Integrative Review of the Interventions for Improving Patients’ Experiences Revealed in Quality Improvement Projects

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Abstract
Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) is the first national, standardized, publicly reported survey of patients’ perspectives of hospital care closely linked to hospitals’ reimbursement and reputation. Thus, it is critical to learn about what interventions work for improving HCAHPS. Eight peer-reviewed studies examining nursing-led interventions at improving patient satisfaction in hospitals, measured by the HCAHPS, were identified. Using the Critical Appraisal Skills Program for cohort studies, each study was evaluated for a level of evidence. Interventions that increased HCAHPS were (1) nursing rounds, (2) the use of discharge nurses, (3) follow-up phone calls by nurses, and (4) continuing education for nurses. However, the quality of evidence is low and based on single-site, pre–postdesign studies. Hospital leaders should focus their efforts on a combination of nurse rounding, comprehensive discharge planning to improve patients’ overall experience with hospital care, and their likelihood to recommend the hospital.

Keywords
HCAHPS, nurse rounding, nursing, patient satisfaction

Patient experience has become an increasingly important quality metric since the introduction of the Affordable Care Act of 2010 (1). It heightened expectations for high-quality care by shifting financial incentives away from the volume of services to the value provided. Pay-for-performance is a part of the larger strategy to support the triple aim of better care for individuals and population with lower cost (2). One of the metrics used to evaluate patient experiences in recent years is patient satisfaction with hospital care. It has become a critical quality indicator that hospitals must monitor and publicly report (3). When used efficiently, patient satisfaction can provide valuable insight into how these systems may improve their day-to-day care and outcomes (4). For example, patients who are more satisfied with their care are more likely to maintain lasting relationships with their health care providers, embrace and continue their prescribed treatment plans, and recommend the hospital to their friends and families (5). Hospitals also benefit with increased overall savings by reducing the lengths of stay and readmission rates if they keep patients satisfied (2).

Although many hospitals have collected information on patient satisfaction for their internal use, prior to Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), there was no national standard for collecting or publicly reporting patients’ perspectives of care that would enable valid comparisons to be made across all hospitals (3). In order to make “apples to apples” comparisons to support consumer choices, the Centers for Medicare & Medicaid Services (2) partnered with the Agency for Healthcare Research and Quality (AHRQ) to implement the HCAHPS survey in 2002. The HCAHPS is a part of larger series of patient surveys, which includes a core set of questions that can be combined with a broader, customized set of hospital-specific items to complement the data hospitals currently collect.
collect to support improvements in internal customer services and quality-related activities. The intent of the HCAHPS initiative is to provide a standardized survey instrument and data collection methodology for measuring patients’ perspectives on hospital care regarding their experiences. Because these scores are publicly reported, allowing for further hospital care transparency, a patient’s experience must be the hospital’s main priority in order to protect both its reputation and its government funding.

Given these incentives and benefits of securing patient satisfaction with their care, several nurse-led interventions have been developed to improve patient satisfaction (6–13). The focus on nurse-led interventions is not surprising as nurses spend the most time with patients in direct care settings as frontline providers with round-the-clock presence (14). The direct relationship between patients and nurses provides a unique and significant opportunity for nurses to influence patients’ experiences of their care (15). In one study, patient satisfaction with nursing domains of HCAHPS increased the odds of achieving the total HCAHPS scores by 4.9% (16). The problem in the existing literature is that apart from the case reports included on the AHRQ website (17), we could not locate any review papers examining nurse-led interventions for improving patient satisfaction. A recent systemic review of interventions provided an overview of interventions broadly used to improve HCAHPS scores, but it did not provide information specifically on nurse-led interventions (18). Focused review on the nursing-led intervention is warranted as most of the domains included in the HCAHPS are nursing-driven and nursing-focused domains. Thus, the purpose of this integrative review is to examine studies of nurse-led interventions aimed at improving patient satisfaction in hospitals, measured by the HCAHPS. The findings of this review can offer hospital leaders an insight into the state of the science on what nurse-led interventions are working and are ready for implementation at their local organizations.

### Methodology

The integrative review method delineated by Whittemore and Knafl was used (19). It is comprised of 5 stages, including (1) problem identification, (2) literature search, (3) data evaluation, (4) data analysis, and (5) presentation.

### Literature Search

The databases used for the search were PubMed, MEDLINE, the Cumulative Index to Nursing and Allied Health Literature, ProQuest, Web of science, and Embase. We performed the initial literature search in 2015, updated the search yearly with the last search in 2019 using keywords, MeSH terms, and Boolean operators given in Table 1. We reviewed the studies (1) in which patient satisfaction was measured by the HCAHPS survey, (2) in which nurse-led interventions aimed to increase HCAHPS scores, (3) that were published in peer-reviewed journals, and (4) that were written in English. We excluded studies in which patient satisfaction was not measured using HCAHPS survey, interventions were not nurse led, that were not peer reviewed and written in English.

The initial search resulted in 573 articles after duplicates were removed. Each title was reviewed by 2 individuals using the inclusion and exclusion criteria. Sixty-three articles showed a title fit and their abstracts were then reviewed, further narrowing down to 22 articles for full-text review. All the authors read the full texts of 22 articles and removed 14 articles that did not meet our criteria, which left 8 articles for this review. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram (Figure 1) illustrates the process.

### Quality Appraisal

The Critical Appraisal Skills Program (CASP) for cohort studies, which helps appraisers evaluate each study in an objective, systematic, and meaningful way, was used to evaluate the quality of the selected articles. To simplify summaries of study quality, we assigned numerical values to each answer (“yes” = 2, “can’t tell” = 1, “no” = 0). The maximum score for the CASP appraisal was 22. A total score was used to rate the study either poor (total score 0–9), moderate (10–16), or strong (16–22). The CASP tool does not give a clear guideline on the difference between “can’t tell” and “no.” We used “no” when there was a clear indication of not being done or considered and “can’t tell” when there might be a possibility of being done or considered. Two authors read each study and appraised the quality. If there was more than 25% discrepancy in the quality rating, a third author was brought in. Table 2 contains a summary of our quality appraisal.

### Data Analysis

After identifying the problem, performing a rigorous literature search and quality appraisal, we extracted and analyzed the data from each article as presented in Table 3. Each study was read twice to ensure the identification of salient topics for analysis. Once the table was completed, we examined for any patterns and relationship among the results of all the

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**Table 1. Keywords and MeSH Terms Used for Literature Search.**

| PubMed                                                                 |
|----------------------------------------------------------------------|
| ((((((("Patient Preference"[Mesh]) OR "Patient Satisfaction"[Mesh]) OR "Patient-Centered Care"[Mesh]))) AND (((CAHPS AND English[lang])) OR ((Consumer Assessment of Healthcare Providers and Systems) AND English[lang])) OR HCAHPS) OR (((Hospital Consumer Assessment of Healthcare Providers and Systems)) Filters: English AND ("Nursing Staff, Hospital"[Mesh] OR ("Nurses"[Mesh] OR "Nursing Staff"[Mesh] OR nurses[tiab] OR nursing[tiab]) AND (hospital[tiab] OR hospitals[tiab]))) |
studies, noting patterns and themes, clustering data, making contrasts and comparisons, and identifying common patterns. We then drew a conclusion by examining matrix tables for commonalities and differences. Finally, verification occurred prior to writing the results section by comparing the results of data analysis to the original data sources.

**Results**

**Study Characteristics**

The characteristics of all studies across several categories are presented in Table 3. Of the 8 studies, 7 used one-group pre- and posttest design. All 8 studies were published between 2009 and 2018 and examined the effects of various nurse-led interventions on HCAHPS scores of hospitals in the United States. Most of the studies used the one-group pre–posttest design (n = 5) and were a part of quality improvement (QI) projects. Other study designs used were randomized controlled trial (11), case study (13), and observational study (8). The sample sizes of the returned HCAHPS surveys by patients ranged widely from 81 (12) to 1734 (10).

The most measured HCAHPS domains were “communication about medicines” (questions 16 and 17; n = 5), “discharge information” (questions 19 and 20; n = 5), “care transition” (n = 4), and “overall hospital rating” (n = 5). The individual topics such as “cleanliness of hospital environment” (question 8) and “quietness of hospital environment” (question 9) were not measured as often compared to other questions. The included HCAHPS domains varied to be specific to the study interventions. For example, 3 studies that included the discharge domains of HCAHPS examined the interventions focused on discharge planning and process (8,10,11). Pain management was only measured in one study that implemented nurse education for pain management (7). Other outcome measures included in the studies were call light usage (13), staff satisfaction (10,13), fall rates (12), hospital-acquired pressure ulcer (12), 30-day readmission rates (6), and the average length of stay (6).
| Author (year) | Blackey (2011) | Brosey (2015) | Chan (2015) | Ciaramella (2014) | Kennedy (2013) | Setia (2009) | Shoreder (2016) | Wang (2013) |
|--------------|----------------|---------------|-------------|-------------------|----------------|--------------|----------------|-------------|
| 1 Did the study address a clearly focused issue? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Maybe |
| 2 Was the cohort recruited in an acceptable way? | Maybe | Maybe | Yes | Maybe | Yes | Maybe | Yes | Yes |
| 3 Was the exposure accurately measured to minimize bias? | No | No | No | No | No | No | No | No |
| 4 Was the outcome accurately measured to minimize bias? | No | No | No | No | No | No | Maybe | No |
| 5a Have the authors identified all important confounding factors? | No | No | Maybe | No | No | No | No | No |
| 5b Have they taken account of the confounding factors in the design and/or the analysis? | No | No | Maybe | No | No | No | No | No |
| 6a Was the follow-up of the subjects complete enough? | No | No | Yes | Yes | Maybe | Maybe | No | Maybe |
| 6b Was the follow-up subjects long enough? | No | No | Yes | Yes | Maybe | No | No | No |
| 7 What are the results of the study? | Improved | Improved | No change | Improved | Improved | Improved | No change | Improved |
| 8 How precise are the results? | Not very | Moderate | Very | Not very | Not very | Not very | Not very | Not very |
| 9 Do you believe the results? | Maybe | Maybe | Yes | Yes | Maybe | Maybe | Maybe | Maybe |
| 10 Can the results be applied to the local population? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 11 Do the results of the study fit with other available evidence? | Maybe | Maybe | Maybe | Maybe | Maybe | Maybe | Maybe | Maybe |
| 12 What are the implications of the study for practice? | Not enough evidence to recommend change | Not enough evidence to recommend change | Not enough evidence to recommend change, small sample | Not supported by the evidence | Done in concurrence with other intervention | Done in concurrence with other intervention | Not enough evidence to recommend change | Combination of technology and patient education supported |
| Total score for quality appraisal | 6/22 | 7/22 | 15/22 | 12/22 | 10/22 | 8/22 | 9/22 | 8/22 |

Abbreviation: CASP, Critical Appraisal Skills Program.

a Yes = 2, maybe = 1, no = 0.

b Critical Appraisal Skills Programme (2019). CASP (Cohort Study) Checklist. [online] https://casp-uk.net/wp-content/uploads/2018/03/CASP-Cohort-Study-Checklist-2018_fillable_form.pdf.
| First author, year | Study design | Sample/setting | HCAPHS domain measured | Other outcomes measured | Interventions used | Findings/discussion | Effects on HCAPHS |
|-------------------|--------------|----------------|------------------------|------------------------|-------------------|---------------------|------------------|
| Blakley et al (13) | Case study, QIP | One medical–surgical unit in a community hospital in Iowa. | Overall rating of hospital (Q 21) | Patient satisfaction (focus group) | Nurse hourly rounds: 4P rounds (pain, position, potty, placement) every 2 hours | 4P rounds increased the overall HCAHPS score from 3.5, increased to 3.6 | Increased (statistical comparison not made) |
|                    |              | Patients who were hospitalized and discharged within the last 6 months (N = 200) |                        | Staff satisfaction | For 8 months (October to June) |                                     |                  |
|                    |              |                                                      |                        | Call light usage |                                     |                                     |                  |
| Brosey and March (12) | One-group pre–posttest, QIP | One medical–surgical unit in Pennsylvania | All domains | Fall rates | Hospital-acquired pressure ulcer | All domains of HCAHPS except “responsiveness of staff” increased postintervention and at 1 year after project implementation | Increased (statistical comparison not made) |
|                    |              | Patients who were hospitalized and discharged within the last 3 months (N = 81) | Falls | Hospital-acquired pressure ulcer | Nurse hourly rounds: PEEP rounds (pain, elimination, environment, and position) | HCAHPS “responsiveness of staff” domain score decreased to 48.6% from 49.3% |                  |
|                    |              |                                                      |                        |                        | 3 months (November to February) | Fall rate reduced by 57.7% in 1 year (7.02 falls per 1000 patient-days to 3.18 falls per 1000, P = .015), with a cost avoidance of US$172,720 that year |                  |
|                    |              |                                                      |                        |                        |                                     | Hourly rounds were being done, but not being documented |                  |
### Table 3. (continued)

| First author, year | Study design | Sample/setting | HCAHPS domain measured | Other outcomes measured | Interventions used | Findings/discussion | Effects on HCAHPS |
|---------------------|--------------|-----------------|------------------------|------------------------|-------------------|---------------------|-------------------|
| Chan et al (11)     | Randomized controlled trial | Medical units in California | Communication about medicines (Q 16, 17) | Care transition and medication counseling (measured with other tools) | Concordant language service for discharge nurses | No statistical significance between groups for HCAHPS ratings: HCAHPS discharge domain score (74.8% vs 68.7%, *P* = .11); medicine communication (44.5% vs 53.1%, *P* = .13); nurse communication (67.9% vs 64.9%, *P* = .43) | No change |
|                     |              | Patients who are 55 years and older who spoke English, Spanish, or Mandarin/Cantonese | Discharge information (Q 19, 20) | Care transition (Q 23-25) | Usual care: Bedside RN provided structured education | Nurse-led transition-of-care intervention in older linguistically diverse adults admitted to a safety-net hospital did not impact communication-related patient experience | |
|                     |              | (N = 685; usual care 353 vs intervention group 347) |                       |                       | Intervention: Disease-specific patient education with written materials provided by native language | | |
| Ciaramella et al (10) | One-group pre–posttest, QIP | Mother/baby Unit in New York | Communication about medicines (Q 16, 17) | Staff satisfaction | Discharge nurse role: Discharge education, preparation for discharge, and nursing staff workflow | The HCAHPS discharge domain score on the HCAHPS survey rose from 22nd percentile rank to the 76th percentile | Increased (statistical comparison not made) |
|                     |              | Discharge patients during the 2-year implementation phase (N = 1734) | Discharge information (Q19, 20) |                       | | | |
| First author, year | Study design | Sample/setting | HCAPHS domain measured | Other outcomes measured | Interventions used | Findings/discussion |
|--------------------|--------------|----------------|------------------------|-------------------------|-------------------|---------------------|
| Kennedy et al (9)   | One-group pre–posttest, QIP | General/vascular unit in South Carolina, Patients who were hospitalized and discharged within the last 6 months (N = 288) | Overall rating of hospital (Q 21) | NA | Telephone follow-up, leadership rounds, and nurse discharge education for the 3 months | The HCAHPS “overall quality of care” domain score improved to 58.8% from 56% |
| Schroeder et al (7) | One-group pre–posttest, QIP | Orthopedic unit located in Pennsylvania, Patients who received joint replacement surgeries and discharged (N = 149), Nurses received education (N = 28) | Overall rating of hospital (Q 21), Pain after joint replacement (Q 12-14) | Pain after joint replacement, Nurse knowledge | Nurse education: To improve nurses’ assessment of patient’s pain in the postop total joint replacement population using an online education tool | HCAHPS pain management-related items’ scores increased from 60.5 to 79.5. Mean HCAHPS overall rating domain scores increased from 70.2 ± 9.5 to 73.9 ± 6.0. Small increase in the HCAHPS score (statistically not significant) in pain management but management of side effects decreased from 4.2 to 3.7 |
| Setia and Meade (8) | Observational study, QIP | Inpatient units and emergency department located in New Jersey, Sample size not reported | Overall rating of NA hospital (Q 21), Willingness to recommend hospital (Q 22) | Telephone follow-up and leadership rounds | | Those who received the calls AND nurse manager round was 94.7% compared to 85.4% of those who did not for the HCAHPS overall rating domain. These 2 interventions were bundled into one for analysis. |

(continued)
| Study design                  | Sample/setting                                                                 | HCAPHS domain measured                                      | Other outcomes measured                                      | Interventions used                                                                 | Findings/discussion                                                                                                                                                                                                 | Effects on HCAPHS |
|------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| One-group pre–posttest, QIP  | Orthopedic spinal surgical unit in Pennsylvania                                | Nurse communication (Q 1-3)                                  | Postop complication                                          | Nurse education: Education video for nurses to use with patients                | “Communication about medicines” domain score increased postintervention ($P = .03$)                                                                                             | Increased        |
|                              | Patients who received orthopedic spinal surgery and discharged (N = 741)       | Communication about medicines (Q 16, 17)                      | 30-day readmission rates                                     |                                                                                 | Surgical flight plan (standardized process of patient discharge) was implemented, goal setting, and smart room video only used 45.3% of patients.                                         |                  |
|                              | Nurses received education (N = 25)                                             | Discharge information (Q 19, 20)                              | Average length of stay                                       |                                                                                 | No association found between readmission rates or length of stay                                                                                                                |                  |
|                              |                                                                                 | Care transition (Q 23-25)                                    |                                                              |                                                                                 |                                                                                                                                                                                  |                  |

Abbreviations: HCAHPS, Hospital Consumer Assessment of Healthcare Providers and Systems; NA, not applicable; QIP, Quality Improvement Project; RN, registered nurse.
Quality of Studies

The quality of the studies ranged from 6 to 25, with a maximum possible score of 22. The mean score for the quality appraisal was 9.3, which indicated a poor quality. We removed a question about follow-ups for subject recruitment. As most studies used secondary analysis, this question was not applicable. All studies had clearly identified research purposes, used appropriate methods, and reported results adequately. Bias and confounders were rarely identified or discussed. The summary of quality appraisal is in Table 3. The quality of the studies, based on our scoring system, ranged from poor to moderate (Table 2). Lack of control groups with the setting being a single unit at a single hospital lowered the quality of the studies. Most of the studies (n = 7) included in the review were a part of QI projects. Quality improvement, also known as quality assurance, is a systematic process that aims to improve performance or processes to strengthen patient care in a particular setting (21); thus, the purpose of QI projects may not meet the standards of the research which is to generate generalizable knowledge (21).

Interventions

We identified and categorized 4 types of nurse-led interventions for improving HCAHPS from the review. These interventions were (1) nursing rounds, (2) the use of discharge nurses, (3) discharge follow-up phone calls by nurses, and (4) professional development education for nurses.

Nurse rounds. Hourly nursing rounds were designed, structured, and implemented systematically in 2 studies by Brosey et al (12) and Blakey et al (13). The structured hourly rounds included the following components: pain, elimination, environment, and positioning (also known as 4P or PEEP rounds). The nurses in Brosey’s study (12) were educated on the importance and the process of the hourly rounds prior to the implementation of the more structured hourly rounds. They both showed improvement in their HCAHPS scores. However, no statistical comparisons of before and after implementation were made. In Brosey’s study (12), all HCAHPS increased except the responsiveness of staff after the implementation of 4P rounds. In addition to the improved HCAHPS scores, other nursing quality indicators such as falls and hospital-acquired pressured ulcer rates decreased. Similarly, Blakey et al (13) also found a slight increase in the overall rating of hospital score after the implementation of 4P rounds. Additionally, the staff perceived call light usage to decrease as well as patients’ complaints citing staff rudeness decreased by 43% (13).

Discharge nurses. Two studies (10,11) examined the use of discharge nurses but in different contexts. First, Ciaramella et al (10) implemented a discharge nurse on a mother–baby unit to focus on performing discharge teaching with mothers before they got discharged with babies. The sole responsibilities of these discharge nurses were the discharge process for each mother and baby without taking on a patient assignment. In this model, the patient satisfaction improved, and the role of a discharge nurse became permanent. However, there was no statistical analysis to compare the pre- and postimplementation. The other study by Chan and the colleagues (11) examined the impact of language-concordant nurses during the discharge process on patient satisfaction. This was a randomized controlled study with the intervention group receiving the language-concordant nurses with patient-specific discharge information. The control group received the usual bedside registered nurse (RN), providing condition-specific structured discharge education. There was no statistical difference between control and intervention groups for HCAHPS ratings: HCAHPS discharge domain score (74.8% vs 68.7%, P = .11), Medicine Communication (44.5% vs 53.1%, P = .13), and Nurse Communication (67.9% vs 64.9%, P = .43) (11).

Follow-up phone calls by RNs. Follow-up telephone calls by nurses after discharge were implemented in 2 studies (8,9). In both studies, follow-up calls were a part of a bundled intervention with nursing leadership rounds. Discharge phone calls were made within 48 hours of discharge during the daytime in the study by Kennedy et al (9), but no details of discharge phone calls were given by Setia and Meade (8). The overall rating of HCAHPS improved in both studies. Particularly, Kennedy et al (9) reported a positive experience of identifying a complication postdischarge in a patient during a follow-up discharge call. However, it was not clear if follow-up phone calls alone improved the score as both studies implemented a bundled intervention.

Education for nurses. In 2 studies, nurses had education sessions on the assessment and management of specific patient conditions. Schroeder et al (8) analyzed the HCAHPS overall rating and pain management scores/domains before and after nurses attended the pain management sessions. The scores improved on both domains when compared from before and after the education session, but the differences in the scores were not statistically significant (P value not provided). Wang et al (6) educated the nurses in the use of smartroom technology with surgical patients. Communication with medicine domain was measured and improved (P = .03) before and after the nurses attended the education sessions.

Discussion

In this integrative review, we systematically appraised the current literature on nurse-led interventions to improve patient satisfaction measured with HCAHPS. In all the studies except one (11), HCAHPS scores improved as the result of nurse-led interventions. For example, nursing rounds were associated with an increase in HCAHPS scores. Nursing
rounds are also found to be beneficial in other outcomes, such as falls and reduction in patients’ call light use (22,23). The studies included in our review used similar rounds that included 4 components, but a systematic review of nursing rounds (23) concluded that these rounds typically had little consistency in how these rounds were implemented, performed, measured, and analyzed. In addition, the authors of the review also found that the strength of the evidence was weak for a definitive conclusion. However, based on our review and existing literature, nursing rounds continue to pose as an area where nurses and nursing teams can improve patients’ experiences.

Additionally, discharge is a stressful transition phase where much information can get misplaced and lost (24). The transition from hospitals to home or other facilities has been identified as a vulnerable time for many patients (25). Many hospitals have made this transition period a priority in patient’s experiences and for quality metrics. Combined with the role of nurses during discharge, discharge education and follow-ups by nurses have been one of the domains of HCAHPS that received increased attention. Based on our review, discharge education and follow-up phone calls within 48 hours from discharge are an area where hospital leaders can focus on to improve patient satisfaction.

Hospital leaders invest significant resources in implementing interventions to improve patient satisfaction, and our review of published studies shows moderate empirical support for commonly implemented nurse-led interventions to improve patient satisfaction. There is a great need for more rigorous research studies or well-designed QI studies aimed at improving patient satisfaction. These research studies also need to incorporate patients’ perspectives. It is important to document and disseminate these efforts through publications so that evidence can be evaluated comprehensively and better recommendations for practice be made. Until more robust evidence emerges on the effectiveness of nurse-led interventions for HCAHPS, nurse managers and leaders need to encourage nurse innovation in this area and foster a learning organization culture (26).

**Limitations**

This review has several limitations. First, we only included studies that used HCAHPS as the measure of patient satisfaction. We chose to only focus on HCAHPS for its standardized measurements and as HCAHPS is the measure used by Medicare. More hospitals are adapting to use HCAHPS as their measure of patient satisfaction. Next, we only included published articles in English, leading to publication bias. Publication bias may have excluded negative and/or recent findings that could have enhanced the review but have not been published.

**Conclusion**

Patient satisfaction measures the gap between a patient’s expectations with their quality of care and hospital stay and the actual care the patient received. Patients have responded most positively to nurse rounding, interactive discharge planning, and telephone follow-up calls with nurses. These findings suggest that patients’ satisfaction with inpatient care is associated with nurse interactions. Thus, attentive and interactive care from nurses, which provides a more patient-centered care protocol, leads to overall increased patient satisfaction scores. The quality of the studies included is weak to moderate. More rigor in the study design with larger samples are required to understand the true impact of nursing-led interventions on patient satisfaction.

**Authors’ Note**

The approval from the institutional review board was not required for this manuscript as it was a review of the literature. No ethical concerns were identified in preparing this manuscript.

**Declaration of Conflicting Interests**

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