International Journal of Medical Informatics 103 (2017) 49–54

Contents lists available at ScienceDirect

International Journal of Medical Informatics

journal homepage: www.elsevier.com/locate/ijmedinf

Persistent digital divide in access to and use of the Internet as a resource for health information: Results from a California population-based study

Amy Nguyen[a,b,c], Sasan Mosadeghi[a,b], Christopher V. Almario[a,b,c,d,e,*]

[a] Division of Health Services Research, Department of Medicine, Cedars-Sinai Medical Center, Los Angeles, CA, United States
[b] Cedars-Sinai Center for Outcomes Research and Education (CS-CORE), Los Angeles, CA, United States
[c] David Geffen School of Medicine at UCLA, Los Angeles, CA, United States
[d] Division of Digestive and Liver Diseases, Department of Medicine, Cedars-Sinai Medical Center, Los Angeles, CA, United States
[e] UCLA Center for Health Policy Research, UCLA Fielding School of Public Health, Los Angeles, CA, United States

ARTICLE INFO

Keywords:
Digital divide
Internet
Patient portals

ABSTRACT

Objectives: Access to the Internet has grown dramatically over the past two decades. Using data from a population-based survey, we aimed to determine the prevalence and predictors of (i) access to the Internet, and (ii) use of the Internet to search for health information.

Methods: We analyzed data from the 2011–12 California Health Interview Survey (CHIS) and included all individuals 18 years of age and older. Our outcomes were (i) prior use of the Internet, and (ii) use of the Internet to find health or medical information within the past year. We performed survey-weighted logistic regression models on our outcomes to adjust for potentially confounding demographic and socioeconomic factors.

Results: Our study included an unweighted and survey-weighted sample of 42,935 and 27,796,484 individuals, respectively. We found that 81.5% of the weighted sample reported having previously used the Internet. Among Internet users, 64.5% stated that they used the Internet within the past year to find health or medical information. Racial/ethnic minorities, older individuals, and those who lived in lower income households and rural areas were less likely to have access to and use the Internet to search for health information. Conversely, English-proficiency and increasing levels of education were positively associated with online health information-seeking.

Conclusions: We found that most Californians have access to and use the Internet to search for health information, but still noted a persistent digital divide. Interventions to narrow the divide are needed, otherwise this may lead to a continued widening of existing healthcare disparities.

1. Introduction

Access to the Internet has risen dramatically over the last two decades [1]. Just as Internet use has increased, so too has the number of websites containing health-related information. The Internet has become an important mass medium for consumers, with over 10 million people per day in the U.S. turning to it to look for medical information [2]. The Internet has allowed individuals to search for and visit countless health-focused websites as well as participate in online support groups [3] through avenues such as discussion forums, blogging, chat rooms, and social media [4]. For example, WebMD, a website dedicated to health information, is read by 95% of U.S. health seekers over the course of a year [4] and provides them with a means of further understanding their medical conditions [5]. Additionally, adults with chronic illnesses often utilize peer-to-peer and social media resources to share and understand their experiences with their health conditions and challenges [6].

On top of searching the Internet for general health information, individuals can also now go online to access their own medical information and interact directly with their physicians and other healthcare providers. Spurred by Meaningful Use [7] and the increasing adoption of electronic health records (EHR) [8], patients can now view their personal health information and lab results, send messages to their providers, and request medication refills through patient-provider portals [4].

While Internet-based health information has potential benefits, prior reports found evidence of a "digital divide" [9–29]. For example, in 1999 – a time when only half of Americans used the Internet [1] – Brodie et al. found an "age divide" as 13% of individuals ≥60 years old

Abbreviations: CHIS, California Health Interview Survey; CI, confidence interval; EHR, electronic health record; FPL, federal poverty level; OR, odds ratio; U.S., United States; USOC, usual source of care

* Corresponding author at: Division of Health Services Research, Department of Medicine, Cedars-Sinai Medical Center, Los Angeles, CA, United States.
E-mail address: Christopher.Almario@csmc.edu (C.V. Almario).

http://dx.doi.org/10.1016/j.ijmedinf.2017.04.008
Received 6 September 2016; Received in revised form 10 March 2017; Accepted 9 April 2017
1386-5056/ © 2017 Elsevier B.V. All rights reserved.

used the Internet to get medical information vs. 31% of those under 60 years of age [21]. They also found disparities in use with respect to race/ethnicity (34% for whites vs. 19% for blacks) and household income (42% for ≥$50,000 vs. 30% for $30,000-$49,999 vs. 17% for < $30,000) [21].

More recent studies have also found evidence of a divide, even despite easier and cheaper access to the Internet, increased prevalence of web-enabled smartphone devices, and trends towards online patient-centered care. These reports still revealed that the elderly, racial/ethnic minorities, and individuals from lower socioeconomic strata continued to trail behind in access to and use of the Internet [9–17,22,23,25,28,29]. For instance, Kontos et al. noted that patients with lower levels of education had significantly lower odds for using email to communicate with a healthcare provider, tracking their personal health information online, or engaging in online diet, weight, and physical activity tracking [14]. Relatedly, recent studies also found disparities with respect to health literacy levels. Both Mackert et al. and Levy et al. reported that patients with low health literacy were less likely to use and be active consumers of online health information [12,28].

Because Internet use is now nearing saturation [1], we aimed to assess whether a digital divide still persists. To achieve this aim, we used data from the California Health Interview Survey (CHIS) to determine the prevalence and predictors of (i) access to the Internet, and (ii) use of the Internet to search for health information

2. Materials and methods

2.1. Study design and data source

We performed a retrospective cross-sectional study using CHIS 2011–12 data; this was the latest dataset that included information on access to and use of the Internet to search for health information. CHIS is a population-based telephone survey of California's population that has been conducted by the UCLA Center for Health Policy Research since 2001. It is the largest state health survey and one of the largest health surveys nationwide [30]. CHIS uses a multi-stage sample design and random-digit-dial to landline and cellular services to contact potential participants. CHIS receives funding from a network of public agencies and private organizations, including the California Department of Public Health, California Department of Health Care Services, Centers for Disease Control and Prevention, among many others [31]. This study was reviewed by the Cedars-Sinai Institutional Review Board, and was deemed exempt from review because it was an analysis of publicly available, de-identified data.

2.2. Study population

Our study included all surveyed individuals 18 years of age or older. All participants were interviewed regarding their health status, mental health, health conditions, health behaviors, preventive care, insurance status, healthcare utilization and access to healthcare, as well as Internet use [30]. Interviews were conducted in English, Spanish, Mandarin, Cantonese, Vietnamese, or Korean.

2.3. Outcomes

Our primary outcome was prior use of the Internet. All CHIS participants were asked: "Have you ever used the Internet?" CHIS interviewers were advised that use of the Internet included sending or receiving email, using social media sites (e.g., Facebook, Twitter, etc.), and using a computer, phone, tablet, or any other electronic device for accessing online material.

Our secondary outcome was use of the Internet to search for health or medical information. All those who reported having used the Internet were asked: "In the past 12 months, did you use the Internet to look for health or medical information?" If needed, CHIS interviewers provided further clarification by stating: "Include information about disease symptoms, diet or nutrition, physical activity, healthcare providers, and health insurance plans."

2.4. Covariates

We identified personal demographics, socioeconomic status, and access to care factors that may have influenced access to and use of the Internet for health information. Demographic variables included age, gender, self-reported health status, presence of a chronic medical condition, marital status, number of years in the U.S., English proficiency, and urbanicity. Race/ethnicity was defined according to the UCLA Center for Health Policy Research classification of mutually exclusive racial/ethnic categories: White, African American, Latino, Japanese, Chinese, Korean, Filipino, Vietnamese, South Asian, Asian Other (Cambodian, Pacific Islander, other single Asian type, multi-Asian), and Other (American Indian, Alaskan Native, multiracial). Socioeconomic status and access to care variables included employment status, highest level of education, federal poverty level, insurance status, having a usual source of care other than the emergency department, and having seen a physician within the past year.

2.5. Statistical analysis

Statistical analyses were performed in Stata 13.1 (StataCorp LP, College Station, TX). Survey weights were applied to the sample data to produce estimates for California's non-institutionalized population; this was done to compensate for the probability of selection and other factors [30,32]. A two-tailed p-value of less than 0.05 was considered statistically significant in all analyses.

In bivariate analyses, we used the chi-squared and adjusted Wald tests to compare categorical and continuous variables, respectively. To adjust for potentially confounding factors and to calculate odds ratios (OR) with 95% confidence intervals (CI), we performed survey-weighted multivariable logistic regression models. The regression models were performed on our primary and secondary outcomes of prior use of the Internet and use of the Internet to search for health and medical information, respectively. Both models included all demographic, socioeconomic, and access to care factors mentioned above in the Covariates section.

3. Results

3.1. Study population

The 2011–12 CHIS surveyed 42,935 individuals and survey-weighting yielded a sample of 27,796,484 individuals. Characteristics of the study cohort are presented in Table 1.

3.2. Prior use of the Internet

Among the study population, 32,858 of 42,935 (weighted 81.5%) individuals reported having previously used the Internet. Table 2 presents the ORs from regression analysis on prior use of the Internet. Older individuals, immigrants, non-English speakers, and those who lived in low income households and in rural areas were less likely to have accessed the Internet. Disparities were also seen among the racial/ethnic groups; African Americans, Latinos, Japanese, Chinese, Filipinos, and South Asians were all less likely to have used the Internet when compared to whites. On the other hand, Koreans and individuals who were employed and had a higher level of education had increased odds for having used the Internet.

3.3. Use of the Internet to search for health information

Among the 32,858 individuals who reported prior Internet access,

Download English Version:

https://daneshyari.com/en/article/4966589

Download Persian Version:

https://daneshyari.com/article/4966589

Daneshyari.com