

Patient Experience in Primary Care: A Systematic Review of CG-CAHPS Surveys

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Abstract

The National Academy of Medicine's (NAM) vision for 21st-century health care underscored the need for increased patient engagement and charged health-care researchers to develop tools to evaluate patient experience. The most widely studied patient experience tools are the Consumer Assessments of Healthcare Providers and Systems (CAHPS) surveys. The Clinician and Group (CG)-CAHPS survey is the preferred patient experience survey for primary care, and thus a systematic review of patient reports from the CG-CAHPS empirical literature is ideal to appreciate the voice of health-care consumers. This systematic review revealed patient subjective reports regarding the acceptability of health-care delivery models, the effectiveness of interventions, the timeliness of care in different practice climates, and their responses to quality improvement initiatives. The synthesized results inform clinicians, organizations, and the health-care system where to prioritize and how to adapt services to efficiently provide equitable care, achieving the NAM's vision for a patient-centered US health-care system.

Keywords

patient experience, CAHPS, patient-centered care, primary care

Over 50 years ago, Donabedian (1) introduced “patient voice” as a marker of health-care quality, identifying the individuals of society as the ultimate validators of the effectiveness of the health-care system. Although research aimed to amplify patient voice has increased over the last 5 decades (2), the National Academy of Medicine's (NAM) (3) publication of *Crossing the Quality Chasm: A New Health System for the 21st Century* underscored the need for increased patient engagement in health care. The NAM (3) detailed the current state of US health-care quality and imperatives for its improvement. The publication raised the awareness of health-care disparities and became the impetus for the US health-care system to prioritize patient-centered care. The NAM (3) authors identified 6 domains of health-care quality: care that is effective, timely, efficient, safe, equitable, and patient centered. The NAM (3) defined patient-centered care as “respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions” (p. 7). Simultaneous to this burgeoning awareness of gaps in US health-care quality, the Agency for Healthcare Quality and Research (AHRQ) convened health-care researchers and practitioners to develop surveys to evaluate patients' experience of care (2,4). The convergence of policy, research, theory, and practice led to

the development of patient experience instruments as a method to evaluate patient-centered care.

Tools that evaluate patient experience, both quantitative surveys and qualitative narratives, give the participants in health care an avenue to provide reports of their encounters. Analysis of patient experience surveys provides insight into an organization's level of patient-centered care, depicting the person's perception of aspects of health care they value (5,6). Instruments that evaluate patient experience are different from other health-care quality assessments, as patient experience surveys reflect subjective reports of health-care quality from the patient's viewpoint (5). The unique perspective provides valuable insights into a variety of services, as

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patients assess different aspects of information, forming judgments about health-care quality over time (7,8).

The most widely studied and endorsed patient experience measures in the United States are the Consumer Assessments of Healthcare Providers and Systems (CAHPS) suite of surveys (9,10). The suite of surveys assesses patient experience in multiple contexts (eg, home health care, hospital, in-center hemodialysis, and clinician and group) and populations (eg, Native American) (9). In the context of primary care, conceptual evolution and empirical testing led to the core items in the Clinician and Group (CG)-CAHPS Survey version 3.0 that appraise the following patient experience topics: (1) getting timely appointments, care, and information; (2) how well providers communicate with patients; (3) providers' use of information to coordinate patient care; (4) helpful, courteous, and respectful office staff; and (5) patients' rating of the provider (11).

The CG-CAHPS survey is a valid and reliable tool that identifies and measures essential components of patient-centeredness and engagement (2,12). Results from CAHPS surveys may be used to prioritize and adapt care to improve quality efficiently (2,5). Established to improve health-care outcomes, the CAHPS program provides the tools for health-care organizations, purchasers, and consumers to evaluate patient-centered care, health plan functioning, and health-care performance (13). Although recognized as the industry standard for understanding patient experience in primary care (5), the author found no published systematic reviews of CG-CAHPS outcomes in the literature.

Aim

This systematic review summarizes and synthesizes the CG-CAHPS survey empirical studies of patient experience in primary care. Health-care organizations may use patient experience survey results to evaluate the level of patient-centered care delivered in their organization (2). The CAHPS suite of surveys are the most widely validated, reliable, and applied patient experience surveys in the United States (10). As the leading survey of patient experience, the CG-CAHPS empirical literature is ideally suited to review patient reports of primary care systematically. To appreciate the voice of the diverse US population, the author undertook an exhaustive review of CG-CAHPS survey research.

The landscape of health care changed with the enactment of the Patient Protection and Affordable Care Act (14). Coincidentally, the AHRQ released CG-CAHPS version 2.0 and later version 3.0. This systematic review synthesizes the patient experience in the new era of US health care. While other systematic reviews of the literature (15) examined patient experience tools across instruments and settings, this systematic review focuses on patient experience in primary care using the CG-CAHPS survey (11).

Method

Search Methods

An exhaustive search of the recent health literature was conducted in the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane Database of Systematic Reviews, PubMed, Web of Science, Scopus, and PsycINFO databases. The reference lists of relevant articles and websites were also reviewed. In 5 separate searches, the key phrases: "Consumer assessment of health-care providers and systems" "CAHPS" "Patient Experience," were entered in each database. Additionally, the Boolean operator AND was used to combine the concept of interest, patient experience, with the context of interest, primary care. The searches were limited to peer-reviewed empirical articles, published in English, between the years January 2010 and October 2017. The CG-CAHPS survey was initially drafted in 2008 and field tested in 2009; therefore, the search was limited to years after the initial field testing was completed (9). The reference lists of all empirical articles that met the inclusion criteria and all issues of *Journal of Patient Experience* and *Medical Care* were reviewed for additional relevant studies.

The search strategy was developed to identify empirical articles that employed the CG-CAHPS survey in the context of primary care. Since the aim of the review was to understand the voice of the diverse US population, only empirical articles reporting CG-CAHPS patient experience outcomes were included. The search methodology and reported findings conform to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (16) criteria.

Quality Appraisal

The author used the Joanna Briggs Institute appraisal checklist (17) to critique the quality of the studies. The methodological appraisal tools from the Joanna Briggs Institute assisted in the extraction of data from the empirical literature for assessment of quality. The author did not exclude any articles based on quality.

Data Abstraction and Synthesis

All articles fitting the inclusion criteria were appraised, and data were abstracted from the empirical studies. As each study was evaluated, pertinent data were recorded in the relevant section of the matrix. There was substantial heterogeneity among the studies included in the review; therefore, a meta-analysis was not an available synthesis strategy.

Results

Study Selection

Using the PRISMA (16) guidelines for systematic reviews, the searches yielded 849 articles that potentially met the inclusion criteria. The articles were first screened by title and abstract to eliminate articles not meeting the aim. The

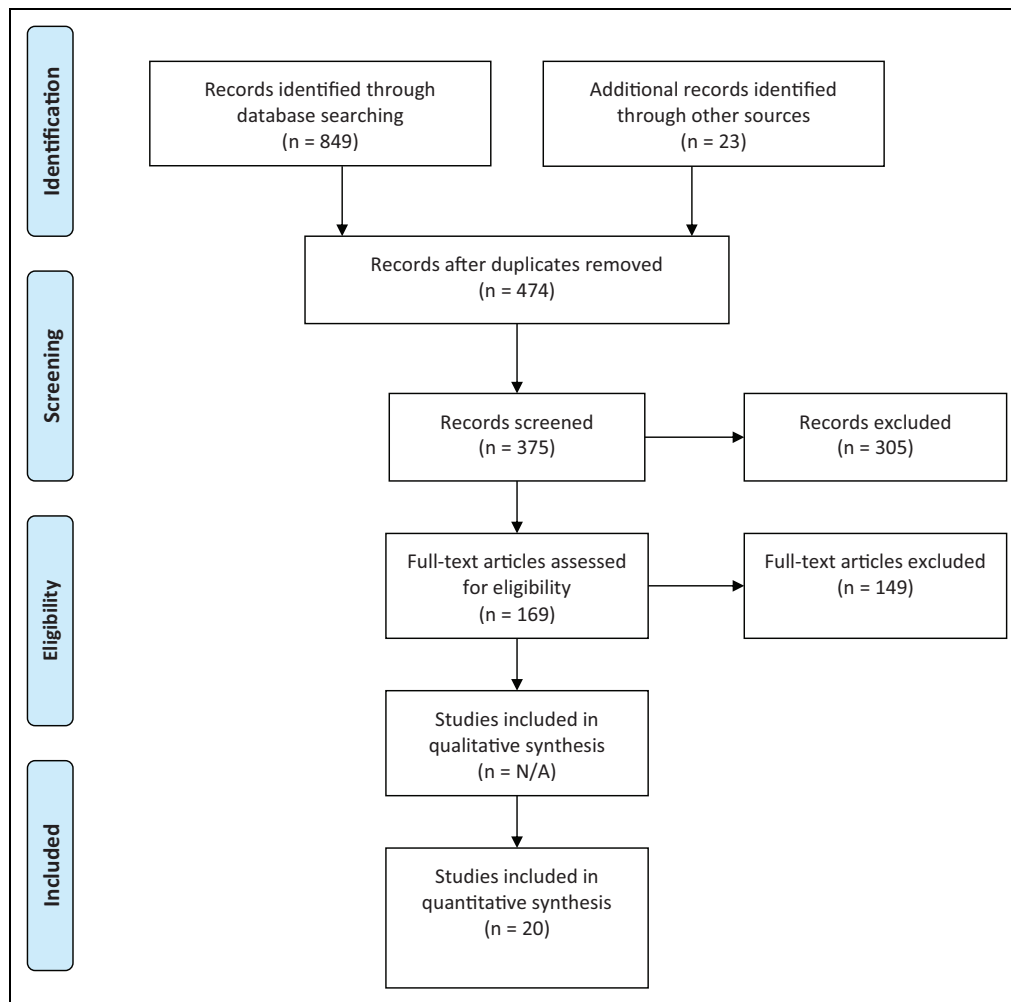


Figure 1. Prisma flow diagram.

remaining articles (169) were retrieved for full-text review. A total of (149) articles did not meet the inclusion criteria, yielding 20 articles included in the review (see Figure 1). All were empirical studies employing quantitative methodologies.

Study Characteristics

Study characteristics are summarized in Table 1. All 20 studies were conducted after 2009 within the United States. Researchers from 18 studies used nonexperimental designs, and 2 research teams used pragmatic randomized control trials for the method of their research. Study participants were inclusive of traditional primary care practices, Patient-Centered Medical Homes (PCMH), community health centers, and residency clinics. Study sample sizes were large and varied from 347 patients to 1 322 290 patients in respective studies. Researchers in most studies reported (8,18–33) statistically significant results in at least one of the study's patient experience outcome measures. Fourteen of the study's (20,22–29,31–35) authors used comparison groups as a methodological design to measure patient experience from multiple health-care perspectives. Several teams

of researchers (21,32,35) used data from large Medicare databases to conduct their studies. Researchers used the subjective data from CG-CAHPS surveys to analyze the association of patients' characteristics and patients' reported experience in health care (36), health-care utilization (35), and a comprehensive primary care initiative (32).

Table 2 displays results reported by the core items in the CG-CAHPS version 2.0 and 3.0 surveys (11). The studies are categorized by their use of the CG-CAHPS survey to provide a synthesis of what is known about primary care quality from patient reports. The use of CG-CAHPS surveys' results assisted health-care clinics, organizations, and payers to understand how patient experience reports related to (1) health-care delivery models (8,19,20,22,25,31,32,35); (2) interventions (26,33,34); (3) differences by patients' characteristics and behaviors (18,21,24,29,30); (4) practice climate (27,28); and (5) responses to quality improvement initiatives (23,36).

Discussion

As primary care practices move from volume-based to value-based care, evaluating the progress toward

Table 1. Primary Care CG-CAHPS Study Descriptions.

Study	Design	Aim	Sampling	Findings
Adams et al, 2016	Cross sectional	To explore communication barriers as independent predictors and potential mediators of variation in clinical recognition of DPN	N = 12 681 adult diabetes patients included: 31% white, 8% Chinese, 22% African American or black, 24% Latino, and 15% Filipino. Most patients (92%) were over the age of 50 and men and women were equally represented	Did not find an association between patient-reported communication quality and clinical documentation of DPN. Found no evidence of an independent relationship between health literacy and patient-reported quality of communication with the provider on documentation of DPN
Bauer et al, 2014	Observational	To determine whether shared decision-making, patient-provider trust, or communication are associated with early stage and ongoing antidepressant adherence in people with T2D	N = 1523 adult T2D patients newly prescribed an antidepressant. Participants had a mean age of 58 years, 60% females, 70% minorities, and 17.8% with low educational attainment and 71.8% with limited health literacy	Data support that shared decision-making and trust may influence adherence to antidepressant medications at the initiation of treatment and over the course of 12 months. These effects are independent of patient characteristics, including health literacy and education. Overall communication quality (CAHPS provider communication composite) was not significantly associated with nonadherence in primary analysis
Behl-Chadha et al, 2017	Cross sectional	To evaluate the latest-patient experience information following the adoption of the PCMH model at a clinic that serves homeless adults with behavioral health diagnoses. To identify potential areas for improvement in patient experience that a primary care practice serving homeless patients may need to focus on as it transforms to a PCMH model of care	N = 194 homeless adults. N = 1864 Control group nonhomeless adults. The patients from BHCHP were significantly more likely to be male (72% vs 38%; $P < .0001$), younger (27% age 55 or older vs 40%, $P < .001$), Black non-Hispanic (33% vs 13%; $P < .0001$), and less than high school educated (32% vs 26%; $P < .0001$). 31% BHCHP patients excellent to very good overall health. 36% of BHCHP patients selected fair or poor the to describe their overall health compared to 30% from control group ($P = .34$)	This study provides a first view of how homeless individuals experience a PCMH designed specifically to serve people who lack housing. Self-management support ($P < .0001$) and behavioral health integration ($P < .0021$) were the CAHPS measures on which BHCHP scored significantly higher than comparison practices. Comparable results between groups in provider communication and care coordination. Employing staff and providers with expert understanding of social determinants of health and the unique challenges that accompany homelessness may improve patient experience in homeless adults
Bennett et al, 2015	Cross sectional	To examine whether the quality of the patient-provider relationship or patients' satisfaction with their PCPs involvement in the intervention were associated with weight loss	N = 347 obese adults, 21-years or older, with one or more cardiovascular risk factors (hypertension, hypercholesterolemia, and/or diabetes). In the study sample, 62.5% were female, 39.5% were African American, and 61.1% were college graduates. Body mass index at study entry was 36.3 kg/m ² (SD 5.1)	Did not detect any statistically significant differences in weight change by higher vs lower patient-provider relationship ratings, within each treatment group
Carvajal et al, 2014	Cross sectional	To examine patient-reported experiences of provider communication, access to care, clerk/receptionist courtesy, and chronic disease management at 6 primary care sites in the Bronx. To estimate the differences in patient experiences by teaching versus nonteaching primary care sites	N = 975 adult primary care patients from teaching sites, N = 777 adult primary care patients from nonteaching sites. Most participants were 55 to 74 years old (40%); 70% of all participants were female and 90% a racial or ethnic minority. About 73% had a HS education or higher, 30% excellent to very good overall health	The results reveal that patient-reported access to care scores are significantly worse among patients at teaching sites compared to those at nonteaching sites ($P = .01$). Overall health status and age were important determinants of patient-reported experiences
Chao et al, 2017	Cross sectional	To examine the associations between patient characteristics and patient experience in health care. To identify factors that could be prioritized to improve health status	N = 51 023 MEPS interviewees from adult primary care practices. Did not report sample demographics	It is feasible to construct Bayesian networks with information on patient characteristics and experiences in health care. Bayesian network models help to identify significant predictors of health-care quality ratings with information on patient characteristics and experiences in health care. The networks in this study show that age, education or income may not have extensive connection with patient experience in health care
Dale et al, 2016	Cross sectional	To assess the effects of an initiative on Medicare expenditures, utilization, measures of quality of care, and patient experience during the first 2 years of the initiative	N = 432 080 Medicare beneficiaries attributed to initiative practices, N = 890 110 beneficiaries attributed to comparison practices. Did not report sample demographics	There were no significant effects on CG-CAHPS composite measures: access to care, provider communication, and overall rating of providers by patients between initiative practices and comparison practices
Di Capua et al, 2017	Case-controlled study with difference-in differences (DID) and cross-sectional analyses	To evaluate the effects of a care coordination program's impact on patients' experiences and the overall structure and function of the team	N = 12 496 adult primary care patients. Most were female (64%), predominantly white (66%), and 12% reported a Hispanic or Latino ethnicity, 54% Excellent to very good overall health	Generally patient experience with staff in practices with care coordinators improved significantly after program implementation ($P < .001$), although the care coordinators worked with only a segment of patients. Results suggest embedded care coordinators improved the primary care experience for patients; they integrated themselves in the care teams without disruption of the existing team's function

(continued)

Table 1. (continued)

Study	Design	Aim	Sampling	Findings
Dorr et al, 2016	Pragmatic cluster-randomized controlled trial	To investigate whether focusing on HVEs will improve patients' experience with care more than clinics who received general QI encouragement	n = 345 adult primary care patients in control group, n = 341 adult primary care patients in intervention group. With 60% female, 11% ethnic or racial minority, 52% 55 years and older, 72% HS degree or higher, 55% excellent to very good overall health	The overall difference in difference was 2.8%, favoring the intervention. The intervention performed significantly better in follow-up on test results (P = .091) and patients' rating of the provider (P = .091), whereas the control performed better in access to care (P = .093). Both arms also had decreases, including 4 of 11 composites for the intervention, and 8 of 11 for the control. Practices that targeted HVEs showed significantly more improvement in patient experience of care
Hasnain et al, 2013	Cross sectional	To explore the role of race and acculturation in patients' perceptions of the quality of care that they received in a primary care setting	N = 881; 303 (34%) adult primary care patients African American, 271 (31%) adult primary care patients Hispanic, 291 (33%) adult primary care patients missing race, 16 (2%) adult primary care patients missing race, 71% female, 74% 34 years or younger, and 74% with some college or higher	After controlling for health status and other demographic variables, race and acculturation were significantly associated with several CG-CAHPS topics: overall provider rating (P < .05), recommending provider (P < .05), shared decision-making (P < .05), and helpfulness of staff (P < .05). Remarkably, race and acculturation were not associated with ratings of physician communication. Overall ratings of providers and shared decision-making behaviors were consistently higher for Hispanic patients
Kern et al, 2013 (8)	Cross sectional	To measure patients' experiences at the time of transformation to a PCMHs in a multipayer community in Hudson Valley, New York	N = 419 adult primary care patients, 68% female, 51% 45-64 years old, 91% white, 69% with some college or higher, 55% excellent to very good overall health	Findings suggest patients were satisfied with their face-to-face encounters with their providers (P < .05), but relatively dissatisfied with how the practices functioned. This study suggests PCMH transformation does not adversely impact patients. Measuring patient experience can yield insights into the strengths and weaknesses of given practices and identify necessary QI initiatives within the framework of the PCMH
Kern et al, 2013 (25)	Prospective	To measure patients' experiences over time in primary care practices for general adult populations, which transformed into PCMHs in a multipayer community in Hudson Valley, New York	N = 715 adult primary care patients; n = 346 baseline, n = 369 at follow-up 15-months later, 69% female, 49% 45-64 years old, 87% white, 65% with some college or higher, 51% excellent to very good overall health	Patients' experience with access to care improved over time within practices that transformed into PCMHs. An absolute improvement of 8 percentage points, and a relative improvement of 13%. Improvements in access to care were driven by patients' experiences with greater availability of appointments for urgent medical problems and by decreased waiting time once in the doctor's office. Patient experience did not change significantly over time for any other CG-CAHPS domain of care
Krist et al, 2016	Pragmatic cluster-randomized controlled trial	To assess whether intervention practices were more likely to set a change goal for each of the 8 behaviors or mental health concerns than patients seen at control practices. To evaluate whether intervention patients were more likely to be screened, referred, or report that they had made improvements compared to control patients. To analyze patient trust in their health-care team and perceived clinician communication style derived from CG-CAHPS	N = 2913 adult primary care patients; n = 1400 control; n = 1513 intervention; 67% female, 69% 50 years and older, 60% white and 28% Latino, 49% with some college or higher, 30% excellent to very good overall health	Overall, intervention patients reported making substantial diet, exercise, stress, anxiety/depression, and sleep improvements when compared to control (range of differences 5.4%-13.6%, P < .01). From the CG-CAHPS survey, a greater percent of patients from intervention practices than control practices reported that their clinician definitely cared about them as a person (81.8 vs 75.3%, P < .001); they could definitely trust their clinician with their medical care (85.0 vs 79.5%, P < .001); they were encouraged to ask questions (57.1 vs 47.6%, P < .001); and they were explained information in a way that was easy for them to understand (74.4 vs 69.0%, P < .001).
Nembhard et al, 2012	Pre-post design	To evaluate the impact of collaborative membership on organizational climate for quality and service quality	Baseline adult primary care patients: n = 815 intervention, n = 3676 control; follow-up: n = 1407 intervention, n = 5553 control, 58% female, 65% 55 years and older, 88% white and 2% Latino, 67% with some college or higher, 46% excellent to very good overall health	Intervention clinics performed significantly better at time of follow-up than control clinics on access to care: intervention 84.0 control 87.0 (P < .0001); adjusted difference (P < .0001). At baseline, the control clinics performed better than intervention clinics: intervention 85.5 control 88.5 (P < .001) with no statistically significant difference with provider communication after intervention: intervention 88.7 control 89.3 (P = .21) adjusted difference (P = 0.85). Clerk and receptionist at provider's office domain significantly improved after intervention for the intervention clinics: intervention 90.3 control 90.0 (P = .75) adjusted difference (P = .03).
Nembhard et al, 2015	Cross sectional	To assess the relationship between organizational climate and patients' reports of timely care in PCC and to generally examine the association between staffs work environment and patient care experiences	N = 1224 employees completed LCO, n = 8164 adult primary care patients completed CG-CAHPS, 60% female, 64% 55 years and older, 90% white and 2% Latino, 69% with some college or higher, 49% excellent to very good overall health	Findings support that the higher the value perceived of input on all levels of staff, the greater perceptions of timeliness by patients (P < .05). Additionally, the greater congruence of clinical leaders, staff, and administration LCO scores, the higher the perception of timeliness scores reported by the patient (P < .05). Conversely, the more the climate favored the voice of those higher in the hierarchy over those lower at frontline care, the less patients experienced timely care in several areas (P < .05). Voice climate for individuals lower in the professional hierarchy is more positively associated with patients' reports of timely care than the climate for those higher in the hierarchy (P < .05). This may implore organizations to empower all levels of staff as each contribute to patient experience.

(continued)

Table 1. (continued)

Study	Design	Aim	Sampling	Findings
O'Brien & Shea, 2011	Cross sectional	To assess if there are significant baseline differences in patient experience among English, Spanish, and bilingual Hispanics receiving linguistically appropriate primary care. To identify predictors of positive patient experience in a cohort of Hispanic patients who receive linguistically congruent primary care	N = 1267 adult primary care patients. 80% female, average age was 40, 100% Latino, 15% with some college or higher	The findings revealed bilingual Hispanics expressed higher patient experience score with provider communication than their Spanish-speaking counterparts ($P < .01$). Likewise, bilingual patients expressed higher experience scores with the help provided by office staff than Spanish speakers. ($P < .01$). There were no significant differences among bilingual, Spanish-speaking, and English-speaking Hispanics with respect to the following 4 factors: satisfaction with the regular provider, overall health care, access to care, or promptness of care. Language preference did not consistently predict patient experience scores in the multivariate models when controlling for all of the covariates. Spanish language preference was a significant predictor only of satisfaction with health-care access ($b = 5.6$, $P < .01$). Consequently, language preference did not predict level of patient experience among Hispanic patients who received linguistically competent primary care.
Ratanawongsa et al, 2013	Cross sectional	To evaluate whether patient assessments of health-care provider communication were associated with objective measures of poor adherence for cardio-metabolic medications among a diverse sample of fully insured persons with diabetes	Patients with T2D & prescribed at least 1 cardio-metabolic medication. N = 7303 oral hypoglycemic; N = 7052 lipid-lowering; N = 7967 antihypertensive. 52% female with mean (SD) age 59.5 (9.8) years. 27% white, 19% African American, 16% Latino, 12% Asian, 11% Filipino, and 11% multiracial. 42% HS or less and 38% limited health literacy	Results revealed with a 10-point decrease in CG-CAHPS score, the adjusted prevalence of poor adherence increased by 0.9% ($P = .01$). Compared with patients offering higher ratings, patients who gave health-care providers lower ratings for involving patients in decisions 4% ($P = .04$), understanding patients' problems with treatment 5% ($P = .02$), and eliciting confidence and trust 6% ($P = .03$), were more likely to have poor adherence. Poor provider communication ratings were independently associated with objectively measured inadequate cardiometabolic medication refill adherence, particularly for oral hypoglycemic medications.
Rodriguez et al, 2009	Cross sectional	To assess the extent to which organizational and market factors are related to individual provider performance on patient experience measures	N = 112 650 adult primary care patients. Did not report sample demographics	Providers belonging to IMGs did better on communication ($P = .007$) and care coordination ($P = .02$) composites compared to physicians belonging to independent practices. PCPs belonging to IMG with greater numbers of PCPs had significantly better performance on all composite measures (range: 0.81–2.39 points per SD increase in the number of PCPs). PCPs belonging to medical groups that placed more emphasis on productivity and efficiency in individual physician financial incentive formula had worse performance on the access to care ($P = .03$) composite measure.
Swankoski et al, 2017	Prospective study using 2 serial cross sectional samples	The study examines how patient experience changed between the first and second years of a comprehensive primary care initiative and how ratings of comprehensive primary care initiative practices changed relative to ratings of comparison practices	N = 25 843 Medicare FFS patients in 495 initiative practices, N = 8949 Medicare FFS patients in 818 comparison practices. Did not report sample demographics	Two years into comprehensive primary care initiative, Medicare patient ratings of care over time were generally comparable to comparison practices. There were statistically significant favorable effects in the proportion of patients giving the best responses for 3 of 6 CG-CAHPS composite measures of getting access to care (2.1 percentage points); providers support patients in taking care of their own health (3.8 percentage points); and providers discuss medication decisions with patients (3.2 percentage points). Results suggest that transforming care during the first 2 years of a comprehensive primary care initiative did not negatively affect patient experience but did generate selected small improvements.
Tseng et al, 2015	Cross Sectional	To determine whether PCP referral is associated with greater weight loss, end-of-study patient-provider relationship quality, and satisfaction and participation rates in the intervention	N = 415 obese patients enrolled in the Hopkins POWER trial from six primary care practices in the Baltimore area. 65% female, mean (SD) age 54.9 (10.2), 42% black, 55% white, 2% Latino, 59% with some college or higher	Participants' referral by their PCP to the trial rated the quality of their relationship with their PCP higher ($P = .007$). Patient-PCP relationship quality score mean (SD) PCP referral 29.9 (2.7) non-PCP referral 28.7 (4.0) $P < .001$. However, among participants in the intervention arms ($n = 277$), PCP referral was not significantly associated with greater participation in the intervention, including percentage of completed coach contacts and web logins. The methods section listed 2 CG-CAHPS questions: Does the PCP know your medical history? And Does the PCP explain things clearly? Only results reported were a narrative comment on nonstatistical significance between groups.

Abbreviations: BHCHP, Boston Health Care for the Homeless Program; CG-CAHPS, Clinician Group Consumer Assessment of Healthcare Providers and Systems; DPN, diabetic peripheral neuropathy; FFS, fee for service; HS, high school; HVE, high value elements; IMG, integrated medical groups; LCO, Leading Culture of Quality Survey; MEPS, Medical Expenditure Panel Survey; PCC, primary care clinic; PCMH, primary care medical home; PCP, primary care provider; POWER, Practice-based Opportunities for Weight Reduction; QI, quality improvement; SD, standard deviation; T2D, type 2 diabetes.

Table 2. Reported Results According to Domains of CG-CAHPS in Primary Care Studies.

Patient Experience Domain	Health-Care Model	Interventions	Patient Characteristics	Practice Climate	Quality Improvement
Access to care composite	Behl-Chadha et al, 2017 Carvajal et al, 2014 Dale et al, 2016 Di Capua et al, 2017 Kern et al, 2013 ⁸ ; Kern et al, 2013 ²⁵ Rodriguez et al, 2009 Swankoski et al, 2017		Chao et al, 2017 ^a Hasnain et al, 2013 O'Brien & Shea, 2011	Nembhard et al, 2012 Nembhard et al, 2015 ^b	Dorr et al, 2016
Provider communication composite	Behl-Chadha et al, 2017 Carvajal et al, 2014 Dale et al, 2016 Di Capua et al, 2017 Kern et al, 2013 ⁸ Kern et al, 2013 ²⁵ Rodriguez et al, 2009 Swankoski et al, 2017	Bennett et al, 2015 Krist et al, 2016 ^e Tseng et al, 2015 ^g	Bauer et al, 2014 ^c Chao et al, 2017 ^f Hasnain et al, 2013 O'Brien & Shea, 2011 Ratanawongsa et al, 2013 ^h	Nembhard et al, 2012	Adams et al, 2016 ^d Dorr et al, 2016
Care coordination composite	Di Capua et al, 2017 Kern et al, 2013 ⁸ Kern et al, 2013 ²⁵ Rodriguez et al, 2009	Tseng et al, 2015 ⁱ	Chao et al, 2017 ^j	Nembhard et al, 2015 ^k	Dorr et al, 2016
Clerks and receptionists at provider's office composite	Behl-Chadha et al, 2017 Carvajal et al, 2014 Di Capua et al, 2017 Kern et al, 2013 ⁸ Kern et al, 2013 ²⁵ Rodriguez et al, 2009		Chao et al, 2017 ^l Hasnain et al, 2013 O'Brien & Shea, 2011	Nembhard et al, 2012	Dorr et al, 2016
Provider Rating, scale 0-100	Behl-Chadha et al, 2017 Carvajal et al, 2014 Dale et al, 2016 Di Capua et al, 2017 Kern et al, 2013 ⁸ Kern et al, 2013 ²⁵ Swankoski et al, 2017		Hasnain et al, 2013 O'Brien & Shea, 2011	Nembhard et al, 2012	Dorr et al, 2016

Abbreviations: CG-CAHPS, Clinician Group Consumer Assessment of Healthcare Providers and Systems; BHCHP, Boston Health Care for the Homeless Program.

^aChao et al, 2017 CG-CAHPS Adult Survey Access to care questions as variables in statistical analysis.

^bNembhard et al, 2015 Two CG-CAHPS Adult Survey 2.0 Access to care questions, no composite score.

^cBauer et al, 2014 CG-CAHPS Adult Survey 3.0 Provider communication questions separately, no composite score.

^dAdams et al, 2016 Composite score methodology different than endorsed by CAHPS developers.

^eKrist et al, 2016 One CG-CAHPS Adult Survey Provider communication question, no composite score.

^fChao et al, 2017 CG-CAHPS Adult Survey Provider communication questions as variables in statistical analysis.

^gTseng et al, 2015 One CG-CAHPS Adult Survey Provider communication question, no composite score.

^hRatanawongsa et al, 2013 CG-CAHPS Adult Survey 3.0 Provider communication questions separately, no composite score.

ⁱTseng et al, 2015 One CG-CAHPS Adult Survey Care coordination question, no composite score.

^jChao et al, 2017 CG-CAHPS Adult Survey Care coordination questions as variables in statistical analysis.

^kNembhard et al, 2015 One CG-CAHPS Adult Survey 2.0 Care coordination question, no composite score.

^lChao et al, 2017 CG-CAHPS Adult Survey Clerks & receptionists at provider's office question as a variable in statistical analysis.

patient-centered care is a priority. Prioritizing patient-centered care is particularly relevant to health-care organizations that base provider incentives on patient-reported information (37). Improvements in patient experience are associated with appropriate health-care utilization, adherence to treatment recommendations, and healthier patient outcomes (3,15). Patient experience surveys enable providers, payers, and health-care organizations to evaluate progress toward improved quality from the patient perspective.

Researchers in the quantitative studies used patient experience reports to assess the effects of organizational climate on timely access to care (28); compare the provider relationship with patients' level of weight loss (33,34); and understand interactions among shared decision-making, patient-provider trust, and communication on adherence to medical regimens in people with depression and chronic disease (18,30). The results from these studies articulate patient voices not typically synthesized through other mechanisms.

In the value-based environment, organizations must determine the best health-care model for the patients for which they provide care. Patient experience surveys provide that perspective (4,5). Beal and colleagues (38) analyzed the Medical Expenditure Panel Survey data to evaluate whether a PCMH model of primary care delivery can eliminate disparities in Latino populations. Their findings revealed primary care delivered through the PCMH model leads to better clinical outcomes and patient experiences at a reduced cost (38). Medical Expenditure Panel Survey respondents with a PCMH had higher rates of preventive care and positive patient experiences regardless of race or ethnicity. Of the 20 articles in this review, 8 (8,19,20,22,25,31,32,35) used the CG-CAHPS as a tool to evaluate model acceptability with patients. Health-care organizations also used patient-reported data to make informed, actionable improvements (15). Behl-Chadha and colleagues' (19) study described the patient experience of homeless individuals with behavioral health diagnoses who received care in a PCMH explicitly designed to serve people who lack housing. Using the results, the researchers concluded the data reinforced their current policy to employ staff and providers with an expert understanding of social determinants of health (19). Patient experience data also assisted the researchers in understanding the extraordinary challenges that accompany homelessness. The information will inform improvements in health-care access and prioritize health care that relates to basic survival needs (19).

Consistent with patient experience studies in other settings (39,40), studies included in this review related differences in patient experience across racial and ethnic groups. Researchers in half of the studies in this review included patient experience reports from a nationally representative sample of persons from racial and ethnic minority categories (18–20,24,26,29,30,33,34,36). Two research teams explicitly studied patient experience perspectives of persons from ethnic and minority groups (24,29). O'Brien and Shea (29) examined patient experience among Hispanic adults who received health-care services at safety-net clinics from linguistically congruent providers. In their study, language preference did not predict patient experience reports, but low health literacy rates were positively correlated with lower patient experience reports (29). There is similar evidence for positive patient experience reports of diverse patients who receive care at safety net clinics (41,42). In related studies, individuals from diverse racial and ethnic backgrounds, who access primary care at federally qualified health centers, report similar patient experiences regardless of race, ethnicity, education, or language (41,42).

An unexpected finding in the review were the results from Hasnain and colleagues (24). The research team compared patient experience from a targeted sample of 900 patients who received care at family medicine clinics and were stratified by race and ethnicity into 3 groups (24). The stratified study sample was nearly equally distributed to groups of African American, non-Hispanic white, and Hispanic people (24). After controlling for self-reported mental and physical

health status among other demographic variables, race and acculturation were significantly associated with overall provider rating, recommending the provider to others, shared decision-making, and helpfulness of staff (24). Provider communication was not correlated with race or acculturation. Given the difference in care experience findings from other evidence (29,41,42), it is possible that the health-care delivery model may influence how patients perceive their provider and office staff.

As described previously, patient characteristics (ie, gender, age, race and ethnicity, educational level, and self-reported mental and physical health status) inconsistently modify patient experience reports (19,21,24,29,36,41,42). Systematically collecting patient narrative reports using the CG-CAHPS narrative protocol may contextualize these inconsistencies, further informing health-care organizations, providers, and payers how to improve care (43). Narrative protocols may be a rich source of information to broaden the understanding of contradictory reports, especially useful in understanding critical aspects of care absent in the CG-CAHPS survey (37). Martino and colleagues (44) studied patient narratives to understand reports from patients with chronic disease. They suggested patient stories of clinical encounters added topics of the comprehensiveness of the provider and therapeutic rapport (44). These added dimensions of patient reports affirm Donabedian's (45) vision as markers of health-care quality.

Study Quality

Only two (23,26) studies in this review incorporated pragmatic randomized controlled trial designs (17). The remainder of the researchers employed cross-sectional, observational, and prospective designs, which limit the generalizability of findings. Although selection bias is possible with nonexperimental designs, the collective results did not appear to benefit the intervention or control groups. Another limitation is the potential to omit quality indicators that may better explain patient experience. Finally, the methodology most researchers employed to compute composite scores was top-box analysis (ie, analysis of the most favorable responses). Drain (46) refutes top-box analysis because it only examines patients who report the most positive experiences. He cautions researchers that the most approving responses may not be representative of the patient experience population.

Limitations

There were several methodological limitations in this study. The author chose only to include empirical studies using CG-CAHPS surveys in the context of primary care. This inclusion criterion may narrow the understanding of patient reports of primary care experiences from other measures. Although the study employed the PRISMA (16) criteria, there is a potential for incomplete retrieval of relevant literature and subsequent reporting bias.

Conclusion

The CG-CAHPS patient experience survey provides the recipients of health care an avenue to voice their perceptions of health-care quality (11). Health-care organizations can use patient experience survey results to benchmark their delivery of patient-centered care (5,6), which aligns with the NAM's (3) mandates to improve health-care quality in the US patient reports using the CG-CAHPS survey informed ways to enhance adherence to a mutually agreed upon medical regimen (18,30); engage persons with behavioral health diagnoses and unstable housing (19); and provide linguistically competent primary health care (29). The synthesized results of this review of the literature provide clinicians, payers, and health-care organizations the information they need to prioritize improvements in patient-centered care, which will lead to improvements in patient outcomes (3,15). Further study using the CG-CAHPS surveys in primary care with the inclusion of the CG-CAHPS narrative protocol may better enlighten patient choice and inform provider understanding of ways to engage in patient-centered care (47). Ultimately, understanding patient experience subjective reports may lead to a health-care system that consistently provides equitable care within a value-based environment.

Author's Note

These contents are solely the responsibility of the author and do not necessarily represent the official views of the Health Resources and Services Administration or the US Department of Health and Human Services.

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