

Abstract

Objective: Health information-seeking is an essential component of health-related behavior and decision-making. Access to personal health records (PHRs), offered by healthcare providers, is an essential tool to access health information. However, little is known about predictive factors of use of PHRs as a medium of health information among women. In this study, we explored health information-seeking's decision processes through PHRs among middle-aged and older women susceptible to developing breast cancer. **Methods:** We used data from the 2014 Health Information National Trends Survey in the United States and employed a 2-part Hurdle model. The study sample included 1159 women aged 40 to 75 years. **Results:** The Hurdle estimation found that health information-seeking through PHRs consists of 2 distinct decision processes: (1) the use of PHRs and (2) the frequency of use; different sets of factors are associated with each decision process. Women's demographic characteristics were found to be the primary factors for PHR use. In contrast, socioeconomic factors, salience, self-efficacy, and general health status were more likely to be the main factors affecting the frequency of use. **Conclusions:** Based on the findings, providing greater access to PHRs to women, particularly those with health needs or concerns, should be considered by policymakers. Additionally, the issue of the digital divide in PHR use should be addressed.

Background

- ❑ Health information-seeking (HIS), defined as “behaviors or actions to obtain or acquire health-related information,” plays an essential role in individuals' healthy behavior and health-related decision-making.
- ❑ The adoption and implementation of electronic health records and personal health records (PHRs) by healthcare providers and hospitals in the United States (US) and providing access to patients under the Health Information Technology for Economic and Clinical Health Act of 2009 can enhance HIS.
- ❑ PHRs are health-related database systems through which individuals can access, manage, and share their health information, and could play an essential role in patient engagement and empowerment through HIS.
- ❑ PHRs enable individuals to view their health information and efficiently generate and share information with doctors and family members.
- ❑ PHRs also can be used as efficient means of communication; for instance, patients can easily communicate with their providers and can send or receive texts or emails related to issues or concerns regarding their health to a physician.

Research Gaps

- Although prior studies explored individual HIS behaviors among women, comparatively less is known about predictors and the extent of PHR use for HIS among women, particularly those middle-aged or older and at risk of breast cancer, the most frequently diagnosed cancer in women after skin cancers.
- Given that women are generally more active online health information seekers than men, and are interested in different information sources, including PHRs, it is meaningful to further explore their HIS behavior in the context of individual information-seeking through PHRs.

Study Objectives

- To explore predictors of use and the extent of use of PHRs for health information seeking among middle-aged and older women considered susceptible to developing breast cancer.
- Specifically, to examine the extent to which factors are predictive of women deciding to use PHRs, and given the use of PHRs, we explore which factors are associated with the frequency of use.

Methods

➢ Data and the Study Sample:

- ❑ Used data collected through the Health Information National Trends Survey (HINTS) (HINTS 4 (2014) and Cycle 4).
- ❑ The rationales for using this dataset: (1) the HINTS includes all relevant information that the study needed, including access to and use of health information via information technology; and (2) notably, the HINTS 4 Cycle 4 includes information about PHRs.
- ❑ The overall response rate was 34.44%.
- ❑ Our analytical sample included 1159 women aged 40 to 75 years with no cancer diagnosis, extracted from 3677 survey respondents.
- ❑ This specific age range was selected following the American Cancer Society, the US Preventive Services Task Force, and the American College of Obstetricians and Gynecologists guidelines for women regarding physician counseling, shared decision-making, and recommendations to undergo breast cancer screening in this age range.

❑ Variables:

- ❑ Outcome measure: the frequency of use of PHRs (“none,” “1 to 2 times,” “3 to 5 times,” “6 to 9 times,” and “10 or more times.”), derived from the survey question: “How many times did you access your own personal health information online through a secure website or app in the last 12 months?”
- ❑ The explanatory variables: were selected guided by the comprehensive model of information seeking.
 - *Health-related factors:* demographics (age, sex, marital status, and race/ethnicity, direct experience with the disease, salience (personal significance of health information), and beliefs (self-efficacy)
 - Additionally, household income and respondents' educational attainment were included.
 - *Information carrier factors:* ‘Utility of PHRs’
 - *Information-seeking action:* ‘Frequency of use of PHRs’

➢ Data Analysis:

- ❑ Hurdle model, also known as a 2-part model, was employed to explore the extent to which women use PHRs for HIS with the 2 processes that this study hypothesized: the use of PHRs and frequency of use of PHRs for HIS.
- ❑ The HINTS survey weights were incorporated in analyses to make the results representative of the US female adult population of ages 40 to 75.
- ❑ Robustness analysis using a Tobit model was conducted to check for robustness of the final results obtained from the Hurdle model.
- ❑ SAS 9.4 (NC, USA) was the primary software program used for statistical analyses.

Results

Table. The Hurdle Model of Depicting the Predictors of Use, and Frequency of Use of Personal Health Records by Women Aged 40 to 75 Years, United States

Variables	Hurdle Model			
	Stage 1: Use of PHRs		Stage 2: Frequency of Use	
	β	P	β	P
Age	0.03	.0002	0.01	.457
Unmarried	-0.08	.64	-0.33	.006
Race or Ethnicity				
White, Non-Hispanic	-0.38	.11	0.24	.375
Black, Non-Hispanic	-0.14	.599	0.43	.125
Hispanic	0.98	.001	0.09	.807
Asian	0.14	.751	0.85	.022
General health status				
Excellent/very good			-0.37	.017
Good/Fair			-0.04	.809
Poor			-0.18	.515
Not interested in exchanging medical information with a provider electronically ^a			-0.32	.008
Confident about taking care of own health				
Very			-0.35	.004
Somewhat			-0.23	.017
Not at all			----	----
Important to get own medical information electronically				
Very			0.34	.244
Somewhat			-0.43	.167
Not at all			-0.49	.422
Education				
Less than high school			0.37	.27
High school graduate			0.75	<.001
Some college			0.75	<.001
College graduate or more			0.53	<.001
Income				
< \$20,000			-0.39	.043
\$20,000 to < \$50,000			-0.03	.804
\$50,000 to < \$75,000			-0.17	.239
\$75,000 or More			0.13	.295

Abbreviations: β , Beta coefficient; Ref., reference group

^a ‘Some/a little’ was the reference group.

- ❖ We found that the use of PHRs for HIS among women is affected by 2 distinct decision processes: use of PHRs and frequency of use, and that different sets of factors are associated with these 2 decisions. Specifically, demographic factors (ie, age, marital status, and race/ethnicity) are more likely to affect the decision to use PHRs, whereas socioeconomic conditions (education and income), self-efficacy, salience, and health status are more likely to influence the decision regarding the frequency of using PHRs.
- ❖ There may exist the “digital divide” in PHR use among women susceptible to developing breast cancer. Although Hispanic women appeared to decide to use PHRs more, they were less likely to use PHRs frequently.
- ❖ Women who assessed their health status as excellent or very good, and those who felt confident about taking care of their health were less likely to use PHRs frequently.

Implications For Health Behavior or Policy

The initial motivation behind our study was to understand the decision processes of using PHRs for HIS among women susceptible to developing breast cancer to provide guidance for developing public health interventions or policies to promote preventive health awareness and behavior. This is well-aligned with the goal of Healthy People 2030 for enhancing population health and health equity by promoting the use of health information technology and health communication strategies.