



A national survey of nurse practitioners' patient satisfaction outcomes

Thomas Kippenbrock, EdD^{a,*}, Jan Emory, PhD^a, Peggy Lee, EdD^a, Ellen Odell, DNP^b, Bill Buron, PhD^c, Breanna Morrison, PhD^a

^aUniversity of Arkansas, Fayetteville, AR

^bJohn Brown University, Siloam Springs, AR

^cBenedictine College, Atchison, KS

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ABSTRACT

Background: The research findings about nurse practitioner (NP) patient experiences (satisfaction) are limited to small sample sizes from local community clinics. No national studies with large sample sizes were found.

Purpose: To analyze responses from the Consumer Assessment of Healthcare Providers and Systems survey and compare the patient experiences from four different provider categories.

Methods: Secondary data analysis was completed on survey responses from 53,885 patients.

Findings: In the sample, medical doctor providers were disproportionately represented in greater number than NPs, doctor of osteopathy, or physician assistant. Further analysis comparing patient experiences between providers revealed NP to be rated significantly higher than their colleagues.

Discussion: Recognizing the factors associated with patient satisfaction with their providers can lead to improvements in patient-provider interactions that can result in increased quality of care.

Conclusion: Policy makers should find opportunities to employ NP in primary care settings and achieve greater patient satisfaction that can influence outcomes associated with patient-centered care initiatives.

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Introduction

The [Agency for Healthcare Research and Quality \(2018a\)](#) identified patient-centered care as one of the six domains of health care quality. Agency for Healthcare Research and Quality (AHRQ) lists the aim of the patient centered domain as “providing care that is

respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions” (para. 1). Preceding the AHRQ’s aim to provide patient-centered care was the Institute of Healthcare Improvement’s (IHI) “Triple Aim.” One of the foundational initiatives of this white paper was to improve the patients’ care experiences. Assessment tools and measurements were developed

* Corresponding author mailing address: Thomas Kippenbrock, University of Arkansas, 600 Razorback Rd, Rm 256, Fayetteville, AR, 72701.

E-mail address: tkippen@uark.edu (T. Kippenbrock).

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to survey patients about their health care providers and the delivery of care (Stiefel & Nolan, 2012).

An outcome of efforts to achieve the patient-centered care initiatives has led to a continued focus on the patient experience also referred to as patient satisfaction. As patients become more involved in their health care and consumers become more knowledgeable, they demand higher levels of provider services and outcomes. Consequently, provider rating scores collected by AHRQ provide insight into understanding patient centered care as viewed by the patients themselves. Equally important is consumer choice of provider, which demands attention to factors associated with patient satisfaction that can result in higher quality care.

Policymakers are questioning the federal health care program effectiveness, especially with the enactment of the Affordable Care Act (ACA), placing even more emphasis on the patient experience and satisfaction. The ACA has resulted in an increase in access to care for many Americans creating a gap in available primary care providers. Nurse practitioners (NPs) are assisting to fill this gap in providing primary care across the country and especially in the rural communities (Kippenbrock, Lo, Odell, & Buron, 2017). Patient-centered care and high expected outcomes by patients have caused satisfaction scores to become a major health care quality measurement.

A search for literature on patient satisfaction comparing types or categories of providers found studies with primarily small samples of NPs. The landmark initial study to compare NPs and physicians was conducted by Munding et al. (2000). The researchers identified local health care settings including three community-based primary care clinics and one primary care clinic within an urban academic medical center. In this study, 24 providers were sampled including seven NPs. A key finding was, there were no significant differences in patient satisfaction between NPs when compared to Medical doctors (MDs) 6 months following the initial clinic appointment.

Barnett and Sommers (2017) investigated patients enrolled in the health care program Medicaid. The authors analyzed Consumer Assessment of Healthcare Providers and System (CAHPS) survey data that includes an overall healthcare rating ranging from zero to 10. Medicaid enrollees gave an overall health care rating of 7.9. One limitation of this study was the inclusion of all aspects of the healthcare experience and not just the patient-provider interactions. Another limitation was the nonreporting of overall health care ratings by provider categories. Therefore, patient satisfaction data related to NP as primary care providers were not identified.

Martinez-Gonzalez et al. (2014) conducted a systematic review and meta-analysis on physician nurse substitution in primary care settings. The authors selected 24 random control trials (RCTs)

that included samples of nurses with a variety of academic preparations including advanced practice nurses, registered nurses, and licensed practical nurses. The results indicated nurses deliver equal or better clinical outcomes at lower health care costs than physicians. In particular, the meta-analysis showed a significant increase in the mean patient satisfaction scores with samples of nurses when compared to their MD colleagues. The studies involving advanced practice nurses only contained very small sample sizes, between six and 12.

Another systematic review on the subject of primary care effectiveness that included patient satisfaction data analyzed seven RCTs in local community clinics with small samples of NPs (between two and 12) and a larger study with a sample of 50 MDs. The results showed NPs were rated comparable to MDs in terms of effectiveness and safety. All the studies in the review included patient satisfaction as an outcome with three of the seven studies reporting higher patient satisfaction ratings for NPs. An additional study in the review reported higher patient satisfaction ratings among patients receiving care from NPs at three of their 10 community sites (Swan, Ferguson, Chang, Larson, & Smaldone, 2015).

Chevez, Dwyer, and Ramelet (2018) searched the international journal literature for NPs providing geriatric care. The authors reviewed 56 RCTs or quasi-experimental design studies conducted in locations within Canada, Netherlands, Taiwan, and the United States. The settings were primary, home, acute, long-term, and transitional care. The NP sample sizes in these studies were not identified. The results showed NP's interventional outcomes were comparable to MD only care across multiple variables. Furthermore, the authors reported 93% of the 32 studies included patient satisfaction rating for NPs better or equal to their MD colleagues.

In summary, the strongest evidence found on the subject of patient satisfaction showed patterns that NPs were rated equal to or higher than their MD colleagues. The limitations of these findings were the small sample size isolated to local community clinics. None of the studies were regional or national in scope with sample sizes greater than 12. Based on these findings, the authors sought to investigate NP patient satisfaction on a large national scale. Therefore, this study sought to investigate the survey responses from CAHPS, Medicaid enrollees. The program provides health care services to American citizens with 5,852,256 patients enrolled in Medicaid during December 2018 (Center for Medicare and Medicaid Services, 2019). The purpose of the study was to analyze existing evidence, available in a national database, on a number of variables associated with patient experiences and satisfaction and compare provider ratings of NP, doctor of osteopathy (DO), physician assistant (PA), and MD.

Methods

Design

This retrospective study used a secondary data source from the [Agency for Healthcare Research and Quality \(2018b\)](#) on Medicaid CAHPS. This study received institutional research review approval from the University receiving with exempt status.

The researchers requested the most recent data available and received the 2016 CAHPS Clinician and Group Database ([AHRQ, 2018b](#)). The deidentified data file contained adult patient responses about their care providers and medical practices. The survey contained questions that asked patients to identify and rate their perceptions of interactions with their respective provider and office staff. Additional questions provided a description of the patients seeking care. The provider options were listed as NP, PA, MD, and DO and the researchers utilized the available data for comparisons to be made between provider categories ([AHRQ, 2017](#)).

Data Source

The survey items asking patients to rate office staff were removed from the analysis, leaving 11 survey items that were retained for the purpose of the study. Survey items used a variety of categorical measures including yes/no, never/sometimes/usually/always, and not at all/a little/some/a lot. The overall provider rating survey item used a Likert-type scale of zero to 10 (zero = worst provider possible; 10 = best provider possible). Six items were grouped into the category of communication. These six items asked for patient responses in the categories of never, sometimes, usually, and always. Four items related to medication counseling were placed into a category. Two of the four items asked for a yes or no response and the remaining two asked for a response using not at all, a little, some, and a lot. One item provided the overall provider rating and used a Likert-type scale of zero to 10 in whole number increments.

The researchers selected the following items from the survey to explain patient satisfaction in the sample and to conduct the analysis: (a) provider explained things clearly, (b) provider listened carefully, (c) provider gave easy to understand information on health questions or concerns, (d) provider knew important information about patient's medical history, (e) provider showed respect, (f) provider spent enough time, (g) talked with provider about starting or stopping medicine, (h) provider talked about reasons to take a medicine, (i) provider talked about reasons not to take a medicine, and (j) overall rating of provider.

The survey items to describe the visit to the provider's office and patient's demographics included: (a) identification of the provider, (b) usual provider, (c) number of visits to this provider, (d) patient's gender, (e) patient's highest grade level completed, (f) patient's

race: Hispanic or Latino, White, African-American, Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, or other, (g) language, and (h) geographic region of residency.

Data Analysis

The survey items were evaluated and selected by the researchers that best represented direct interactions between the patient and provider that would influence patient satisfaction with the provider. This analysis resulted in three categories of items: communication, medication counseling, and overall rating of provider. Analysis of variance (ANOVA) and chi-square were applied to the patient responses to determine any significant differences between provider type in the three categories of communication, medication counseling, and overall rating of provider. The standard alpha 0.05 was used as the benchmark for significance in the final analysis.

Findings

Sample

The sample of patients completing the survey were almost two-thirds female (61.8%). The regions of the United States with the most patients was the West (62.6%), followed by the Northeast (27.9%), Midwest (7.8%), and South (1.7%). Almost half of patients completing the survey saw the rated provider two times or fewer (49.2%), with the remainder of patients reporting visiting their respective provider 3 to 10 times or more. Patient reported highest level of education at more than 4-year college degree (19.7%), 4-year college graduate (17.8%), some college or 2-year degree (32.2%), high school graduate or GED (20.7%), or did not graduate or no high school (6.2%). The patient respondent race was reported as primarily white (58.8%), followed equally by Asian and other (14.2%), African-American (3.4%), Multi-racial (2.0%); Native Hawaiian or other Pacific Islander, American-Indian or Alaska Native (1.1%); and 20.5% unreported. The survey was distributed primarily in English (96.4%). Reported age was predominantly in the 55 to 64 category (31%), followed by the 65 and over age group (29.2%).

Provider type

The majority of patients ($n = 53,885$; 70.3%) completing the CAHPS survey item identified MD as their care provider. The number of NPs was lower ($n = 560$) and accounted for 0.73% of providers. The other providers identified by patients were DO ($n = 382$, 0.5%) and PA ($n = 716$, 0.93%). Patients also reported their provider as either primary care (40.6%) or specialist (44.2%). Patients providing no response were 15.2%; however, the survey responses were not available by specialty group for

Table 1 – Means and Standard Deviations of Overall Provider Rating According to Provider Type.

Provider Type	n	M	SD
NP	509	9.2	1.5
MD	52,950	9.0	1.7
DO	362	9.3	1.3
PA	647	9.0	1.7

Note: NP, nurse practitioner; MD, medical doctor, DO, doctor of osteopathy.

comparison. Furthermore, the patient responses for specialty providers were provided in aggregate.

Satisfaction with care

In the category of overall provider rating, scores tended to be very skewed with a large majority being extremely satisfied with their care. MD rating was very high (M = 8.96, SD = 1.70, n = 52,950) and NP rating was slightly higher than MD (M = 9.16, SD = 1.46, n = 509). Patients with PA as providers scored (M = 9.02, SD = 1.70, n = 647) and DO as providers (M = 9.34, SD = 1.271, n = 362) also tended to be highly satisfied as shown in [Table 1](#).

The ANOVA procedure was used for between group comparisons of overall provider rating and communication. The ANOVA on overall provider rating among the four provider categories was statistically significant, $F(354,464) = 8.79$, $p < .001$; however, the effect size ($R^2 < 0.001$) was very small as shown in [Table 2](#). A Tukey posthoc test showed that patients whose providers were DOs was significantly higher in overall provider rating when compared with the MD and PA groups; however, there was no significant difference from the NP group. Patients whose providers were NPs reported higher overall ratings than patients with MD providers. Patients with MD providers rated lower on average in the category of communication survey items (M = 3.72, SD = 0.54, n = 53,762) than NP providers (M = 3.81, SD = 0.41, n = 541). Patients with PA (M = 3.74, SD = 0.53, n = 699) and DO (M = 3.84, SD = 0.36, n = 373) providers were also rated higher in the category of communication than MD.

Similar trends were found in the ANOVA analysis comparing provider type in the category of communication. The overall test was statistically significant, $F(3,55,371) = 11.82$, $p < .001$, effect size ($R^2 < 0.001$) as shown in [Table 2](#). The posthoc tests showed that

patients with DO providers were significantly higher in the category of communication than MDs and PAs, but no significant difference was found between DO and NP providers. Patients whose providers were reported as being NPs also reported significantly higher communication scores than patients with MDs as providers.

Medication counseling

The survey items included in the category of medication counseling received responses from a small subset of patients when compared to the other two categories. This was likely due to few patients requiring medication counseling during their visits. The survey items included in this category received yes/no or not at all/some/a little/a lot responses. The categorical responses were analyzed using chi-square comparing the four provider types. Only one question was found to have statistical significance, "provider talked about reasons not to take a medicine," $X^2(9) = 25.454$, $p = .003$. The trend seemed to be that patients with NP providers rated less likely to talk a lot on the survey item about reasons not to take a medication. Nevertheless, the effect size was small. Analysis of this category provided little evidence for inferences to be made, but the topic may be of interest in future studies.

Discussion

The purpose of this study was to analyze patient ratings on survey items regarding patient experiences (satisfaction) with their respective providers. Patient responses from the CAHPS database were used for comparison among the available provider types of MD, NP, PA, and DO. While the results of this survey captured a description of patients' perceptions for one year, it is unknown if patient satisfaction measured by overall provider rating and communication may impact the patients' health over time.

One of the findings was the disproportion of primary care providers offering Medicaid services. Seventy percent of the patients identified MDs as their providers compared to less than 1% NPs. The primary care provider workforce imbalance in this study is wider than reported by [Agency for Healthcare Research and Quality \(2018c\)](#). The U.S. distribution ratio of primary care MDs to NP is approximately four to one, with 208,807 MDs compared to 55,625 NPs.

Table 2 – Analysis of Variance of Overall Provider Rating and Communication.

Categories	df	SS	MS	F	p
Overall provider rating	3	75.6	25.2	8.79	< .001*
Communication	3	10.4	3.5	11.82	< .001*

*alpha = .05.

The majority of patients completing the survey were from the West region (61.8) of the United States. The NP scope of practice regulations in specific Western states could have influenced the number of and location of patients completing the survey. Unfortunately, the survey did not provide a breakdown of patient survey responses by state. With no state data, practice authority restrictions could not be considered in this discussion which may be a variable for provider selection.

Since this is a secondary data analysis, the researchers could not ask patients questions regarding the selection of providers. However, about half of the patients received care from the same provider three or more times. These multiple visits could indicate that patients were satisfied with their providers during previous interactions. It is unknown if the provider selection process was related to patient satisfaction with their NP providers or if the selection was by convenience.

Most patients participating in the national survey rated their providers overwhelmingly positive; however, communication and overall provider rating were found to be significantly different among the providers. Patient ratings for NPs were generally higher or equal to their colleagues. These results are consistent with other studies finding as good or better outcomes among those cared for by NPs compared to their MD colleagues (Chevez et al., 2018; Martinez-Gonzalez et al., 2014; Munding et al., 2000; Swan et al., 2015).

Comparisons in the specific categories of communication and overall provider rating showed NPs to be significantly higher than MD and PA. Communication is found to be fundamental to the patient-centered approach to care and has been linked to increased patient satisfaction (Spooner, Salemi, Salihu, & Zoorob, 2016). Additional investigations on the subject found that effective communication skills can improve patient satisfaction (Khan, Khan, Alvi, Kafeel, & Zaffar, 2017). Therefore, it is not surprising that the findings were somewhat consistent for provider type across the categories of communication and overall patient satisfaction.

This difference between NPs and MDs could be related to the educational preparation of the providers. NPs traditionally have a communication component to their undergraduate education. The *Essentials of Baccalaureate Education* states, “Professional nursing requires strong critical reasoning, clinical judgment, communication, and assessment skills” (American Association of College of Nursing, 2008, p. 9). NPs also have a focus of providing primary care services to patients that requires effective communication for teaching patients and families. MD programs are less likely to expect communications competency from graduates. Studies on the subject have shown significant increases to patient satisfaction following communication training for physicians (Khan et al., 2017). Another possible factor influencing these findings could be related to the familiarity with the provider. In our study, 49.2% of patients were seeing the rated

provider for the first or second time. Familiarity with the provider has been associated with improved provider communication (Spooner et al., 2016). As the evidence shows, the connection between communication and patient satisfaction is undeniable.

The gap in primary care physicians is projected to continue to decline with estimates of between 42,600 and 121,300 vacancies in the next decade (Dall, West, Chakrabarti, Reynolds, & Iaobucci, 2018). NPs have assumed some medical tasks typically performed by physicians which has increased access to healthcare and service efficiency as well as the cost of health services (Woo, Lee, & Tam, 2017). However, NPs have seen significant limitations placed upon their licensing across many states. Policy makers at all levels of healthcare should actively explore opportunities to integrate NPs as partners in healthcare to fill the existing gap in primary care physicians and achieve greater patient satisfaction that can influence outcomes associated with patient centered care initiatives.

Limitations

There were several limitations in this study. First, considering the large number of white, female respondents who lived in the West, the generalizability of the results may be limited. Next, only 508 of the 53,000+ participants reported on quality indicators in relation to NP care. The demographics of this small number of participants compared to the greater majority of participants in the study are unknown. Finally, most of the participants in the West and the South only listed physicians as primary care providers. It is difficult to know how many NPs and to what extent were involved in the care of these patients. Regardless, the findings of this study provided important insight into the differences in care practices between MD, PA, DO, and NPs.

The results of this study were limited to the breadth of the secondary data obtained. Future research should include the collection of qualitative data to help identify specific qualities that differentiate care practices of the two healthcare disciplines. For example, what communication skills do patients find effective? This information would be helpful to further differentiate and understand practice qualities among NPs and physicians.

Conclusions

Patient provider rating surveys that measure patient satisfaction are important tools for positive change for the future of healthcare. Patients are reporting equal and greater satisfaction rates with care from NPs when compared to their MD colleagues. Recognizing the factors associated with patient satisfaction with their providers can lead to improvements in patient-

provider interactions that can result in increased quality of care. Based on the findings of this study, a greater focus on the utilization of NPs in the care of patients may positively impact overall quality in the healthcare system that can facilitate the goal of patient-centered care while decreasing the overall cost of healthcare.

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Supplementary materials

Supplementary material associated with this article can be found in the online version at [doi:10.1016/j.outlook.2019.04.010](https://doi.org/10.1016/j.outlook.2019.04.010).

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