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Original Research

Disparities in Patient Portal Access and Their Association with Perceived Health Care Quality Among U.S. Adults: A Population-Based Cross-Sectional Study

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ABSTRACT

Introduction. Patient portals are designed to improve transparency, engagement, and satisfaction with health care. However, disparities in access and encouragement to use portals persist, and their relationship with perceived care quality is not well understood. Authors of this study examined whether being offered access to a patient portal, and being encouraged to use it, were associated with higher perceived quality of care among United States adults.

Methods. The authors analyzed data from the 2024 Health Information National Trends Survey 7 (HINT 7), a nationally representative cross-section of United States adults aged ≥18 years. Weighted analyses assessed associations between portal access offers, encouragement, and self-rated care quality in the past 12 months, adjusting for sociodemographic characteristics.

Results. Among 7,278 respondents (mean [SD] age, 49.0 [18.0] years), 78.6% rated their care as good, very good, or excellent. Overall, 73% had portal access and 69.0% were encouraged to use a portal. The number of respondents offered access to patient portal was significantly lower among older adults ≥75 years (10.6%; χ^2_8=108.2, p <0.0001), women (27.9%; χ^2_4=31.7, p <0.0001), those with lower income (8.3%; χ^2_{10}=158.0, p <0.0001) or education (13.6%; χ^2_6=107.9, p <0.0001), and rural residents (10.0%; χ^2_2=12.1, p = 0.0024). In adjusted analyses, being offered portal access was associated with higher odds of rating care as excellent (aOR 2.47, 95% CI 1.21-5.07).

Conclusions. Being offered portal access independently was associated with higher perceived care quality. Addressing disparities in portal access; especially among older, lower-income, and rural populations; may improve equity in patient experience.

INTRODUCTION

The proliferation of digital health technologies has transformed how patients interact with their health care professionals and personal health information. Patient-facing electronic health record (EHR) portals, sometimes described as online medical record access tools or patient portals, are becoming more available and promoted by healthcare organizations to improve transparency, engagement, and ultimately quality of care.[1,2]

Prior research indicates that portal use may be associated with greater patient satisfaction, improved communication, and enhanced perceptions of care team interaction.[3,4] For example, in a survey of 504 portal users, post-adoptive use of a portal had a positive effect on three dimensions of patient satisfaction (care team interaction, atmosphere, and instruction effectiveness) through the mediators of gratification, health self-awareness, and health perceptions.[4] Similarly, in a large academic medical center study linking portal account status to Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CG-CAHPS) and Hospital CAHPS (HCAHPS) responses, activation of an outpatient and inpatient portal account was associated with significantly higher patient satisfaction across several domains of care coordination and transitions.[3]

Despite these promising findings, systematic reviews indicate that the relationship between portal use and patient satisfaction remains inconsistent, influenced by differences in portal design, patient health literacy, and sociodemographic disparities.[2,5] Importantly, the mere availability of a portal is not sufficient to improve satisfaction. Provider encouragement appears to be a key determinant of portal engagement, with national data showing that patients who are both offered access and encouraged to use a portal significantly are more likely to engage with features such as test results and clinical notes.[6,7] Despite this, inequities in portal access persist. Older adults, individuals with lower income or education, and those living in rural areas are less likely to be offered or to use patient portals.[8-10]

Understanding whether being offered access and encouraged to use a patient portal translates into higher satisfaction or perceived quality of care is important. Patient experience is a central component of care quality, and a driver of value-based reimbursement and system-level performance metrics.[11-13]

Authors of this study examined whether adults in the United States who reported being offered online access to their medical records (via a patient portal) and being encouraged to use it are more likely to rate the quality of their health care as *excellent*. We also explored disparities in who is offered portal access and how these disparities might influence care perceptions.

METHODS

Target Population and Sample Design. The 2024 Health Information National Trends Survey 7 (HINTS 7),[14] a nationally representative survey of United States adults, was a self-administered mail and web survey of United States civilian, non-institutionalized adults (≥18 years) conducted from March 25 to September 16, 2024. A two-stage, stratified design was used: residential addresses were sampled, and one adult was randomly selected per household. Sampling strata from prior cycles (high- vs. low-minority areas) were expanded into four categories by further dividing them into rural and urban areas. The final sample included 7,278 respondents (response rate: 27.3%), representing a weighted population of 262,266,460

adults.[15] Unweighted sample sizes for weighted estimates are shown in Table 1.

Study Design and Data Source. This population-based, cross-sectional study used public data from HINTS 7. We included respondents aged ≥18 years who answered the question on quality of health care received in the past 12 months. The study followed STROBE (Strengthening the Reporting of Observational Studies in Epidemiology)[16] and PRICSSA (Preferred Reporting Items for Complex Sample Survey Analysis)[17] guidelines. Because the data were publicly available and de-identified, institutional review board (IRB) approval was not required. The National Institutes of Health Office of IRB Operations issued a "Not Human Subjects Research" determination to HINT 7 on February 8, 2024 (IRBID: IRB002042).[18]

Outcome Variable. The outcome was the perceived quality of health care, measured by the question: "*Overall, how would you rate the quality of health care you received in the past 12 months?*" Response options were: "*Excellent,*" "*Very good,*" "*Good,*" "*Fair,*" or "*Poor.*"

Predictors. Two medical record variables used to describe the study population were based on respondents' ratings of the perceived quality of health care they received in the past 12 months. These clinically relevant predictors were used in the study based on a pre-specified complete model, an approach in multivariable prediction modeling in which predictors are selected and included *a priori* based on clinical knowledge or existing evidence.[19,20]

Offered Access to Patient Portal was assessed with the question: "*Have you ever been offered online access to your medical records (for example, a patient portal) by a health care provider?*" (response options: "*Yes,*" "*No,*" "*Don't know*".

Encouraged to Use Patient Portal was assessed with the question: "*Have you ever been encouraged by a health care provider (e.g., doctor, nurse, or office staff) to use an online medical record or patient portal?*" (response options: "*Yes,*" "*No*").

Covariates. Sociodemographic characteristics included age (18-34, 35-49, 50-64, 65-74, ≥75 years), sex (male, female), and race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, non-Hispanic Asian, non-Hispanic Other). The Non-Hispanic Other included American Indian or Alaska Native, Native Hawaiian, Guamanian or Chamorro, Samoan, and Other Pacific Islander. Additional covariates were education (≤high school, some college/post-high school, college graduate, postgraduate), household income (<$20,000; $20,000-$34,999; $35,000-$49,999; $50,000-$74,999; ≥$75,000), and place of residence as stratified in HINT 7 as urban and rural). Covariates were adjusted for to reduce confounding and improve precision of effect estimates.[21,22]

The rural/urban classification was based on the 2013 United States Department of Agriculture Economic Research Service Rural-Urban Continuum Codes (RUCC). The RUCC distinguishes metropolitan (metro) counties by the population size of their metro area and nonmetropolitan (nonmetro) counties by degree of urbanization and proximity to a metro area. Addresses in counties with RUCC codes 1-3 were classified as urban, while those with codes 4-9 were classified as rural.[23]

Missing Data. To address small-sample bias and outcome imbalance, we used Firth's bias-reduced logistic regression.[22] Missing data were assumed to be missing at random (MAR) and handled through maximum likelihood estimation.[24,25] Under MAR, nonresponse may depend on observed characteristics but not unobserved variables, a common assumption in survey-based research. Since the data cannot empirically identify a Missing Not at Random (MNAR) mechanism, MAR provides a transparent framework, helping to minimize bias and stabilize parameter estimates and standard errors.

Statistical Analysis. A three-stage, survey-weighted analytic approach was used. First, a survey-weighted univariate analysis described distributions of study variables using survey-weighted frequencies and percentages for categorical variables, and survey-weighted means for continuous variables. Second, a survey-weighted bivariate analysis examined associations between reported patient portal access and covariates (age, sex, educational level, race/ethnicity, residence). For these analyses, to account for the complex survey design, Rao-Scott adjusted Chi-square tests were utilized for 2*2 and r*c contingency tables. Bonferroni or False Discovery Rate approaches were applied to counteract the multiple comparisons problem.

Third, we used survey-weighted multivariable logistic regression to identify independent predictors associated with reported perceived quality of health care, adjusting for potential confounders. All categorical predictors were modeled using reference cell coding, with reference categories specified *a priori*. Models accounted for the complex survey design through incorporation of sampling weights, stratification, and clustering. Adjusted odds ratios (aORs) and 95% confidence intervals (CIs) were reported. Model fit was evaluated using receiver operating characteristic (ROC) curve analysis. A two-sided p-value <0.05 was considered statistically significant. Analyses were conducted in SAS® version 9.4 (SAS Institute Inc., Cary, NC) using PROC SURVEYLOGISTIC with the glogit link function in October 2025.

RESULTS

Demographic Information. As Table 1 shows, respondents (N = 7,278) had a mean age of 49.0 years (SD 18.0); 55.2% were men, 48.7% were non-Hispanic White, 48.2% had a college education or less, 51.3% (n = 3,737) reported an annual household income less than $75,000, and 87.1% lived in urban areas. Most respondents (78.6%, n = 5,720) rated the quality of their health care in the past 12 months as good, very good, or excellent.

As shown in Table 2, 73.3% reported being offered access to patient portal, and 69.0% said they were encouraged by a health care professional to use a patient portal.

Table 1. Respondent characteristics (N = 7,278).

Characteristics	Measure[a]
Sex	
Male	4017 (55.2)
Female	2646 (36.4)
Don't know (a response option in the survey)	44 (0.6)
Missing	571 (7.8)
Age, years	
Mean (SD), y	49.0 (18.0)
Median	48.3
Minimum	18
Maximum	102
Age group	
18-34	1080 (14.8)
35-49	1355 (18.6)
50-64	1728 (23.7)
65-74	1466 (20.1)
≥75	1036 (14.2)
Missing	613 (8.4)
Educational level	
Up to high school	1564 (21.5)
Post high school/some college	1941 (26.7)
College graduate	1863 (25.6)
Postgraduate	1327 (18.2)
Missing	583 (8.0)
Household income	
< $20,000	1123 (15.4)
$20,000 to < $35,000	802 (11.0)
$35,000 to < $50,000	782 (10.7)
$50,000 to < $75,000	1030 (14.2)
≥75,000 to <$100,000	785 (10.8)
≥100,000	1857 (25.5)
Missing	899 (12.4)
Race/Ethnicity	
Non-Hispanic White	3548 (48.7)
Non-Hispanic Black or African American	968 (13.3)
Hispanic	1323 (18.2)
Non-Hispanic Asian	342 (4.7)
Non-Hispanic Other	257 (3.5)
Missing	840 (11.5)
Place of residence	
Rural	1008 (12.9)
Urban	6270 (87.1)
Overall, how would you rate the quality of health care you received in the past 12 months?	
Excellent	1620 (22.3)
Very good/good	4100 (56.3)
Fair/poor	640 (8.8)
Missing	918 (12.6)

[a]Unweighted values. Data are presented as the No. (%) of respondents unless otherwise indicated.

Forty percent accessed the portal 1-5 times in the past 12 months, and 40% accessed it through a website. The most common uses were viewing test results (59.6%) and reviewing clinical notes (52.0%). Additionally, 58.0% found it somewhat or very easy to understand the health information in their portal, and 56.1% reported having a portal with multiple health care organizations.

Results of Bivariate Analysis. As shown in Table 3, the proportion of respondents who were offered access to patient portal was significantly lower among certain groups, including women

Table 2. Proportion of patients who used online medical record or patient portal, HINTS 2024 (N = 7,282).[a]

Variables	N (%)
Have you ever been offered online access to your medical records (for example, a patient portal) by your health care provider?	
Yes	5338 (73.3)
No	1154 (15.9)
Don't know	542 (7.4)
Missing	244 (3.4)
Have any of your health care providers, including doctors, nurses, or office staff ever encouraged you to use an online medical record or patient portal?	
Yes	5023 (69.0)
No	5023 (27.5)
Missing	250 (3.4)
How many times did you access your online medical record or patient portal in the last 12 months?	
0 times	2264 (31.1)
1-5 times	2913 (40.0)
>5 times	1880 (25.8)
Missing	221 (3.0)
How did you access your online medical record or patient portal?	*n* = 5187
App	970 (18.7)
Website	2076 (40.0)
Both App and Website	1593 (30.7)
Don't know	123 (2.4)
Missing	425 (8.2)
In the past 12 months have you used your online medical record or patient portal to look up test results?	
Yes	4340 (59.6)
No	475 (6.5)
Not applicable	2047 (28.1)
Missing	416 (5.7)
In the past 12 months have you used your online medical record or patient portal to view clinical notes (a health care providers written notes that describe your visit)?	
Yes	3781 (52.0)
No	1017 (14.0)
Question answered in error (Commission Error)	199 (2.7)
Inapplicable	2065 (28.4)
Missing	216 (3.0)
How easy or difficult was it to understand the health information in your online medical record or patient portal?	
Very/somewhat easy	4221 (58.0)
Very/somewhat difficult	556 (7.6)
Question answered in error (Commission Error)	143 (2.0)
Inapplicable	2121 (29.1)
Missing	237 (3.3)
Which of the following organizations/providers do you have an online medical record or patient portal with?	
My primary care provider's office only	1138 (15.6)
Other health care provider(s) such as a specialty pvider, counselor, or dentist only	223 (3.1)
My insurer(s) only	123 (1.7)
Clinical laboratory that performs lab tests only	86 (1.2)
Pharmacy only	38 (0.5)
Multiple providers	4081 (56.1)
Hospital only	108 (1.5)
I do not have any online medical records or patient portals only	1160 (15.9)
Missing	321 (4.4)

[a]Unweighted values.

Note: HINTS, Health Information National Trends Survey.

(27.9%; χ^2_4=31.7, p <0.0001), adults aged ≥75 years (10.6%; χ^2_8=108.2, p <0.0001), non-Hispanic Other individuals (2.9%; χ^2_8=76.1, p <0.0001), those with up to high school diploma education (13.6%; χ^2_6=107.9, p <0.0001), respondents with household incomes of $20,000 to <$35,000 (8.3%; χ^2_{10}=158.0, p <0.0001), and those living in rural areas (10.0%; χ^2_2=12.1, p = 0.0024).

Results of Multivariable Analysis. In the survey-weighted unadjusted logistic regression comparing respondents who rated the quality of health care received in the past 12 months as *excellent* versus *fair/poor*, being offered portal access (versus *don't know*) by a health care professional was significantly associated with higher odds of rating care as *excellent* (OR 2.87; 95% CI 1.63-5.04). This association remained significant after adjusting for the covariates (Table 4). Similarly, being encouraged to use portal was significantly associated with an excellent rating of care quality (OR 1.52; 95% CI 1.24-1.87). However, this association no longer was significant after adjusting for covariates (Table 4).

In the survey-weighted multivariable logistic regression comparing respondents who rated the quality of health care received in the past 12 months as *excellent* versus *fair/poor* (Table 4), adults aged 18-34 years (aOR 0.50; 95% CI 0.25-0.98), women (aOR 0.02; 95% CI 0.01-0.13), college graduates (aOR 0.43; 95% CI 0.23-0.80), and individuals with household incomes of $20,000 to <$35,000 (aOR 0.47; 95% CI 0.24-0.94) had significantly lower odds of rating their health care as *excellent*.

Conversely, being offered portal access (versus *don't know*) by a health care professional (aOR 2.47; 95% CI 1.21-5.07) was associated with higher odds of rating quality of health care as *excellent*.

Table 3. Distribution of patients offered online access to their medical records by their health care professional, HINTS 2024 (N = 6,655).[a]

	Have you ever been offered online access to your medical records by your health care provider?[b]				
Measure	**Yes**	**No**	**Don't know**	**Rao-Scott χ^2 (*df*)**	***P* value**
Sex				31.7 (4)	<.0001
Male	3213 (48.3)	540 (8.1)	236 (3.6)		
Female	1854 (27.9)	513 (7.7)	255 (3.8)		
Don't know	18 (0.3)	10 (0.2)	16 (0.4)		
Total	5085 (76.4)	1063 (16.0)	507 (7.6)		
Age category				108.2 (8)	<.0001
18-34	778 (11.8)	256 (2.4)	144 (2.2)		
35-49	1097 (16.6)	162 (2.5)	92 (1.4)		
50-64	1377 (20.8)	256 (3.9)	87 (1.3)		
65-74	1117 (16.9)	241 (3.6)	94 (1.4)		
≥75	698 (10.6)	237 (3.6)	77 (1.2)		
Total	5067 (76.6)	1052 (15.9)	494 (7.5)		
Race/Ethnicity[c]				76.1 (8)	<.0001
Non-Hispanic White	2958 (46.3)	381 (6.0)	186 (2.9)		
Non-Hispanic Black	716 (11.2)	184 (2.9)	60 (0.9)		
Hispanic	850 (13.3)	300 (4.7)	160 (2.5)		
Non-Hispanic Asian	250 (3.9)	49 (0.8)	40 (0.6)		
Non-Hispanic Other	185 (2.9)	41 (0.6)	30 (0.5)		
Total	4959 (77.6)	955 (15.0)	476 (7.5)		
Educational level				107.9 (6)	<.0001
Up to high school	901 (13.6)	438 (6.6)	199 (3.0)		
Post high school/some college	1452 (21.9)	326 (4.9)	150 (2.3)		
College graduate	1550 (23.3)	189 (2.9)	114 (1.7)		
Postgraduate	1173 (17.7)	109 (1.6)	40 (0.6)		
Total	5076 (76.4)	1062 (16.0)	503 (7.6)		
Household income				158.0 (10)	<.0001
< $20,000	621 (9.8)	343 (5.4)	144 (2.3)		
$20,000 to < $35,000	526 (8.3)	183 (2.9)	85 (1.3)		
$35,000 to < $50,000	579 (9.1)	132 (2.1)	68 (1.1)		
$50,000 to < $75,000	788 (12.4)	154 (2.4)	78 (1.2)		
≥75,000 to <$100,000	669 (10.6)	74 (1.2)	39 (0.6)		
≥100,000	1684 (26.6)	109 (1.7)	64 (1.0)		
Total	4867 (76.8)	995 (15.7)	478 (7.5)		
Place of residence				12.1 (2)	0.0024
Rural	705 (10.0)	202 (2.9)	67 (1.0)		
Urban	4633 (65.9)	952 (13.5)	475 (6.8)		
Total	5338 (75.9)	1154 (16.4)	542 (7.7)		

[a]Data are presented as the No. (%) of respondent.
[b]The frequencies and proportions presented in the table are unweighted values. Conversely, the reported Chi-square and corresponding p-values reflect the results of the Rao-Scott first-order adjustment.
[c]Non-Hispanic Other included American Indian or Alaska Native, Native Hawaiian, Guamanian or Chamorro, Samoan, and Other Pacific Islander.

Table 4. Factors Associated with Perceived Quality of Care, HINTS 2024 (N = 6,665).

	Overall, how would you rate the quality of health care you received in the past 12 months?		
	Excellent vs Fair/poor		
Variable	**aOR (95% Confidence Limits)**	**Standard Error**	***P* value**
Intercept		0.61	0.0028
Have you ever been offered online access to your medical records (for example, a patient portal) by a health care provider?			
Yes vs Don't know	2.47 (1.21-5.07)	0.36	0.0136
No vs Don't know	0.54 (0.25-1.14)	0.38	0.1034
Have you ever been encouraged by a health care provider (e.g., doctor, nurse, or office staff) to use an online medical record or patient portal?			
Yes vs No	0.54 (0.25-1.14)	0.29	0.3367
Age, y			
18-34 vs ≥75	0.50 (0.25-0.98)	0.34	0.0441
35-49 vs ≥75	0.53 (0.28-1.01)	0.33	0.0546
50-64 vs ≥75	0.69 (0.36-1.29)	0.32	0.2448
65-74 vs ≥75	0.90 (0.47-1.69)	0.32	0.7320
Sex			
Male vs Don't know	1.58 (0.96-2.58)	0.25	0.0707
Female vs Don't know	0.02 (0.01-0.13)	0.87	<.0001
Educational level			
Up to high school vs postgraduate	0.65 (0.29-1.45)	0.41	0.2914
Post high school/some college vs postgraduate	0.51 (0.27-0.96)	0.32	0.0361
College graduate vs postgraduate	0.43 (0.23-0.80)	0.32	0.0083
Race and ethnicity			
Non-Hispanic Black vs Non-Hispanic White	0.62 (0.35-1.13)	0.30	0.1165
Hispanic vs Non-Hispanic White	0.85 (0.43-1.69)	0.35	0.6411
Non-Hispanic Asian vs Non-Hispanic White	1.58 (0.49-5.07)	0.59	0.4392
Non-Hispanic other vs Non-Hispanic White	0.55 (0.24-1.23)	0.41	0.1450
Annual income, $			
<20,000 vs >100,000	0.70 (0.38-1.31)	0.32	0.2637
20,000 to < 35,000 vs >100,000	0.47 (0.24-0.94)	0.35	0.0321
35,000 to < 50,000 vs >100,000	0.62 (0.33-1.17)	0.32	0.1387
50,000 to < 75,000 vs >100,000	0.88 (0.48-1.62)	0.31	0.6744
≥75,000 to >100,000	0.79 (0.44-1.42)	0.30	0.4198
Place of residence			
Urban vs Rural	1.20 (0.65-2.21)	0.31	0.5636

Note: HINTS, Health Information National Trends Survey; aOR, adjusted odds ratio.
c-Statistics: 0.64. This measured the model's ability to discriminate between observations with different outcomes.

DISCUSSION

Findings from this study provide insight into United States adults who are offered access to patient portals and encouraged to use them, highlighting disparities in access and their relationship with perceived quality of care. Most respondents (78.6%) rated their care in the past 12 months as good, very good, or excellent. A large majority reported being offered portal access (73.3%) and encouraged to use a portal (69.0%). Being offered portal access was associated with significantly higher odds of rating care as *excellent*, suggesting that provider-facilitated portal access may positively influence patients' perceptions of care quality. This finding is consistent with prior studies and reviews showing that portal access and well-implemented portal features (e.g., timely test results, access to notes) are linked to greater patient satisfaction, engagement, and perceptions of care quality.[3,26]

Mechanisms that may explain this association include improved information access (patients can view test results and clinician notes), clearer communication about care plans, and increased patient activation; all of which can increase trust and perceived responsiveness of health care teams. In our sample, viewing test results (59.6%) and reviewing clinical notes (52.0%) were common portal uses, which aligns with qualitative and survey research showing that access to results and notes improves recall, understanding, and confidence in care.[27-30]

However, the bivariate results reveal persistent disparities in who is offered portal access (lower offers among women, the oldest adults, non-Hispanic Other groups, lower-income and respondents with lower educational attainment, and rural residents). These patterns mirror recent reports of inequities in portal activation and use by age, income, health literacy, and rurality, indicating that offering access alone may not be sufficient, targeted efforts are needed to close gaps in both offer and uptake.[26,31]

In adjusted analyses, several groups had significantly lower odds of rating their care as *excellent*. Younger adults often report lower satisfaction, consistent with evidence that they have higher expectations for convenience and communication in health care.[32] Women's substantially lower odds align with research showing more frequent experiences of dismissiveness, bias, and unmet communication needs in clinical encounters.[33,34] College graduates may have higher expectations for shared decision-making and clarity, which can heighten perceived shortcomings in care.[35,36] Lower-income respondents also reported poorer experiences, reflecting well-documented structural barriers and financial strain that undermine perceptions of care quality.[37,38]

By contrast, being offered online portal access was associated with higher odds of rating care as excellent. This finding is consistent with evidence that access to patient portal enhances transparency, trust, and patient engagement, contributing to improved patient experience.[39]

Collectively, the results imply two actionable implications for practice and policy: (1) Health systems and clinicians should consistently offer and actively encourage portal access, since being offered access is associated with markedly better ratings of health care, and (2) implementation strategies must address access barriers such as digital literacy, broadband, language, shared-access workflows, and culturally appropriate outreach, to ensure equitable benefits across age, race/ethnicity, income, and rural/urban groups.

Interventions that simplify portal interfaces, proactively release easy-to-understand test results and visit notes, and provide support for portal enrollment and use, including family or care-partner access when appropriate, are supported by the literature as effective strategies for extending the quality-of-care benefits of patient portals to a broader population.[40-42] Prior studies have shown that simplifying navigation and enhancing usability can reduce disparities in portal engagement.[26,31,40] Likewise, patients report greater understanding, recall, and confidence when they receive clear test results and access to visit notes.[28,30] Providing technical assistance and shared-access options for family or caregivers also has been shown to improve adoption among older adults and those with limited digital literacy.[41,42]

Strengths and Limitations. This study has several strengths. Authors used nationally representative data from HINTS 7, allowing for generalization of findings to the United States adult population. The large sample size (N = 7,278) and use of survey weights ensured appropriate representation across key demographic groups. The inclusion of multiple sociodemographic covariates and use of survey-weighted multivariable logistic regression improved control for confounding and enhanced the validity of the observed associations. Additionally, adherence to STROBE and PRICSSA reporting guidelines strengthened methodological transparency and reproducibility.

However, several limitations should be noted. First, the cross-sectional design precludes causal inference; the observed associations between online portal and perceived quality of care may be bidirectional. Second, all measures were self-reported and subject to recall and social desirability biases. Third, residual confounding is possible because variables such as digital literacy, health status, and patient-provider communication quality were not included. Fourth, although the model demonstrated acceptable discrimination, the c-statistic of 0.64 indicates only modest ability to distinguish between respondents who rated their care as *excellent* versus *fair/poor*, suggesting that additional unmeasured factors likely influence perceptions of care quality.

Fifth, while we assumed that missing survey responses were MAR, we acknowledge this may not fully reflect reality given our low response rate. It is possible that individuals unfamiliar with patient portals or dissatisfied with their care were less likely to respond. However, our data do not allow us to verify this, and assuming missingness is not at random (MNAR) would require untestable assumptions about nonresponse. Thus, while MAR is a practical and testable working assumption, we recognize it as a limitation when interpreting our results. Finally, survey nonresponse (27.3%) may have introduced selection bias if individuals with differing levels of digital engagement were underrepresented.

Future Directions. Future research should explore targeted strategies to reduce disparities in patient portal access and use, particularly among older adults, rural residents, and lower-income populations. Mixed-methods studies could help identify barriers unique to these groups and evaluate interventions such as simplified portal design, caregiver-assisted access, and culturally tailored education. Additionally, longitudinal studies are needed to assess whether increased portal engagement leads to sustained improvements in perceived quality of care and clinical outcomes.

Conclusions

Offering patients online access to their medical records was associated with higher perceived quality of care. Persistent disparities in portal access among women, older adults, lower-income, and rural populations highlight the need for targeted interventions to promote equitable engagement. Enhancing usability and accessibility of patient portals may help extend the benefits of digital health tools to a broader population.

ARTICLE INFORMATION
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