Interventions that improve patient experience evidenced by raising HCAHPS and CG-CAHPS Scores: A narrative literature review

Heather McKee Hurwitz
Cleveland Clinic

MaryBeth Mercer
Cleveland Clinic

Susannah L. Rose
Cleveland Clinic

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Cover Page Footnote

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Heather McKee Hurwitz, *Cleveland Clinic, hurwith@ccf.org*
MaryBeth Mercer, *Cleveland Clinic, mercerm@ccf.org*
Susannah L. Rose, *Cleveland Clinic roses2@ccf.org*

Abstract

Hospital administrators and researchers often use large, standardized surveys that examine patient satisfaction to evaluate whether interventions improve patient experience. To summarize the breadth of these interventions and how large, standardized surveys are used to evaluate them, a multidisciplinary research team conducted a review. They used PubMed and Google Scholar searches, reviews of reference lists and targeted searches to locate studies. They evaluated one hundred and twenty-four articles and fifty-eight articles met the inclusion criteria for the narrative review. Using the standard methodology for narrative reviews, the authors synthesize salient themes in the articles and highlight exemplar studies. The review is qualitative, limited, and subjective, *and* provides a novel analysis of a selection of important and recent research studies. Interventions are in four domains: communication, information and communication technologies (ICT's), nursing, and the healthcare environment. The majority evaluate patient experiences using the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) or the Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CG-CAHPS), two widely used, standardized, validated surveys to measure patient experience. Results suggest that verbal, non-verbal, and empathetic communication studies are especially salient in the literature. Research about ICT's includes promising interventions that need additional testing using large datasets. Finally, many studies evaluate nursing and the healthcare environment, but evaluations of interventions in these areas are often inconclusive because nursing and healthcare environments vary widely within and between hospital systems. The review reveals reliable innovations, inconclusive research, as well as many directions for future research.

Introduction: Surveys about Patient Experience and Satisfaction

Hospital administrators, providers, patients and their families all strive to improve patient experiences. Surveys are the most common way to evaluate patient experience and satisfaction because they are the easiest way to hear from a large group of people and understand trends across one or more institutions. The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), is a twenty-seven question survey used widely. Focused on the medical office setting, a "sister" to HCAHPS is the Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CG-CAHPS).[1] Many healthcare systems hire external companies to administer and customize these surveys and to integrate specialized questions alongside the standard HCAHPS and CG-CAHPS questions. When accomplished by an external company, health systems may access results and comparisons with other institutions as quickly as nine weeks compared to six to nine months for HCAHPS and CG-CAHPS data.

HCAHPS and CG-CAHPS evaluate both "patient satisfaction" and "patient experience," which are similar but distinct concepts that capture patients' reports about their healthcare visits. Patient experience indicates the relationship-centered care activities in which a patient participates including the extent to which patients develop an empathetic, communicative relationship with a provider.[2,3] Patient experience measures are more reliable when they are counts of activities such as when patients enumerate the number of times providers performed a care activity like explaining medications and discharge procedures, cleaned the patients' in-suite bathroom, or provided comfort, a beverage or sleep mask. Patient satisfaction designates patients' attitudes about the care they received and whether that care met the patients' expectations, evaluated with questions like, "How satisfied were you with your experience?"[2] Still, these questions

should be approached cautiously because they hinge on knowing patients' pre-existing expectations, which may vary substantially according to factors such as, patients' health literacy [4] or even racial identity.[5] For example, some patients may feel completely satisfied just with receipt of a prescription for antibiotics even if medication is not the most appropriate treatment.[6]

Major surveys like HCAHPS and CG-CAHPS are incredibly valuable to hospitals and medical offices. They capture widespread views about patient care. They are publicly available and can be used to compare across medical systems and over time. Furthermore, when hospitals or medical offices implement interventions to improve patient experience, administrators can examine survey results before and after the change to evaluate patients' reactions. Also, these surveys are of great import because the Centers for Medicare and Medicaid Services (CMS) accounts for 30% of hospitals' Value Based Purchasing (VBP) performance scores.[7] Still, administrators should use a critical lens when evaluating patients' experiences using HCAHPS or CG-CAHPS: the surveys are not comprehensive evaluations of patient experience; do not address the depth of patient experience explored with qualitative analysis; may be subject to various forms of bias; and determine major financial gains or losses.[8,9,10] Despite their limitations, surveys like HCAHPS and CG-CAHPS remain industry standards and are one important way to understand many patients' views. Therefore, this narrative review summarizes interventions in key areas of patient experience that impact positively HCAHPS and CG-CAHPS scores.

Methods

A multidisciplinary team, the authors drew on medical, public health, and sociological approaches to develop the narrative review. The authors chose the narrative review methodology as the most useful method to elaborate themes in the contemporary research about patient experience. The review was intended to "summarize and synthesize" the literature to provide a targeted analysis, but "not seek generalization or cumulative knowledge,"[11,12,13] like systematic literature reviews. The manuscript is intended to bring together relevant research to provide a novel analysis of a selection of recent research studies

primarily for hospital administrators and patient experience researchers, many of whom are tasked with identifying and implementing patient improvement interventions to raise survey scores. Per the established study design for narrative reviews, we used a qualitative and subjective approach to identify salient themes, inspire future research studies, and identify inconsistencies.[13]

To examine and synthesize the current research on improving patient experience, the authors utilized a standardized and qualitative method for conducting narrative literature reviews.[13,14] First they formulated a research objective: to conduct a targeted evaluation of contemporary and emerging interventions that improved patient experiences as evidenced by measuring changes in HCAHPS or CG-CAHPS scores.

Next they searched the literature. A series of searches were developed qualitatively using both deductive and inductive approaches. The articles were identified through PubMed and Google Scholar searches. Starting with the deductive approach, initial searches used the terms "HCAHPS" or "CG-CAHPS" and "patient experience" or "patient satisfaction." The first search was conducted in November of 2019 and the last searches in August of 2021. Ninety-eight articles were identified in the first round of searching, 84% of which were published from 2015-2020. Additional searches were conducted by examining the references of the papers identified in the first round. Also, using an inductive approach, targeted searches were conducted, to identify key interventions about "nursing and bedside rounding," "texting or SMS and patient experience," "virtual reality and patient experience," "HCAHPS and environment," and "methodological limitations of HCAHPS and CG-CAHPS." In total, the project considered one hundred and twenty-four articles.

Next, they reviewed the literature and included select articles according to inclusion and exclusion criteria (see Figure 1). Although not intended as a full systematic review of the literature, as a targeted search, studies were included if they would be impactful for hospital administrators and patient experience researchers seeking model interventions. With the lives of patients at stake, and in a budget conscious industry, healthcare systems need to utilize findings from rigorous research: evidence-

Figure 1. Inclusion and Exclusion Criteria

Inclusion	Exclusion
Studies that utilized statistical analysis of HCAHPS or CG-CAHPS data, statistical analysis of another large dataset, or were a randomized controlled trial	Studies that did not utilize statistical analysis of a large dataset
n ≥ 100	n<100
United States context	Global context
Studies about ICT's and patient experience	Qualitative studies not about ICT's

based research studies that have been designed and evaluated using standardized social scientific approaches. Focusing on the most current and rigorous research, studies were included if they utilized statistical analysis of HCAHPS or CG-CAHPS data, statistical analysis of another large dataset, or were a randomized controlled trial. The review includes original research and systematic reviews of original rigorous research. Given that low sample sizes reduce confidence in findings and administrators typically need rigorously tested interventions to inform changes to patient care and spending on interventions, studies in our narrative review were excluded unless they involved one hundred or more participants. The authors made an exception for studies of patient experience and information and communication technologies (ICTs) because rigorous quantitative studies were not identified. Therefore, the review of ICTs includes studies that utilize qualitative methods, feasibility and pilot studies. The review represents major areas of ICTs under consideration that would benefit from rigorous quantitative evaluation. As one of the most important emerging areas of research in patient experience, the authors felt excluding literature on ICTs entirely would undermine the article's intent to identify contemporary and emerging interventions. According to the review criteria,

we excluded 66 articles and included 58 articles for further review (See Figure 2).

Finally, the authors extracted the methods, major themes, and findings to analyze the contributions of each article. Initially, one researcher (HMH) downloaded, collected, and reviewed all of the articles. The researcher categorized each article in an excel spreadsheet and recorded article publication year, title, authors, methods, type of data analyzed (HCAHPS or other dataset), number of participants, major themes, and a summary of major findings and contributions. Then the research team immersed in the content of each article and reviewed the data about each article that the first researcher extracted and analyzed. The authors referred back and forth between the primary source material of the articles and the spreadsheet to confirm the categorization of the articles and to ensure that the spreadsheet listed all major themes. The authors worked together to immerse in the articles, discuss and summarize trends until no new trends or insights emerged, thus reaching data saturation.[15] After this immersive and iterative process, the authors grouped and regrouped articles into the four major domains: communications, ICT's, nursing, and the healthcare environment. Each author identified exemplary studies

Figure 2. Narrative Review Flow Diagram
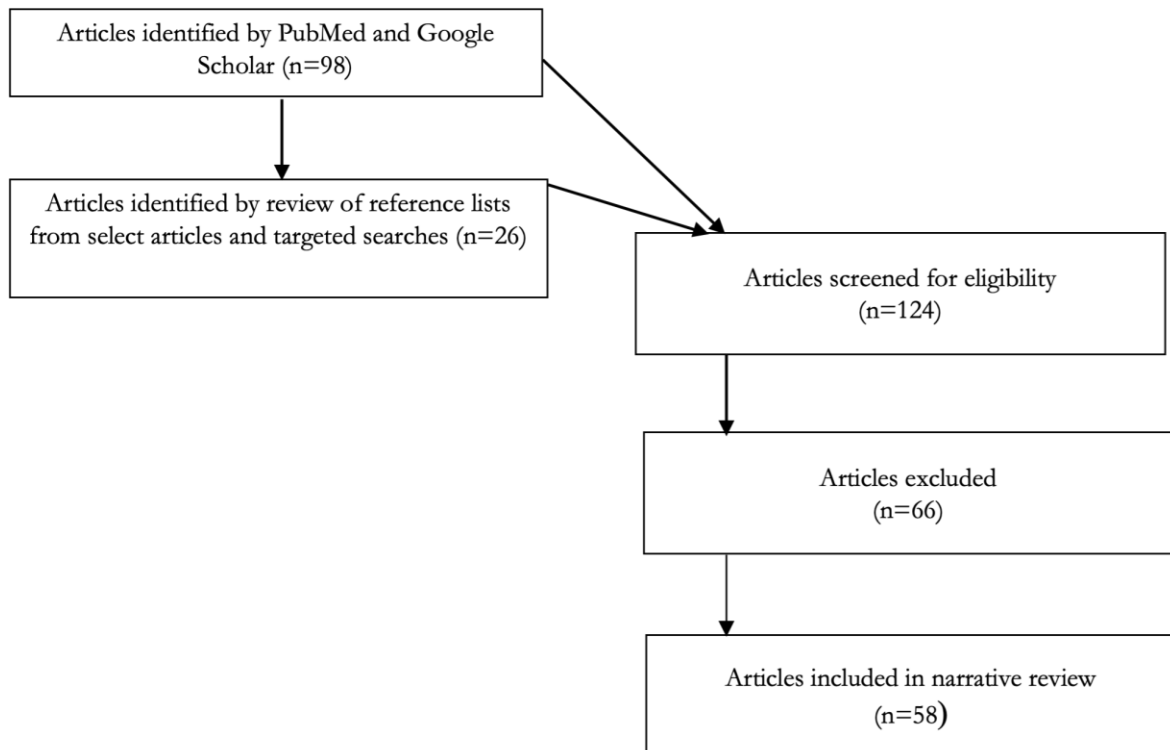
and together they decided which studies to feature in the narrative review to best represent the key themes. Drawing on the team's multidisciplinary approach and with the goal in mind of identifying key interventions that have a demonstrated track record for improving patient experience, they used an iterative and targeted approach to create the narrative review.

The narrative review, like all narrative reviews and all qualitative research, is limited because it uses a qualitative approach that is selective and subjective.[12,14] The review is limited because there exists important literature beyond that discussed in this article, including a rich body of qualitative literature and editorials.[16,17,18,19] The review does not include studies of less than 100 people and studies deemed by the inclusion criteria to not meet standards of rigorous social science research. Articles are based in U.S. hospital systems, and therefore this review does not provide a global lens on the patient experience literature. Furthermore, rather than a generalization of the collected literature, the review exemplifies the standards of qualitative research, is limited and subjective, and also simultaneously, offers a contemporary synthesis of key patient experience interventions. This narrative review should be utilized as is most qualitative research: it provides an overview of the meanings of particular social phenomena so that future reviews and research may be informed of the content of the phenomena, which may spark ideas for future research. As this is a limited review, those inspired by the featured studies should refer back to source materials before implementing interventions. This narrative review highlights promising interventions but does not address all study specifications or limitations; some aspects of an intervention may have had limited impact even as other aspects were transformational. Ethical approval and informed consent were not applicable for this article because neither human nor animal subjects supplied the primary source material. The narrative literature review is based only on secondary data analysis of published studies.

Results

Communication
Although patient experience surveys vary across institutions, most surveys about patient experience assess doctor and nurse communication using questions like, for example from HCAHPS: "During this hospital stay, how often did doctors [and nurses] explain things in a way you could understand?" Surveys that address communication focus on improving providers' verbal and nonverbal communication. In this section, we review key themes and key studies that demonstrated how improvements in communication also improved HCAHPS scores. Better communication with patients typically improved HCAHPS scores. For example, to improve the experiences of GI surgical oncology patients, Advanced Practice

Providers (APPs) and surgeons created standardized "care pathways" and a "mutual document" to coordinate care.[20] The interventions improved ratings on one HCAHPS item about discharge planning and Press Ganey items about physician's time spent and concern for patients.[20] In addition, in a randomized controlled clinical trial, lay health workers supplemented communications from providers, raising significantly the "satisfaction with a provider" score on HCAHPS.[21] Including more providers in conversations with patients reinforces healthcare communications and has been demonstrated to improve patients' experiences.

Other studies suggested that nonverbal ways of communicating care improve patients' experiences. For example, to evaluate a communications course and quality improvement initiative, physicians were observed systematically. Physicians who rated highly on Press Ganey Surveys apologized for long waits, 'overestimated time' to manage patient expectations about wait times, and asked open-ended questions to personalize communication.[22] Also, providers who performed a "nonmedical gesture" such as adjusting bedding or providing a beverage were more likely to be a high performer.[22] Similarly, when nurses did not attend to one or more care activities such as oral hygiene, skin care, and comforting talk, patients were less likely to rate their experiences highly.[23]

In addition, empathetic communication corresponds with higher patient satisfaction. Researchers found associations between physicians' scores on the Jefferson Scale of Empathy and patients' ratings of physicians on CG-CAHPS.[24] Also, the study revealed that patients associate women physicians and physicians in select specialties (obstetrics-gynecology, pediatrics, psychiatry, and thoracic surgery) with empathy because of specialized training in these fields and self-selection into fields matching providers' perceived "empathy attributes." [24]

Comprehending communications and empathy practices in specialties is an area for future research. Although other communications interventions may impact patient experience surveys, salient narratives in the literature address verbal, non-verbal, and empathetic communication as important areas for communications-related interventions to raise HCAHPS scores.

Interventions Using ICTs
Although none of the HCAHPS questions address patient use of ICTs, the electronic medical record (EMR), the Internet, texting, or even phone calls, many feasibility studies explore how ICTs improve patient experience. For example, studies evaluate patients' access to providers and records through patient portals,[25] whether having access to EMRs improves their experiences,[26] patients' satisfaction with customer relationship management programs,[27] and much more.

Feasibility studies about ICTs are a rapidly expanding area with many opportunities for future research. Just a few of the exemplary studies in the literature include for instance, in a quality improvement pilot, patients sent a photograph of a post-operative skin concern and discussed it over the phone, and/or chose an in-person appointment; on a singular Likert scale question, patients reported high satisfaction.[28] Likewise, in a pilot for a mobile app to educate patients about preoperative and postoperative procedures for lung surgery and to record patient reported outcomes, patients used surveys specialized to the app to record strong satisfaction with the app and the hospital.[29] Furthermore, anecdotal reports of patient approval supported a New York City Health + Hospitals' intervention that provided tablets to "bridge the social isolation" during the COVID-19 pandemic when patients were not allowed visitors.[30] In addition, research on using virtual reality in the intensive care unit suggests patients may have less anxiety and depression using the technology, good comfort, reduction in pain, and enjoyment according to fifty-nine patients' scores on a series of measures including the Hospital Anxiety and Depression Scale and patients' narratives.[31] Although these select innovations have been tested in particular contexts, these studies are narrow. More evaluation is needed for replicability, scalability, and improving metrics about ICT interventions with more standardized patient experience surveys.

There are many future research directions for ICTs and patient experience. More studies are needed on the increased risks to patient privacy and how to protect patient confidentiality.[32] Furthermore, cost-effectiveness, use of text messaging across different medical fields, and longitudinal analysis of interventions are opportunities for future research.[33]

Nursing and Patient Experience
HCAHPS includes several questions to assess nursing, especially nurses' verbal and nonverbal communication. In addition, HCAHPS asks, "During this hospital stay, how often did nurses treat you with courtesy and respect?" Nurses' involvement with patients are a focus of many patient experience surveys, even though most studies do not show statistically significant change in HCAHPS scores as a result of nursing interventions.[10,34] An exception is nurses' own satisfaction with their coworkers and workplaces, which has been shown to influence patients' experiences. For example, studying army treatment facilities, Perry et al.[35] found that when nurses have enough support, resources, and opportunities for advancement, as measured on the Practice Environment Scale-Nursing Work Index, CAHPS Hospital Pilot Survey Responses reflected more positive patient experiences.

Because of wide variation across institutions, evaluating nursing innovations that improve patients' experiences is complex, and therefore, the literature about the relationship between nursing and patient experience survey scores should be considered critically. For example, studies are inconclusive about some nursing innovations, including bedside rounding (when nurses share information among providers and patients in the patient's room) and decentralized nursing stations (smaller nursing stations distributed among patient rooms instead of one centralized nursing hub). Studies have found that patients' views on bedside and hallway rounds are similar and bedside rounds are not significantly more efficient for multidisciplinary staff than hallway rounds.[36] Quality improvement studies suggest upward trends in improving HCAHPS scores using bedside rounding but reports are confounded by concurrent patient experience interventions and studies lack generalizable reliable research methods.[37,38] Reviewing twenty-nine studies, Ratelle et al.[39] conclude there is unevenness in bedside rounds' implementation and it has a "limited effect" on patient experience. They report that comparisons across studies were difficult because studies evaluated patient experience with a variety of indicators and many did not examine length of stay, clinical outcomes, or costs.[39] Likewise, Fay et al.[40] find contradictory results in their review of twenty-one studies of decentralized nursing: while patients responded positively to decentralized nursing in terms of frequency of contact, patient care was impacted negatively when nursing teamwork (collaboration, getting help, communication) worsened as nurses worked further away from each other. Furthermore, hospitals decentralize nursing differently, which contributes to imprecise comparative analysis about effectiveness.[40] Although studies examine nursing and patient satisfaction, future rigorous research is needed to examine bedside rounding, decentralized nursing, particular nursing specializations,[41] nurse leadership,[42] and still other areas of nursing and patient experience.

The Healthcare Environment
HCAHPS minimally evaluates hospital environment with the questions, "During this hospital stay, how often were your room and bathroom kept clean?" and "During this hospital stay, how often was the area around your room quiet at night?" Yet many other aspects of environment are important to patients' experiences such as hospital sounds, wait times, interior design, and food. Often hospital systems that utilize the services of an external company for survey administration will add supplemental questions to address these issues.

Several select exemplary studies demonstrate possibilities for improving patient experience by addressing improvements to the healthcare environment. The hospital environment shapes many areas of patients' experiences including the dynamics of patient-provider relationships. For example, patients who recover from total joint arthroplasty in a private room were equally likely as those

in a shared room to evaluate on HCAHPS their physicians and nurses well, but those in private rooms were more likely to rate highly the hospital overall, quietness, and nurses' call button responsiveness.[43] Likewise, analysis of 15 months of CG-CAHPS surveys of 22 neurological and orthopedic spine surgeons revealed that longer waiting room time impacted negatively not only global physician ratings but also their communications scores specifically.[44] Furthermore, the architectural spatial layout including nursing station locations, room handedness (whether providers approach patients on the right or left side of the bed), bed location in the room, and location of the sink/hand washing station in the patients' room all shaped scores statistically significantly on a nationally validated third-party survey (though did not impact HCAHPS scores).[45] More research is needed to evaluate how hospital sounds and tastes impact patients' experiences, from culturally appropriate foods for people of various racial/ethnic groups,[46] to the ways that pharmacological and non-pharmacological sleep interventions, or even a whole "sleep menu," may improve patients' experiences.[47] Additionally, future studies should examine how sound absorbing tiles, rooms that view nature, and many other aspects of the hospital environment shape patients' experiences.[48]

Conclusion

By reviewing literature about patient experience interventions, we have identified several trends across four domains: communications, ICT's, nursing, and the healthcare environment. HCAHPS and CG-CAHPS surveys are valuable, standardized tools to evaluate patient experiences and some promising studies, especially in the area of communications, suggest reliably tested ways to improve patient experiences. We find that verbal, non-verbal, and empathetic communication studies are especially salient in the literature. In addition, research about ICT's includes promising interventions that need additional testing using large datasets. Finally, many studies evaluate nursing and the healthcare environment, but evaluations of interventions in these areas are often inconclusive because nursing and environment vary widely within and between hospital systems. Those who use these interventions should consider the interventions as subjective, critical, and partial, but at the same time impact key and salient areas of patient experience. However, as Davidson et al.[10] conclude from their review of 59 studies about improving HCAHPS scores, "more rigorous research is needed to identify effective and generalizable interventions to improve patient satisfaction."

The literature on improving patient experience includes many avenues for future research. More comprehensive evaluations using interviews, focus groups, additional surveys (or these tools combined with HCAHPS and CG-CAHPS) may better evaluate when patients and physicians

form relationships and how these partnerships impact health outcomes.[10] Supplemental one to five question surveys, rapidly administered, may help providers and patients receive feedback and respond to patient concerns more quickly.[49] Additional evaluations could examine patient perceptions of trust,[50] comfort,[51] safety, shift length, or burnout, which are not currently included in HCAHPS or CG-CAHPS. Several select studies demonstrate possibilities for communications, ICTs, nursing, and hospital environment interventions, and this is a growing field with opportunity for additional creative interventions and rigorous evaluation of those interventions. Future work should expand promising pilot studies and modify studies of specific interventions to be able to generalize results and compare across specialities.[52,53]

Expanding the methodological horizons of patient experience research can work to mitigate the limitations of HCAHPS or CG-CAHPS, which have been found to suffer from nonresponse error bias,[8] bias toward smaller hospitals irrespective of care received,[10] and bias against hospitals that treat high acuity patients.[9] Expanded studies may address racialized patient experiences more in depth to address health disparities comprehensively.[54] To respect patients as whole persons, serve the whole person, and improve patients' experiences during some of the most vulnerable and transformational moments in their lives, patients' experiences must be evaluated just as deeply, fully, and rigorously.

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Declaration of Conflicts of Interest

The Authors declare that there are no conflicts of interest.

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