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Patient Portal Use Among Older Adults: What Is Really Happening Nationwide?

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Abstract

Patient portals (PPs), secure websites that allow patients to access their electronic health records and other health tools, can benefit older adults managing chronic conditions. However, studies have shown a lack of PP use in older adults. Little is known about the way they use PPs in community settings and specific challenges they encounter. The aim of this study was to examine the current state of PP use in older adults, employing baseline data (quantitative and qualitative) from an ongoing nationwide online trial. The dataset includes 272 older adults (mean age, 70.0 years [50–92]) with chronic conditions. Findings showed that the majority of participants (71.3%) were using one or more PPs, but in limited ways. Their comments revealed practical difficulties with managing PPs, perceived benefits, and suggestions for improvement. Further studies with different older adult groups (e.g., clinic patients) will help develop and disseminate more usable PPs for these individuals.

Keywords

patient portal; older adults; chronic illnesses; usability

Introduction

The high prevalence of chronic illnesses is a serious public health problem in the United States (Centers for Disease Control and Prevention, 2017; Institute of Medicine, 2012).

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About 80% of older adults have at least one chronic disease, and 77% have at least two (National Council on Aging, 2018). Promotion of self-care management is an important national strategy to prevent and manage this problem (U.S. Department of Health and Human Services, 2010), and there is a national push for using health information technology (HIT) to empower patients and improve health communication (Mostashari, Murphy, Daniel, & Siminerio, 2013). The Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009 authorized incentive payments to providers who use electronic health records (EHRs) meaningfully ("Meaningful Use" [MU] or Medicare EHR Incentive Plans; Centers for Medicare & Medicaid Services, 2017). Since 2014, Stage 2 MU has required that providers give patients access to their EHRs and use secure eMessaging to communicate with them. To meet these requirements, hospitals nationwide have implemented patient portals (PPs), which are secure websites that allow patients to access their EHRs and communicate with providers via eMessages and include health tools such as appointment scheduling and medication refill functions (Office of the National Coordinator for Health Information Technology, n.d.). These features can be the most helpful to patients who manage chronic illnesses and their family caregivers.

Prior findings demonstrated positive impacts of PPs on the management of chronic conditions (Irizarry, DeVito Dabbs, & Curran, 2015; Lau, Campbell, Tang, Thompson, & Elliott, 2014), adherence to treatment (Fiks et al., 2015), and patient–provider communication (Garrido, Meng, Wang, Palen, & Kanter, 2014). Currently, PP adoption rates vary across health care organizations (Kaiser Permanente, 2015; Lyles et al., 2016); however, the overall nationwide adoption rate has been low (26.8% in 2014; National Cancer Institute [NCI], 2014). A lack of PP use among older adults, who have high health care needs, has been addressed as a particular concern in multiple studies (Amante, Hogan, Pagoto, & English, 2014). Based on 2014 national survey data (NCI, 2014), however, when only online users were considered, the proportion of PP use in older adults was similar to other age groups (≥ 18 years, 32.2%; 50–64, 34.1%; ≥ 65, 29.8%). In a 2015 SeniorNet (SeniorNet.org) member survey (N = 553; mean age, 73.6 years), 60.6% of participants (n = 327) reported having at least one PP account (Nahm, Sagherian, & Zhu, 2016). Other prior findings also indicate that there is excellent potential for using PPs for the care of older adults (Lam et al., 2013). Despite the rapid growth in older adult online users (age 51–59, 83%; 60–69, 76%; 70–79, 61% in 2016; Rainne & Perrin, 2016), many older adult online users are not technologically savvy and need additional support in learning to use PPs (Taha, Czaja, Sharit, & Morrow, 2013; Turner et al., 2015). There is a lack of information about older adults' actual use of PPs in community settings and the challenges they encounter. The aim of this study was to describe the current state of older adults' PP use and their experiences with PP training, using a baseline dataset from an ongoing online trial that tests the impact of a PP eLearning program. Participants of this trial were recruited online nationwide.

An Overview of Prior Findings on Older Adults' PP Use

Challenges for using PPs in older adults.—The majority of studies on older adults' PP use so far have focused on their perceptions of PPs and barriers to using them. The findings have shown that although older adults are receptive to using PPs (Barron, Bedra,

Wood, & Finkelstein, 2014; Nahm et al., 2016), multiple barriers, such as lack of training, usability problems, limited health literacy, and privacy and security concerns, limit their use of PPs (Amante et al., 2014; Taha et al., 2013; Wildenbos, Peute, & Jaspers, 2017). In addition, older adults tend to forget URLs for PPs, and their usernames and passwords (Amante et al., 2014; Taha et al., 2013). They often need repeated walk-through sessions. Some studies suggested that educating users in technology programs could alleviate some usability issues (McInnes et al., 2013; Taha et al., 2013). In our prior study, older adults who viewed a short instructional step-by-step demo video prior to PP use experienced fewer difficulties (Nahm et al., 2016).

Potential for older adults using PPs.—Despite specific challenges, prior findings suggest great potential for older adults using PPs. Lam et al. (2013) compared the attitudes and preferences for using eMessages to communicate with care providers in younger adults (<65 years, 55.2%) and older adults (≥65 years, 44.8%; $N = 324$). Overall, 83% of participants were satisfied with the messaging system, and there were no significant differences between younger and older adult groups. In another study, researchers conducted a phone survey of 100 community-dwelling adults followed by focus group meetings with 23 participants. Overall, participants perceived PPs as useful regardless of their health literacy and prior PP experience. Participants with less computer experience had less confidence in their ability to learn and expressed an interest in having proxy access (Irizarry et al., 2017).

Other recent findings also reported that many older adults are using PPs despite several challenges. In 2014, Gordon and Hornbrook surveyed 2,602 Kaiser Permanente members ages 65 to 79 about using technologies to manage their health care. In this sample, 64.2% perceived that they could use the PP on their own (Gordon & Hornbrook, 2016). In our 2015 SeniorNet member survey ($N = 553$), 327 adults with a mean age 73.6 years had at least one PP account (Nahm et al., 2016).

Characteristics of older adults' PP usage.—Our investigative team conducted preliminary studies on older adults' PP use in both clinic settings and online communities ((Nahm, Diblasi, Gonzales, Zhu, & Sagherian, 2017; Nahm et al., 2016). The findings provided helpful insights into older adults' PP use. For example, for older adults, having PP accounts may not translate into using them. In hospitals and clinics, many older adults activate their PP accounts with the help of staff. However, older adults often do not remember their user IDs or passwords and do not use their PPs after activation. Many older adults' PP accounts are being used by their family caregivers. In addition, the disparity in PP use in certain age groups must be understood by taking into account users' levels of Internet competency. For example, the proportion of older adults with a PP account was much lower in older adult online users who were recruited via phone (32.5%; NCI, 2014) than in those recruited online (60.6%; Nahm et al., 2016).

Logistical limitations in PP implementation.—Currently, most PPs in health care settings have several logistical limitations that may hinder older adults' PP adoption. From the usability perspective, older adults require certain web design principles (e.g., font sizes, color combination; National Library of Medicine & National Institute on Aging, 2009);

however, PPs are often implemented at the health care system level, with one type of PP used by all patients systemwide. This significantly limits any modifications to user interfaces. In addition, PPs are implemented with limited resources allocated to patient education, and most clinicians and staff are not prepared to teach older adults who are not computer savvy about using PPs. Health care organizations use different PPs, and each PP may look different and have different functions, which may confuse patients, especially older adults. (Even PP programs from the same vendor can be branded differently to match organizations' web design styles.)

Gaps in research and practice for engaging older adults in PP use.—Despite rapidly increasing numbers of older adults having one or more PPs, few studies have investigated the current state of older adults' PP use at the national level and their experiences with using them. Throughout health care organizations, there is a lack of strategies to assist older adults and their caregivers in using PPs to effectively manage their health. More research is needed to identify optimal approaches to support this population's use of PPs.

Method

Design and Participants

The ongoing study is a two-arm parallel-group online randomized clinical trial (RCT) that will assess the effects of a 3-week Theory-Based Patient Portal eLearning Program (T-PeP) on older adults' PP use and selected health-related outcomes. The recruitment and baseline data-collection phases of the study have been completed. Follow-up data collection (at 3 weeks and 4 months) is still ongoing.

Participants were eligible if they were age 50 or older and diagnosed with at least one chronic disease, had access to the Internet/e-mail, could use the Internet/e-mail independently and read/write English, and resided in the United States. (Age cutoff was set at 50 years to be consistent with the membership criterion for the major recruitment site, SeniorNet.org.) The majority of participants (79%) were recruited from SeniorNet, which is a leading online organization that provides older adults with technology education and maintains a large online community of older adults. In an effort to include more minority subjects, we expanded our recruitment efforts to selected local areas that had higher minority populations, such as retirement communities, senior centers, and community engagement centers in Maryland and New York. Study flyers were distributed to those sites, and participants signed up for the study online. Institutional review board approval was obtained from the University of Maryland, Baltimore.

Measures

The extracted dataset included quantitative data on demographics, Internet experience, perceived computer knowledge, and specific information on participants' use of PPs, and qualitative data, such as additional comments or answers to open-ended questions.

Demographic and Internet experience.—Demographic variables included age, sex, education level, and health conditions (e.g., chronic illnesses). Perceived levels of computer knowledge was assessed relative to their age group (beginner, advance beginner, competent, proficient, and expert). Internet experience was assessed by years of use, Internet access methods, and mobile device use. In addition, level of eHealth literacy was assessed using the eHealth Literacy Scale (eHEALS), an eight-item measure on a 5-point Likert-type scale (1 = *strongly disagree*; 5 = *strongly agree*) with a score ranging from 8 to 40 (Norman & Skinner, 2006). This tool has been used in prior studies with older adults and shown to be internally consistent and valid (Chung & Nahm, 2015).

Older adults' PP use.—Characteristics of PP use by participants were assessed by type (i.e., names of PPs) and number of PPs per participant, as well perceived usability of those PPs. Participants' experiences with PP training and their knowledge of PPs were also assessed.

Perceived usability of PPs was assessed by a modified six-item Health Web Site Usability Questionnaire (HWSUQ) on a 7-point Likert-type scale (1 = *strongly disagree or very unsatisfied*; 7 = *strongly agree or very satisfied*; α = .94) and qualitative comment (Nahm, Resnick, & Mills, 2006). The items ask about users' satisfaction with the program's ease of use, readability, appearance, and usefulness. The total score ranges from 6 to 42. Participants' experience with PP training was assessed by sources of PP information (registration desk, doctors, nurses, etc.), type of information (none, brochures, instructions on the web, etc.), and perceived helpfulness assessed by a one-item Likert-type scale (1 = *not helpful*; 7 = *very helpful*) and qualitative comments. Participants' PP knowledge was assessed using an eight-item questionnaire developed by PP experts and used in prior studies (α = .54; Nahm et al., 2016; Nahm, Diblasi, et al., 2017). Self-efficacy for using PPs was assessed using a modified four-item Self-Efficacy for Computer-Based Personal Health Record (PHR) Scale on an 11-point Likert-type scale (0 = *not at all confident*; 10 = *very confident*; α = .97; criterion validity, Nokes, Verkuilen, Hickey, James-Borga, & Shan, 2013). The items assessed the participants' confidence in using PPs on their own, reviewing health records online and using eMessages, and sharing health information with other care providers and family members. The score ranges from 0 to 40. The modified version was successfully tested in our prior studies ((Nahm et al., 2016; Nahm, Diblasi, et al., 2017).

Procedures

Participants were recruited online via a brief study description and a hyperlink to the study's website posted on the SeniorNet website and by advertising in its eNewsletters and on Facebook sites. Participants recruited through flyers were referred to the study website directly. On review of the information, if an older adult decided to participate, he or she clicked on the "Continue to Participate" button, and an interactive eligibility criteria form opened. If the person met all criteria, he or she could proceed to the online consent forms. At the bottom of the consent form, potential participants had two options. If they clicked "Yes, I want to participate," a demographic data-collection form would appear. If they clicked "No, I do not want to participate," they were routed to an optional web page that asked their reasons for not participating. A toll-free phone number was available on the study website

for any questions. On submission of the online consent and demographic forms, participants received a phone call and an e-mail from the project manager about the next steps of the study and expected timeline. They then *completed* the online baseline survey.

Data Analysis

Quantitative Data

Descriptive statistics (mean, standard deviation [*SD*], range, frequency, and proportion) were computed for each variable to summarize the data and check the distribution, outliers, and missing values. One participant reported her number of PP accounts as 19, and one reported hours of Internet use per week as 170. We treated these answers as hardly attainable values and win-sorized them to the next highest values in the data. After initial screening, we compared the baseline demographics and other characteristics between *SeniorNet* and other sites using *t* tests for continuous variables and chi-square tests for categorical variables. Fisher's exact test was used to test the differences for variables with small cell sizes ($n < 5$).

Qualitative Comments

The qualitative data were analyzed using a combination of a content analysis method suggested by Krippendorff (2003) and an inductive coding approach (i.e., generation of themes as coding progresses; Pain, Chadwick, & Abba, 2008). Two coders analyzed the qualitative data separately. One coder was a doctorally prepared researcher who had conducted and published several qualitative studies. The other coder was a research associate who had completed doctoral-level qualitative research courses and had experience in qualitative data analysis. In the initial phase of the coding process, the coders reviewed comments and identified potential themes (or categories). They then coded each comment separately using those themes. As coding progressed, themes were also refined. Results of initial coding between coders were similar. Discrepancies were discussed, and a consensus was reached.

Findings

A total of 272 older adults from 29 states participated in the study. Table 1 summarizes participant characteristics. The majority (70.2%) of participants were female, with a mean age of 70.0 ± 8.5 years (range = 50–92 years). The majority were White ($n = 213$, 78.3%), followed by Black ($n = 40$, 14.7%), and most had some college or higher level of education ($n = 258$, 94.9%). The most frequent chronic illness was high blood pressure ($n = 174$, 64.0%), followed by arthritis ($n = 160$, 58.8%) and depression ($n = 63$, 23.2%).

When participants were asked about their perceived level of computer knowledge relative to their age group, the majority ($n = 213$, 78.3%) of participants reported their level of computer knowledge as competent or higher. The average years of web experience was 19.3 ± 7.7, and the mean hours spent using the web per week 22.9 ± 17.1. The mean eHealth literacy score of the participants was 29.8 ± 5.3 (range = 8–40), which is similar to the findings from other studies with community-dwelling older adult online users (Nahm, Resnick, et al., 2017; Tennant et al., 2015). The majority ($n = 211$, 77.6%) were using wireless networks to access the Internet, followed by broadband ($n = 159$, 58.5%) and

cellular (n = 116, 42.6%). The majority (n = 210, 77.2%) had a smart phone, and 65% (n = 181) of participants had a tablet computer like an iPad. More than half (n = 156, 57.4%) of participants reported using e-mail to exchange health information with health care professionals.

When participant demographics and Internet use characteristics were compared between the sites (SeniorNet, n = 214; other sites, n = 58), a higher proportion of participants from "other sites" were Black ($p < .001$). These participants were younger ($p = .01$) than those recruited from SeniorNet, but far fewer of them had PP accounts (58.6% vs. 74.8%). There were no significant differences in PP knowledge and self-efficacy.

PP Accounts and Information and Training Received

PP account ownership and types of PPs.—Most participants (n = 230, 84.6%) were offered PP accounts by their health care providers, and more than half (n = 156, 57.4%) by their health insurances providers. The majority (n = 194, 71.3%) had at least one PP account. Among those, 51% (n = 100) reported having two or more PP accounts. The mean number of PP accounts for the entire sample was 2 (SD = 1.2), with a range of 1 to 6. In the qualitative comment sections, participants often mentioned difficulty with having multiple portals ("Too many codes to remember, frustrated in even trying to set up. Then not remembering from which Dr portal is coming from. [7 different Dr's!]").

The types of PPs used by participants varied widely. The PP names submitted by participants underwent extensive online searches and were recoded using the original program names. For example, many hospitals use Epic MyChart® but brand their login pages using their own web design with different names. These PPs were coded as Epic MyChart®. It was found that participants were using at least 38 different types of PPs, including PPs from hospitals, primary care providers, insurance companies, pharmacies, Labs, and so on. Many PPs were well-known vendors' programs (e.g., Epic, Cerner, All Script, NextGen) or health care plans (e.g., Kaiser Permanente, Athenahealth), and others were smaller programs. A total of 64 participants did not know the names of their PPs ("don't know," "so many, not sure, but here are the URLs").

Experience with receiving PP information and training.—The majority of participants who had PP accounts received the information about PPs either through their health care providers (physicians and nurse practitioners; n = 101, 52.1%) or registration desks (n = 72, 37.1%). Other sources of information included friends/family, nurses, and mailed information. About half the participants (n = 96, 49.5%) learned to use PPs via information on web pages, and 35.1% (n = 68) learned via brochures or printed instructions. About a quarter (n = 49, 25.3%) of the participants received no training. The mean score for the perceived helpfulness of PP education they received was 5.0 ± 1.71.

In addition, 170 participants submitted written comments on the education they received (an optional item). These qualitative comments provided in-depth information about issues with meeting older adults' educational needs for PPs. A total of 55 participants commented that they received no instructions or were self-taught, and 23 participants reported receiving minimal information. ("It would have been nice to have some instruction. I have sort of

faked my way through so far with all my Internet experience." "Was just told it exists for one of my physician groups, there may have been a brochure.")

Twelve participants reported that the instructions on using PPs were confusing. ("Still confusing, I can't remember or find my secret code and now I don't know who to call to get it changed." "Initially it was confusing to use the portal, after some tweaking and additional information from my clinic it is now easy to access and use.") Only five participants commented that the information provided was helpful.

Experience With PP Use

PP knowledge and self-efficacy.—Overall, participants' level of knowledge and self-efficacy for PPs were relatively low. The average PP knowledge was 5.2 ± 1.7, on a range of 0 to 8, and the mean self-efficacy for PP use was 27.1 ± 11.9, on a range of 0 to 40. When those variables were compared between the persons who had PP accounts and those who did not, the former did better on both (knowledge, mean = 6.61 vs. 4.22; self-efficacy, mean = 28.81 vs. 22.68; $p < .001$ for both).

Perceived usability of PPs.—Participants' perceived usability of their PPs (primary if they had multiple) was *low*, with a mean of 28.7 (range = 6–42). One item on the measure asked whether using PPs helps the person better manage his or her health, and its mean score was 4.7 ± 1.95 (range = 1–7). Based on the qualitative comments, the most favored feature of PPs was the ability to review one's own medical records ($n = 70$; "I like having access to my medical records." "Ability to review lab results—present and past"). An additional 70 participants listed other specific functions of PPs ("Being able to be in touch with my health care provider, ordering my medications, seeing my lab results." "Direct communication with a doctor or nurse. Trying to get a doctor on the phone is difficult—and yet I have lost count of the number of times my visit has been interrupted by someone telling the doctor he or she has a phone call.")

Some participants also offered suggestions for improvement ("A single, well-managed, accurate, and accessible portal is needed." "I could really use some training in the use of the portals. I cannot always find recent test results.")

PP usage.—Among the participants who have PP accounts, about half ($n = 106$, 54.7%) reported using their PPs less than monthly and 32% ($n = 62$) using their PPs monthly or more than monthly. When selected PP functions were ranked by frequency of usage (1 = *most frequently used*; 8 = *least frequently used*), participants ranked viewing lab results ($n = 63$, 32%) and communicating with health care team members ($n = 41$, 21.1%) as the most frequently used functions, followed by reviewing visit summaries ($n = 26$, 13.4%), requesting prescription refills ($n = 24$, 12.4%), and viewing reminders ($n = 22$, 11.3%).

Discussion

The findings from this study provide in-depth information on current PP use among older adults nationwide. Although other studies have shown that older adults experience multiple barriers when using PPs (Amante et al., 2014; Turner et al., 2015), our findings showed that

many older adults are using PPs, and the majority of them (71%) have multiple accounts with different PPs. In addition, their active participation in the study suggests their keen interest in using PPs—272 older adults were recruited in less than 6 months. Although further studies at the national level will yield overall prevalence of PP use in this age group, the high PP uptake in our sample suggests the potential for using PPs to improve the health of older adults.

Participants reported that the main sources of PP education were doctors and nurse practitioners. The settings of the study might have influenced the findings, as community-dwelling older adults use ambulatory care settings. If the same question were asked of patients in hospitals, where nurses conduct admission assessment and discharge planning, the answers might have differed. The results, though, point to the importance of the health care providers' role in implementing PPs, especially for community-dwelling older adults, and are consistent with the findings from other studies (Irizarry et al., 2015; Shah & Liebovitz, 2017). For example, health care providers' simple encouragement, such as recommending eMessages as a means of asking questions, and timely follow-up may help expedite adoption of PPs among older adults.

Since the emergence of PPs, management of multiple PPs has been addressed as a challenge to many individuals. Unfortunately, this issue is more problematic for older adults, as they tend to see multiple care providers who may use different PPs. This study alone identified at least 38 different PPs that have different user interfaces and functions. Furthermore, older adults may have decreased short-term memories, making it harder to remember user IDs and passwords for multiple PPs (Griffin et al., 2017; Lange et al., 2016). Several industry leaders have attempted to alleviate this problem using different approaches, such as developing a master landing page or health-information-exchange-based PPs (Nied, Mohan, & Belden, 2016; Otte-Trojel et al., 2015). These options have pros and cons, and much more effort must be made to develop optimal solutions. For now, though, health care providers must explain this challenge to older adults and provide guidance on managing multiple PPs. For example, they can offer suggestions on developing easy-to-remember but secure user IDs and passwords, and reconciling health information among PPs.

Overall, the usability of PPs used by older adults was found to be low (mean = 28.7; range = 7–42) compared with other online programs developed using design principles specific to older adults (high 70s using a scale ranging from 12 to 84; (Nahm et al., 2010; Nahm, Resnick, et al., 2017). Low perceived usability of PPs may hinder older adults' PP use, leading to negative impact on the outcomes of PP implementation. Considering the high number of PP accounts registered to older adults, health IT vendors must consider older adults' unique design needs when developing PPs.

Despite low usability, older adult participants recognized specific benefits of PPs, such as the ability to view their medical records and to directly communicate with their providers using secure eMessaging. These PP features are robust health tools that can be used to engage older adults in their care and to promote self-care (Nahm, Diblasi, et al., 2017; Ricciardi et al., 2013). As PP technology advances and adoption rates increase, overall quality of PPs must be further investigated and improved to meet the needs of the growing

number of older adult users. As demonstrated with EHR Incentive Payment Plans, setting up federal-level standards for the quality of PPs may be an effective approach to ensure usability of PPs (Lyles, Fruchterman, Youdelman, & Schillinger, 2017).

Considering their high level of computer competency and Internet experience, participants' knowledge of and self-efficacy for PPs seem to be low, with mean scores of 5.2 (0–8) and 27.1 (0–40), respectively. These results indicate an opportunity to improve PP adoption rates through education and training. Health care professionals must be prepared to perform these tasks accordingly.

Study Limitations

The older adult participants of this study were highly educated online users and may not be representative of the general American older adult population. However, they may be representative of the rapidly growing number of older adults who are online. All data included in this study were based on older adults' self-report. A few measures that are specific to older adults' PP use, such as PP self-efficacy and PP usability, need further validation by other studies with different populations and settings. Finally, a national database that includes different types of PPs used by health care organizations nationwide and patients' usage rates would have been helpful, but none was available.

Conclusion

PPs are robust tools that can empower older adults and help them better manage their health. Prior findings addressed low adoption rates as a particular concern for older adults. The findings from this study revealed that many older adults who are online users have one or more PP accounts and are using PPs. While they appreciated the benefits of several PP features, they also identified various practical challenges with using them. Many participants received only minimal or no information about how to use PPs. Considering older adults' high level of health care needs and health care organizations' push for using PPs, older adults are likely to be major users of PPs in the near future. Further efforts must be made to develop and implement more older-adult-friendly PPs and to provide appropriate training to this population.

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Table 1.

Characteristics of Participants at Study Baseline by Recruiting Site.

Characteristic	Total sample *N* = 272	SeniorNet *n* = 214	Other *n* = 58	*p* value
Gender (*n*, *%*)				
Female	191 (70.2)	145 (67.8)	46 (79.3)	.088
Age (*M* ± *SD*)	70.0 ± 8.5	70.7 ± 8.5	67.6 ± 8.4	.012
Race (*n*, %)				<.001[a]
White	213 (78.3)	176 (82.2)	37 (63.8)	
Black	40 (14.7)	20 (9.3)	20 (34.5)	
Others	19 (7.0)	18 (8.4)	1 (1.7)	
Ethnicity (*n*, %)				.694[a]
Hispanic or Latino	262 (96.3)	205 (95.8)	57 (98.3)	
Married (*n*, *%*)				.896
Not married	148 (54.4)	116 (54.2)	32 (55.2)	
Married	124 (45.6)	98 (45.8)	26 (44.8)	
Education (*n*, %)				.636[a]
Graduate degree	115 (42.3)	89 (41.6)	26 (44.8)	
Some college or college degree	143 (52.6)	115 (53.7)	28 (48.3)	
High school diploma or less	14 (5.1)	10 (4.7)	4 (6.9)	
Income (*n*, %)				.180
US$3,000 or greater/month	163 (61.0)	132 (63.2)	31 (53.4)	
Less than US$3,000/month	104 (39.0)	77 (36.8)	27 (46.6)	
Employment (*n*, %)				.246
Retired	184 (67.6)	150 (70.1)	34 (58.6)	
Employed	57 (21.0)	41 (19.2)	16 (27.6)	
Other (e.g., volunteer)	31 (11.4)	23 (10.7)	8 (13.8)	
Chronic illnesses (*n*, %)				
High blood pressure	174 (64.0)	140 (65.4)	34 (58.6)	.339
Arthritis	160 (58.8)	127 (59.3)	33 (56.9)	.737
Depression	63 (23.2)	47 (22.0)	16 (27.6)	.368
Cancer	54 (19.9)	43 (20.1)	11 (19.0)	.849
Heart problems	49 (18.0)	37 (17.3)	12 (20.7)	.550
Osteoporosis	43 (15.8)	35 (16.4)	8 (13.8)	.635
Diabetes	42 (15.4)	35 (16.4)	7 (12.1)	.423
Lung disease	32 (11.8)	21 (9.8)	11 (19.0)	.055
Kidney problems	28 (10.3)	23 (10.7)	5 (8.6)	.636
Others	105 (38.6)	85 (39.7)	20 (34.5)	.467
eHealth literacy (M ± *SD*; range = 8–40)	29.8 ± 5.3	29.9 ± 5.4	29.2 ± 4.8	.346
Internet experience (years, *M* ± *SD*)	19.3 ± 7.7	19.6 ± 7.7	18.0 ± 7.7	.150
Internet usage (Total hours/week; *M* ± *SD*)	22.9 ± 17.1	23.3 ± 17.3	21.6 ± 16.1	.516

Characteristic	Total sample *N* = 272	SeniorNet *n* = 214	Other *n* = 58	*p* value
Have patient portal (*n*, %)				
Yes	194 (71.3)	160 (74.8)	34 (58.6)	.016
No	78 (28.7)	54 (25.2)	24 (41.4)	
Number of patient portals, (M ± *SD*; range = 1–6)	2.0 ± 1.2	2.0 ± 1.2	1.8 ± 1.1	.373
Portal use in past 12 months (*n*, %)				.494[a]
3 to 9 times	76 (39.2)	62 (38.8)	14 (41.2)	
More than monthly	30 (15.5)	27 (16.9)	3 (8.8)	
About monthly	32 (16.5)	26 (16.2)	6 (17.6)	
1 to 2 times	30 (15.5)	22 (13.8)	8 (23.5)	
None	26 (13.4)	23 (14.4)	3 (8.8)	
Patient portal knowledge (M ± *SD;* range = 0–8)	5.2 ± 1.7	5.3 ± 1.7	4.9 ± 1.8	.083
Patient portal self-efficacy (M ± *SD;* range = 0–40)	27.1 ± 11.9	27.8 ± 11.7	24.4 ± 12.2	.056

Note. *P* values were from tests of comparison of means (*t* test) or proportions (χ^2) between SeniorNet and other.

[a]Fisher's exact test was used.