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Electronic Personal Health Record Use Among Nurses in the Nursing Informatics Community

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Abstract

An electronic personal health record (ePHR) is a patient-centered tool enabling secure access, management, and sharing of health information with healthcare providers. Despite its potential benefits, there is limited research on the personal adoption of ePHRs among healthcare professionals, particularly nurses. This study focuses on exploring the adoption of ePHRs among nurses in the context of nursing informatics. A sample of nurse members from professional associations was surveyed, with 183 respondents. Multiple logistic regression analysis identified factors associated with ePHR use. Results showed that 72% of nurses were ePHR users, particularly those older (aged 30-50 years), highly educated (72% with master's or doctoral degrees), and holding positions such as clinical informatics specialists or chief nursing informatics officers. Those whose healthcare providers used electronic health records were significantly more likely to use ePHRs (odds ratio, 5.99; 95% confidence interval, 1.40–25.61). ePHR users exhibited lower concerns about online health information privacy compared to non-users (odds ratio, 0.32; 95% confidence interval, 0.14–0.70), adjusting for demographic factors. These findings highlight the potential for informatics nurses to influence ePHR development and usage. Policy efforts should encourage nursing informatics and other professional nursing groups to lead and adopt ePHRs, fostering patient engagement and improved healthcare outcomes. Having knowledgeable and enthusiastic champions can facilitate ePHR adoption among both healthcare providers and patients.

Introduction

The effective management of personal health information is crucial for patients to collaborate with healthcare providers in making informed healthcare decisions, leading to improved health outcomes. An electronic personal health record (ePHR) facilitates this collaboration by enabling patients to securely access, manage, and share their health information with healthcare providers, as well as allowing designated individuals access to their ePHR. The federal government's Health Information Technology (HIT) policy, particularly Meaningful Use, mandates the use of electronic health records (EHRs) and requires healthcare providers to provide patient access to their health information through an ePHR. (Archer et al., 2011)

Despite the potential benefits of ePHRs in improving patient-provider communication, adherence to medical interventions, chronic disease management, and utilization of preventive services, there are common barriers to widespread adoption. These barriers include concerns about data accuracy, privacy, security, inequalities in Internet access, and health literacy issues. Understanding and addressing these barriers are essential to promoting ePHR adoption among patients. (Fonda et al., 2010)

In the nursing informatics community (NIC), members play a significant role in HIT leadership within the nursing profession. They are well-positioned to promote ePHR adoption among healthcare providers and patients due to their patient-centered approach to technology. However, there is a lack of research on the personal adoption of ePHRs among nurses for their own healthcare needs, despite the assumption that they could be early adopters of such technology. Therefore, this study aims to investigate ePHR use among nurses in the NIC for their personal health and explore associated factors, recognizing their potential as early adopters and influencers of ePHR adoption in healthcare settings. (Miller et al., 2011)

Methods

Study Design and Sample:

This study employed a descriptive cross-sectional design, utilizing data collected through an anonymous . The target population consisted of nurses with memberships in the American Medical Informatics Association (AMIA) and/or the Healthcare Information and Management Systems Society (HIMSS). These professional associations were chosen to target informed early adopters of electronic personal health records (ePHRs), given their involvement in discussions on emerging HIT trends. The survey, comprising 37 questions and lasting approximately 15 minutes, was distributed through the AMIA and HIMSS nursing informatics e-mail discussion lists using Qualtrics software. A total of 183 nurses in the nursing informatics community participated after excluding retired, unemployed, and non-nurse respondents. Institutional review board approval was obtained from the University , and authorization was secured from AMIA and HIMSS.

Measurement:

The survey covered various domains including demographics, job information, health and healthcare experience, technology familiarity and awareness, and attitudes toward health information privacy. Questions were adapted from reputable sources and reviewed by informatics experts. ePHR use was defined as accessing, updating, or managing health information using an ePHR tool, without distinguishing between different types of ePHRs (e.g., standalone or tethered). A sample ePHR screen image was provided for reference. The survey also assessed awareness of new technology (e.g., Meaningful Use, healthcare providers' EHR use) and attitudes toward health information privacy using established question items.

Data Analysis:

Descriptive statistics were used to analyze variable distributions and frequencies. T-tests and Pearson chi-square tests were employed for continuous and categorical variables, respectively, to compare ePHR users and non-users based on nurses' characteristics. Variables with a bivariate association ($P < .20$) with ePHR use were included in multiple logistic regression models. Four models were constructed to assess associations with ePHR use, adjusting for ethnicity/race and practice region. Model adequacy was assessed using Omnibus tests and Hosmer-Lemeshow tests. Data analysis was conducted using SPSS 21 software.

Results

ePHR Adoption Among NIC Nurses:

Seventy-two percent of nurses in the nursing informatics community (NIC) surveyed reported using electronic personal health records (ePHRs). There were no significant differences between ePHR users and non-users in terms of demographic characteristics such as age, sex, education, marital status, employment status, or years worked as a nurse. However, a larger proportion of ePHR users held positions related to informatics and specialized in informatics compared to non-users ($P < .05$).

Health and Healthcare Experience:

Most nurses (97%) reported good to excellent health, with one-third having chronic conditions or using medications. ePHR users were more likely to have chronic conditions and/or use medications compared to non-users ($P < .05$). Collaboration with primary care providers on medical decision-making was common (71%), but this did not vary between users and non-users.

Technology Experience and Awareness:

The majority of respondents used electronic health records (EHRs) for patient care and were familiar with the Meaningful Use initiative. While technology experience and awareness did not differ significantly

between ePHR users and non-users, ePHR users were more frequent Internet users ($P < .01$) and were more likely to have healthcare providers using EHRs ($P < .05$).

Privacy of Electronic Health Information:

ePHR users expressed less concern about online health information privacy and security compared to non-users ($P < .01$). Non-users were more willing to grant permission to specific entities to view their ePHRs, especially family members, friends, and healthcare providers ($P < .05$).

Factors Associated With ePHR Use:

Multiple logistic regression analysis revealed several factors associated with ePHR use among informatics nurses. These factors included having chronic conditions or medication use (OR, 2.68), healthcare providers using EHRs (OR, 6.07), and lower concerns about health information privacy (OR, 0.35) (all $P < .05$). These associations remained significant even after adjusting for other factors in the full model.

Overall, the study highlights the high adoption rate of ePHRs among NIC nurses and identifies key factors influencing their adoption, including health status, healthcare provider practices, and attitudes toward privacy and security.

Discussion

This study marks a significant step in understanding the factors influencing the adoption of electronic personal health records (ePHRs) among nurses in the nursing informatics community (NIC). One key finding was that ePHR users were more likely to have chronic conditions and use medications compared to non-users, aligning with national consumer survey results suggesting that individuals with chronic illnesses benefit most from ePHRs. (Wagner et al., 2012)

The influence of healthcare providers using electronic health records (EHRs) on ePHR adoption among nurses was notable. Nurses whose healthcare providers used EHRs were significantly more likely to use ePHRs themselves, possibly due to increased awareness and familiarity with digital health tools. This correlation underscores the potential benefits of integrated EHR and ePHR systems, as seen in enhanced patient care, improved communication, and better-informed healthcare decisions. (Krist, 2011)

Privacy and security concerns surrounding ePHRs were less pronounced among users, possibly due to their firsthand experience with the technology's benefits and control mechanisms. However, non-users expressed more willingness to grant access to specific entities, highlighting the importance of educating both users and non-users about data privacy and security protocols. (Kahn et al., 2009)

The discussion also emphasizes the role of informatics nurses in promoting ePHR adoption and optimizing their functionalities for patient-centered care. Informatics nurses can leverage their expertise to design user-friendly interfaces, integrate educational materials, and facilitate patient-provider communication through ePHRs. Initiatives like personal health information management systems (PHIMS) and educational interventions can empower nurses to play a pivotal role in patients' health management via ePHRs. (Weitzman et al., 2009)

Overall, the study underscores the potential of ePHRs to improve healthcare outcomes, especially for individuals with chronic conditions, and emphasizes the critical role of informatics nurses in driving ePHR adoption and utilization for enhanced patient care. (Gagnon et al., 2010)

Conclusions:

Despite these limitations, the study highlights the significant associations between nurses' use of ePHRs, healthcare providers' EHR use, and trust in online health information privacy. Involving the nursing informatics community in ePHR development is crucial, given their expertise and potential to ensure user-friendly yet secure systems.

The findings underscore the importance of policy efforts to engage professional nursing groups in endorsing and using ePHRs. Having informed champions within healthcare providers can promote ePHR adoption among both providers and patients, enhancing overall healthcare outcomes.

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