

Impact Assessment of Patient Experience Capacity-Building Program Using Kirkpatrick Model for Program Evaluation at a Regional Healthcare System

Muhammad Hasan Abid^{1,2}, Nada Al Shehri^{2,3}, Shaikh Muhammad Saif Ud Din⁴, Mahmood Mir⁵, Jamal Al Nofeye¹

¹Continuous Quality Improvement and Patient Safety Department, Armed Forces Hospitals Taif Region, Taif, Saudi Arabia

²Regional Patient Experience Division, Armed Forces Hospitals Taif Region, Taif, Saudi Arabia

³Intensive Care Unit, Armed Forces Hospitals Taif Region, Taif, Saudi Arabia

⁴Infection Prevention and Control Department, Armed Forces Hospitals Taif Region, Taif, Saudi Arabia

⁵Department of Marketing, Retail, and Tourism, Manchester Metropolitan University Business School, Manchester, UK

Address correspondence to Muhammad Hasan Abid (MuhammadHasan_Abid@alumni.harvard.edu).

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ABSTRACT

Introduction: The patient experience (PX) is central to improving the quality of healthcare services. We launched a PX capacity- and capability-building program at the Armed Forces Hospitals Taif Region, which is integral to our regional healthcare cluster transformation plans and is an initial step toward developing a culture of improvement in human experience in healthcare. **Methods:** A multidisciplinary PX committee recruited five frontline interprofessional PX heads, one from each of our regional healthcare hospitals. The Kirkpatrick model for program evaluation was used to assess the impact on four key levels: reaction, learning, behavior, and results. A pre-program competency assessment was conducted to evaluate the level of expertise across various PX competencies, and a program curriculum was developed accordingly. Participants underwent an intensive workshop-based PX capacity-building training program. A post-program competency assessment was performed along with a post-program survey. The PX-related activities led by interprofessional frontline PX heads at their respective hospitals' post-programs were tracked. The impact on the regional PX mean score across various settings, including inpatient, outpatient, and emergency settings, was measured using Press Ganey PX surveys. Our work is reported in accordance with the SQUIRE-EDU guidelines of the EQUATOR network. **Results:** The PX capacity-building program led to a significant improvement in participants' expertise across various PX competencies. Significant improvements beyond the strategic targets were observed in the PX mean score in inpatient departments pre-program (83.31) vs. post-program (86.34), with a p -value of < 0.001 across the regional healthcare system. **Conclusion:** The PX capacity-building program is a first step toward major cultural change amid the healthcare cluster transformation in our regional healthcare system. The Kirkpatrick model helps evaluate the impact of PX capacity- and capability-building training programs comprehensively through an organizational approach. Sustainable improvements in PX over a long period through a capacity-building program alone remain challenging.

Keywords: patient experience, patient satisfaction, physician-patient relations, communication, patient-reported outcome measures, patient-centered care, medical education, interprofessional education, leadership, Kirkpatrick model

INTRODUCTION

Patient experience (PX), as articulated by The Beryl Institute, encompasses the totality of interactions within a healthcare setting. It is a nuanced interplay shaped by the prevailing organizational culture, influencing how patients perceive their care journey across the entire continuum of healthcare services.^[1] Acknowledged as a fundamental element, PX is integral to the broader framework of patient-centered care—a cornerstone of healthcare quality, as delineated in the influential 2001 Institute of Medicine report titled “Crossing the Quality Chasm.”^[2] In the pursuit of enhancing PX, various strategies and approaches have been explored within the healthcare landscape. These initiatives often aim to fortify the capacities and capabilities associated with PX domains, seeking to refine the overall PX.^[3–6] Despite the numerous approaches for improving PX, there appears to be a scarcity of targeted training programs specifically designed to cultivate PX capacity and capability within the interprofessional cadre of frontline healthcare staff in Saudi Arabia.^[3–6] This gap in PX training programs raises critical questions about the strategic deployment of resources in the Saudi Arabian healthcare system to improve PX. The interprofessional groups, representing various disciplines and roles at the frontline, are pivotal in shaping the daily experiences of patients. Therefore, an emphasis on their capacity and capability development regarding PX is paramount.

“Providing a distinguished PX” is a key strategic pillar embedded in the target operating model of the Armed Forces Hospitals Taif Region’s (AFHT’s) healthcare system cluster transformation. During Q1-2021, the AFHT regional healthcare system Press Ganey (PG) PX survey results for the PX mean scores for the inpatient and emergency departments were 80.59 and 62.02, respectively (Fig. 1). These PX mean scores are considerably below the AFHT 2020–2022 strategic targets for PX mean scores of 85.38 and 63.92 for the inpatient and emergency departments, respectively. An additional gap around developing a culture to improve the human health experience was identified during the initial AFHT regional healthcare system-wide diagnostics through multiple focus groups with leadership, staff, and patients. This was a proximate stimulus for the regional continuous quality improvement and patient safety department (CQI and PS), coupled with the decline in the PX survey regional PX mean scores during Q1-2021, to implement a comprehensive PX capacity-building program as part of multiple strategies to improve the PX across the regional healthcare system at AFHT.

The presence of interprofessional frontline PX leaders across a healthcare organization is crucial for developing a sustainable PX culture that continuously strives to improve the human experience in healthcare proactively.^[7] By strategically integrating PX capacity and capability development into a broader healthcare framework, the AFHT can enhance the quality of care, fortify patient-

centered practices, and ultimately elevate the overall healthcare experience for its diverse patient population. This study aims to develop and implement a PX capacity-building training program to train future interprofessional frontline PX heads to improve the PX survey mean score beyond the strategic target across the AFHT regional healthcare system by the end of Q1-2022.

METHODS

This quality improvement project was exempt from organizational ethics committee approval.

Study Setting

The AFHT has five hospitals (705 beds in total): one tertiary care academic medical center, two community hospitals, one behavioral health center, and one rehabilitation center. A project team of the regional PX head, CQI & PS - PX head, and CQI & PS Director under the executive sponsorship of the regional leadership work closely to provide strategic alignment and improvement of PX across the regional healthcare system. As such, there was no local hospital-based PX improvement network of interprofessional frontline staff across the AFHT regional healthcare system at the outset of our PX capacity- and capability-building program.

Interventions

During Q2-2021, we launched a PX capacity-building program by recruiting an interprofessional group of one frontline PX head per hospital in our region via a rigorous approach that included formal interviews, focus groups, and hospital leadership reviews. Each PX head completed a pre-program assessment to determine their baseline expertise across various PX competencies. An interprofessional curriculum was developed based on the needs identified from the pre-program assessment in collaboration with multiple PX expert advisory panels from the region and central corporation. The PX heads were trained through an intensive workshop-based PX capacity-building program at our regional CQI and PS departments for 6 weeks. The program comprised three intensive workshop sessions every fortnight, along with self-learning and PX project-based assignments at the individual PX head hospitals between each workshop session.

A pre-post quasi-experimental study design was chosen to measure the impact of this workshop-based PX capacity-building program intervention on PX head expertise across various PX competencies, as well as the PG PX survey PX mean scores across the AFHT regional health system. The evaluation of the implementation effectiveness and impact of the PX capacity-building program was guided by the four-level Kirkpatrick model for program evaluation: reaction (Kirkpatrick Level 1), learning (Kirkpatrick Level 2), behavior (Kirkpatrick Level 3), and results (Kirkpatrick Level 4).^[8]

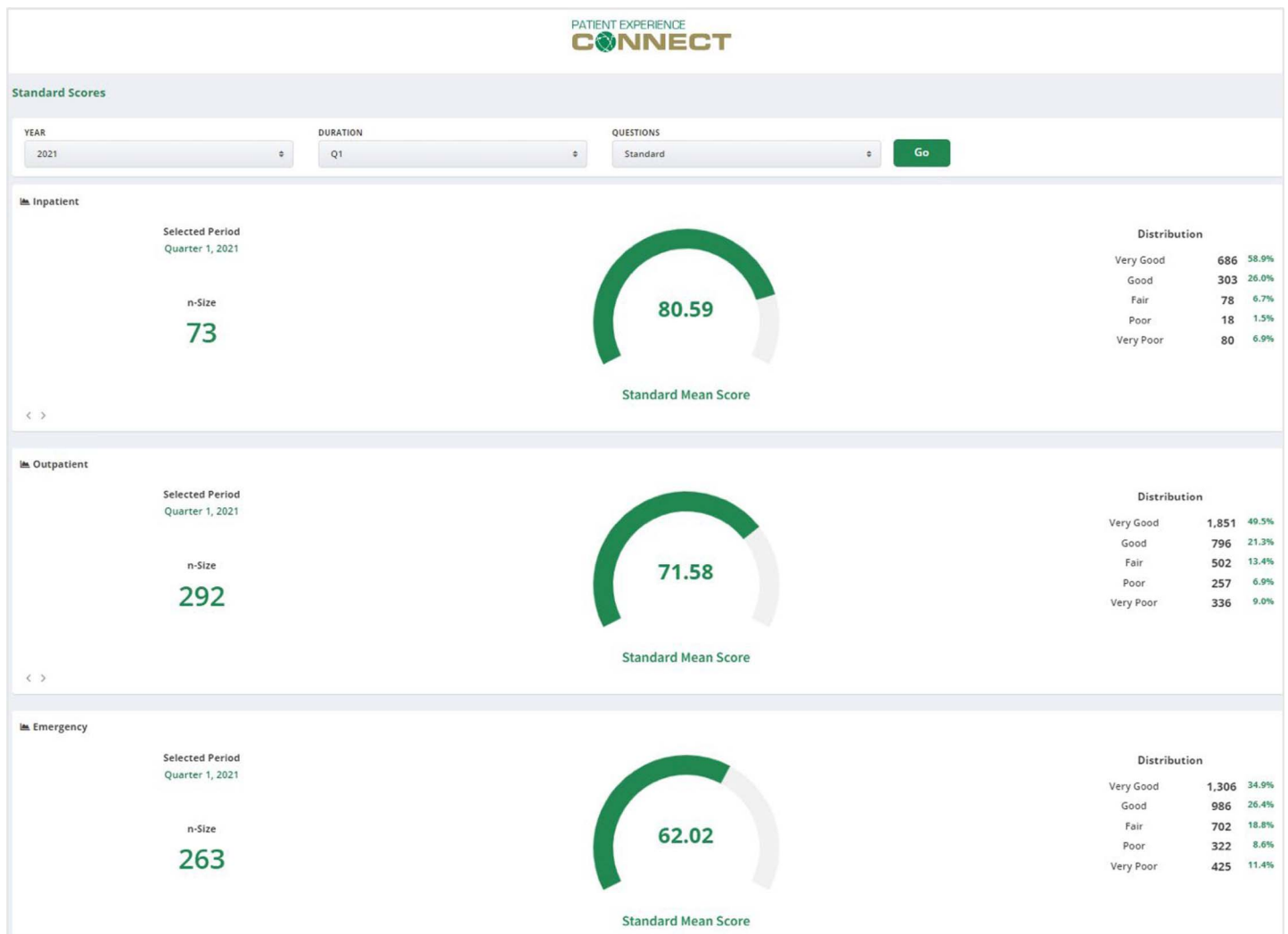


Figure 1. Armed Forces Hospitals Taif Region patient experience mean scores at inpatient, outpatient, and emergency department for Q1-2021 (pre-program) as reported through Press Ganey Patient Experience Survey.

Measures

Data were collected through the PG PX survey—a reliable and validated instrument—to assess the impact of PX capacity-building program on the AFHT regional PX mean score (Supplemental Table S1, available online).^[9] A third party (PG) conducted separate surveys with a randomized sample of patients discharged from AFHT inpatient, outpatient, and emergency departments, and quarterly reports of the survey results were generated. The project team conducted a pre- and post-program survey to assess the impact and effectiveness of the PX capacity-building program on interprofessional frontline PX heads trained in the program. *Balancing measures*, including Kirkpatrick Level 1—reaction (trainees felt it was a valuable experience), were ascertained using a structured post-training survey. *Process measures* included Kirkpatrick Level 2—learning (did you impart the desired knowledge and achieve the educational objectives), measured using the pre-program and post-program self-assessment surveys on PX competencies, and Kirkpatrick Level

3—behavior (trainees applying the new knowledge-changing behavior), determined using the post-program survey. *Outcome measures* included Kirkpatrick Level 4—results (impact on the regional PX mean scores across inpatient, outpatient, and emergency department settings), as reported by the PG PX survey.

Analysis

A descriptive analysis was conducted on the survey responses elicited from interprofessional frontline PX heads trained during the PX capacity-building program, reporting the top-box percentages for the Kirkpatrick Level 1—reaction (balancing measure) and Level 3—behavior (process measure) domains. Furthermore, for the Kirkpatrick Level 2—learning (process measure), an intricate evaluation of the interprofessional frontline PX heads' proficiencies across diverse PX competencies ensued, using a Likert scale encompassing classifications of *expert*, *highly experienced*, *analysis and application*, *basic application*, *knowledge*, and *no knowledge*. To

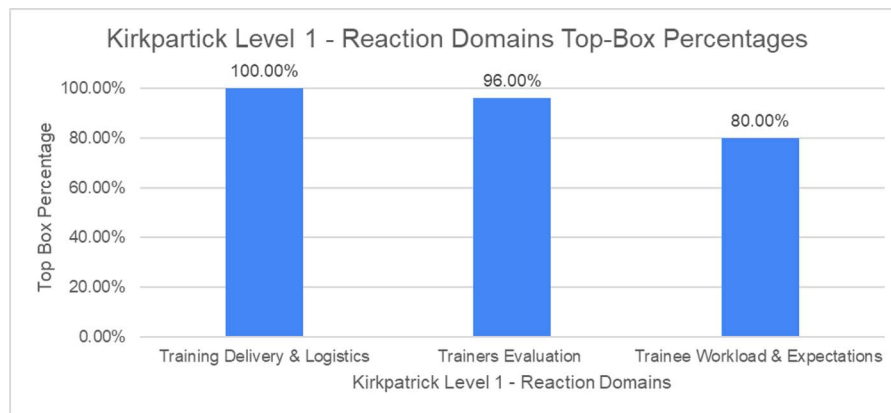


Figure 2. Reaction domains (balancing measure) for the patient experience capacity-building program. top-box percentages ($N = 5$).

gauge the efficacy of the PX capacity-building training program, a Wilcoxon signed rank test was executed to discern any statistically significant differences in the expertise levels of interprofessional frontline PX heads before and after program implementation in Q2-2021. For the Kirkpatrick Level 4—results (outcome measure), the PX survey PX mean scores across the inpatient, outpatient, and emergency departments within the AFHT healthcare system from Q2-2019 to Q1-2021 (pre-program) and Q3-2021 to Q2-2023 (post-program) were reported. No results were available for the PG PX survey for Q2-2021 for operational reasons. The outcome measures of the PX mean scores for eight quarters for each pre- and post-PX capacity- and capability-building program were compared using the independent sample t test. The determination of statistical significance was predicated upon a 95% confidence level, with a p -value threshold set at ≤ 0.05 .

The Standards for Quality Improvement Reporting Excellence in Education (SQUIRE-EDU) from the Enhancing the Quality and Transparency of Health Research (EQUATOR) network was rigorously observed throughout the manuscript composition.^[10] Microsoft Excel and SPSS Statistics (version 26) served as the principal analytical tools, ensuring the precision and reliability of our scientific findings.

RESULTS

Five interprofessional frontline PX heads were trained in the PX capacity- and capability-building program. The post-program survey shows top-box percentage responses for the Kirkpatrick Level 1—reaction (balancing measure) domains around training delivery and logistics, trainers' evaluations, and trainee workload and expectations of 100%, 96%, and 80%, respectively (Fig. 2).

For Kirkpatrick Level 2—learning (process measure), a related-sample Wilcoxon signed rank test was conducted to compare the median of differences between pre- and post-program self-reported PX competency scores among interprofessional frontline PX heads. The null hypothesis was such that the median difference would be 0. With a

p -value of 0.043, the null hypothesis was rejected, indicating that the median difference between the pre- and post-intervention self-reported competencies is significantly different from 0 (Supplemental Table S2). This shows a significant improvement in interprofessional frontline PX head expertise across various post-program PX competencies compared with pre-program expertise levels (Fig. 3). The post-program survey also shows a top-box percentage response of 100% and 95% for Kirkpatrick Level 3—behavior (process measure) domains of application of PX skills by the PX heads at the healthcare job and overall PX capacity-building program evaluation, respectively (Fig. 4).

The PG PX survey results for Q1-2022 reveal AFHT regional healthcare system PX mean scores of 87.22, 70.10, and 65.16 in the inpatient, outpatient, and emergency department settings, respectively (Fig. 5). The PX mean score results for Q1-2022 are considerably beyond the AFHT 2022 strategic targets of 85.38, 69.02, and 63.92 for the inpatient, outpatient, and emergency department settings, respectively. Group statistics for the Kirkpatrick Level 4—results (outcome measure) of the PX survey PX mean score show that there were eight observations for each pre-comprised data point from Q2-2019 to Q1-2021 and post-group Q3-2021 to Q2-2023. Outcome measures for the PG PX survey were the inpatient department PX mean score, outpatient department PX mean score, and emergency department PX mean score across the AFHT regional healthcare system. An independent samples t test was conducted to compare the pre- and post-program mean PX scores for each of the three measures. For the inpatient department PX, with equal variances assumed, the t test shows a significant difference between pre- and post-program PX scores ($p < 0.001$) (Table 1). The mean post-program PX score (86.34) is significantly higher than the mean pre-program PX score (83.31) (Table 1). For the outpatient department PX, with equal variances assumed, there is no significant difference between the pre- and post-program PX mean scores ($p = 0.487$) (Table 1). For emergency department PX, with equal variances assumed, there is no significant difference

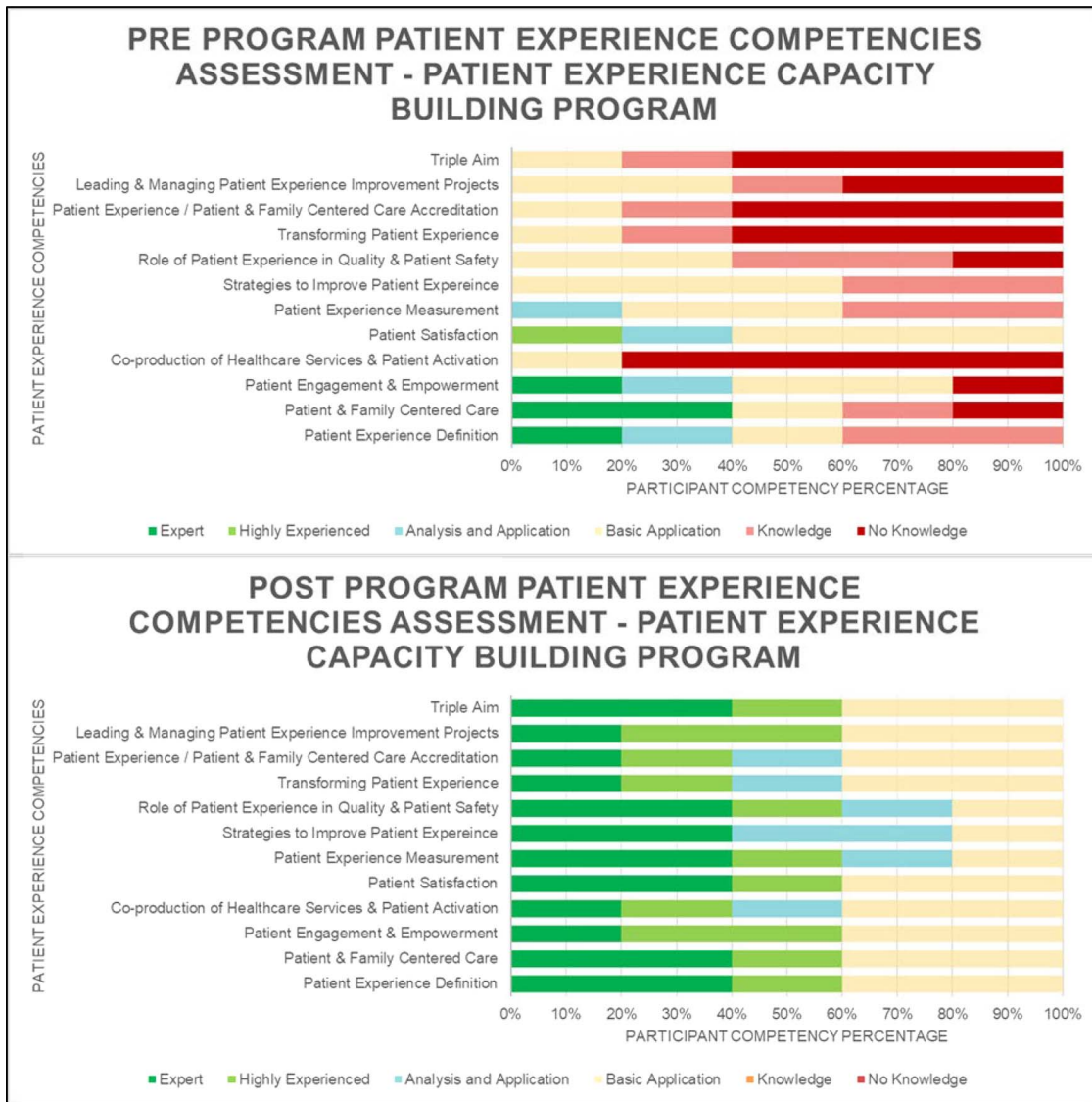


Figure 3. Pre-program and post-program assessment of learning (process measure) among interprofessional frontline patient experience heads (N = 5).

between the pre- and post-program mean PX scores ($p = 0.137$) (Table 1).

In summary, the analysis showed that post-program PX mean scores are significantly higher than pre-program PX mean scores for inpatient department PX. However, there is no significant difference between pre- and post-program PX mean scores for outpatient and emergency department PX.

DISCUSSION

To our knowledge, the interprofessional frontline PX capacity- and capability-building program at the AFHT represents the first pilot in the Saudi Arabian healthcare setting dedicated to building frontline capacity and capability to improve PX in a learning healthcare system. Our initiative is also unique in breadth, encompassing an interprofessional learning model and using real-time

feedback from trainees and PX mean scores to guide the implementation of the training program. The PX capacity-building program could meet its desired aim at the end of Q1-2022. The improvements in the AFHT regional healthcare system’s PG PX survey mean scores for inpatient, outpatient, and emergency department PX were beyond the AFHT 2022 strategic targets for PX mean scores. This improvement in the regional PX mean scores across various settings resulted from interprofessional frontline PX heads translating the PX skills, competencies, and behaviors gained through the PX capacity-building program into multiple initiatives, projects, and activities targeted at improving the PX at their respective hospitals.

The Kirkpatrick model for program evaluation used by our team to implement the PX capacity-building program is consistent with the initial steps for implementing a strategic priority for improving PX across healthcare systems. The Kirkpatrick model comprehensively evaluates

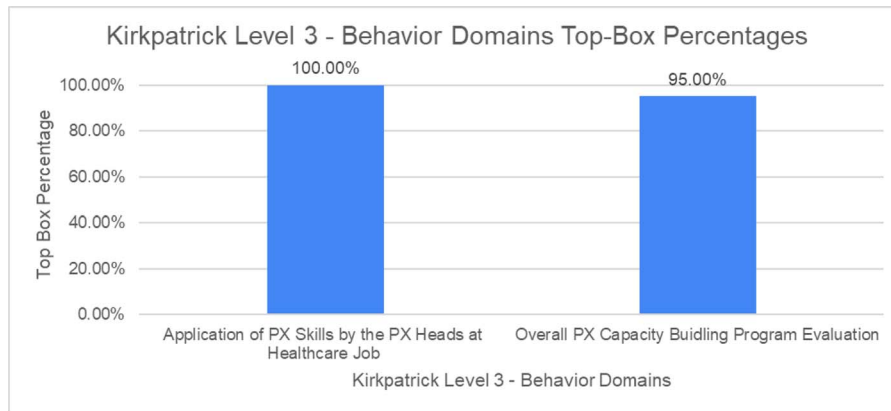


Figure 4. Behavior domains (process measure) for the patient experience (PX) capacity-building program (N = 5).

the impact and effectiveness of an educational program across multiple domains and attempts to link them to higher-level outcomes or results that matter to healthcare organizations.^[8] Interprofessional frontline PX heads have developed PX improvement capabilities and

capacities at their local hospitals, further enhancing the network of PX champions across healthcare settings. However, over the long term, sustainable improvements in PX have only been achieved in inpatient department settings across the AFHT regional healthcare system. The

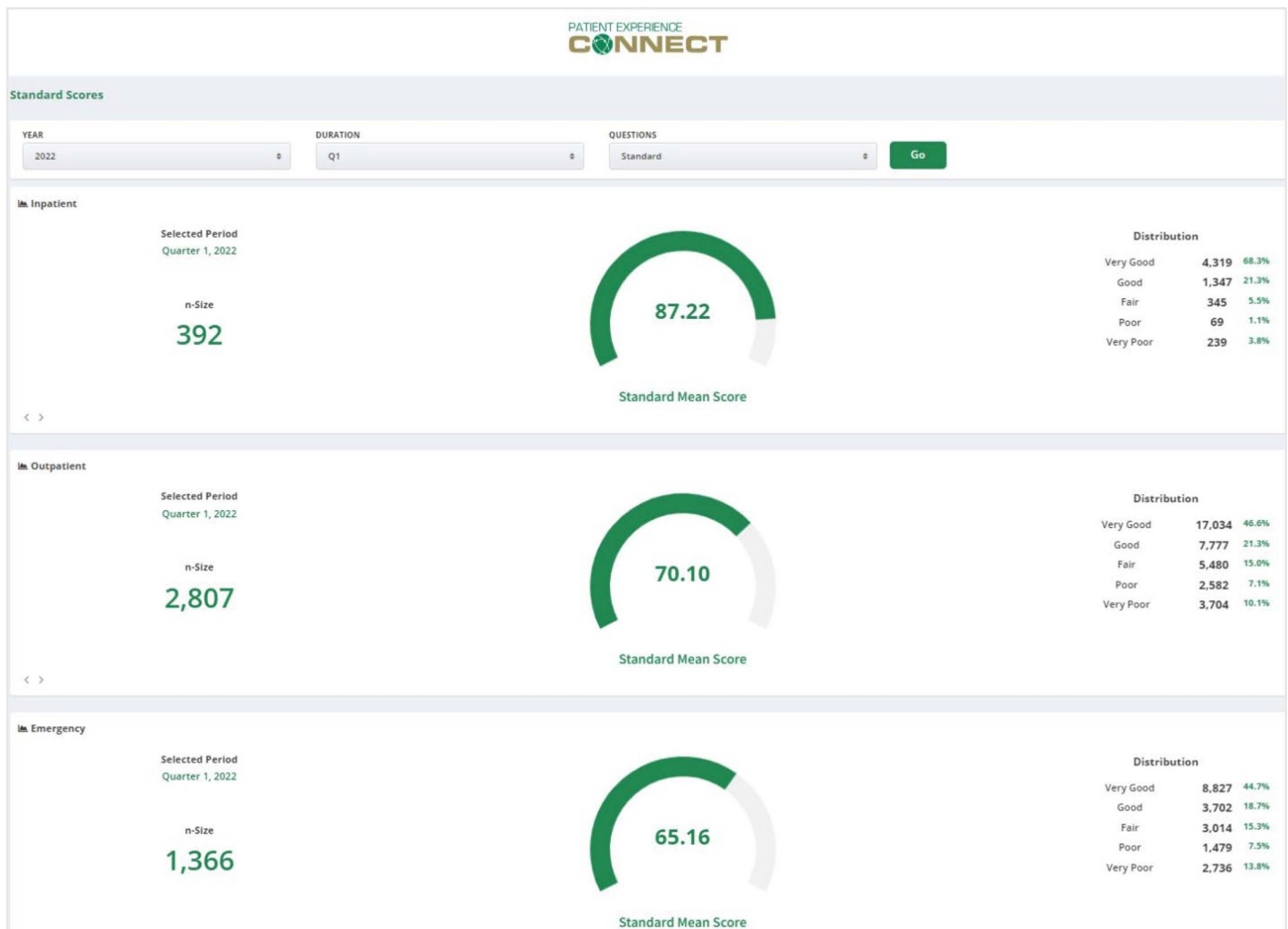


Figure 5. Armed Forces Hospitals Taif Region patient experience mean scores at inpatient, outpatient, and emergency department for Q1-2022 (post-program) as reported through Press Ganey Patient Experience Survey.

Table 1. Pre-program vs. post-program patient experience mean scores (N = 16).

Outcome Measure	Pre-Program Mean	Post-Program Mean	Mean Difference	p-value	95% CI
Inpatient department patient experience mean score	83.31	86.34	3.03	< 0.001	1.62–4.45
Outpatient department patient experience mean score	69.47	68.77	0.70	0.487	1.40–2.80
Emergency department patient experience mean score	61.00	63.30	2.30	0.137	0.82–5.41

nonsignificant change in the PX mean scores in the outpatient and emergency department settings can be explained by the recent changes in the structure of the outpatient departments across our region, full reopening of the outpatient services, a high turnaround of the staff in the emergency department, and the fact that most priority PX projects led by interprofessional frontline PX heads were concentrated in inpatient settings. Ultimately, cultural change is required for sustained improvement of PX within an institute. Education is the easiest aspect of PX improvement initiatives. Human experience in healthcare must be embedded within the organizational culture to assure widespread, consistent adoption and sustain it over time.^[1,11]

Limitations

Our program is a regional healthcare system pilot, which could limit generalizability, but we believe that the basic principles described could be easily extrapolated to other types of institutions. Moreover, the lack of availability of the PG PX survey results for Q2-2021 may limit our ability to reflect on the outcome measures during the initial phase of the project. However, as the PX capacity-building program was launched during Q2-2021, we expected a minimal effect on post-intervention PG PX survey mean scores. To further assess the implementation of the PX capacity-building program, we are cataloging the PX champions recruited by our interprofessional frontline PX heads at their local hospitals. Finally, the content for the rehabilitation and psychiatric center PX must be reassessed, and we are working with stakeholders in those settings to develop targeted programs to improve PX in these healthcare settings.

CONCLUSION

The PX capacity-building program is the first step toward developing a healthcare organization-wide culture to improve the human experience in healthcare, with promising early results and actionable lessons for ongoing refinements. Although there was a significant institutional effort, this was conducted at a low cost beyond the time of the lead staff. Phase II will include further adoption strategies: customizing the program's content for specific disciplines and workflows and measuring the sustainability of the improvements in PX at the regional level. We believe that once embedded in hospital culture, this approach of developing PX capacity and capability, coupled with the

Kirkpatrick model for program evaluation, can improve PX significantly.

Supplemental Material

Supplemental materials are available online with the article.

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