific patient experience framework and supportive models within the tool. The healthcare landscape is complex and ever evolving. In order to adapt to future unknowns, an understanding of current state performance informs strategic planning. Organizational self-assessments, like the PXI-H, may be extremely valuable in this process as it provides candid insights, benchmarks and a gap analysis. Ultimately, the goal is to provide patients and families with high-quality, compassionate care. By investing time in listening to the ‘voice’ of key stakeholders, can organizations achieve that overarching promise.

Ethics Approval

The study protocol was reviewed by the Northwell Health Institutional Review Board and met the criteria outlined in

45 CFR 46.101 for EXEMPTION. The following category applies to the project: Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects’ responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects’ financial standing, employability, or reputation.

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