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Feature Article

Exploring the factors that influence medication rating Web sites value to older adults: A cross-sectional study



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ABSTRACT

In this cross-sectional study, we evaluated factors that affected the perceived value of medication rating Web sites to 284 people aged ≥ 60 years who were taking prescription medications. The Patient Reviews of Medication Experience (PROMEX) questionnaire score, which assessed participant opinions about the value of online reviews of medications, was positively associated with preference to share health care decision making with the health care provider and negatively associated with the Physical Component Summary (PCS-12) and Mental Component Summary scores of the Short Form 12 health survey. The Primary Care Assessment Survey Communication score, which measured participant satisfaction with the communication from the health care provider, was positively associated with PCS-12 and health literacy. In summary, older adults who had poor physical and mental health-related quality of life were more likely to believe that medication rating Web sites were useful and helpful in facilitating communication with health care providers.

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Introduction

Patients want their health care providers to inform them about their health conditions, treatment options, and safety profile and cost of drugs.¹ The desires of patients to learn about their health conditions and available treatment options suggest that patients want to participate in the prescribing decision with their providers.^{2–4} Involving patients in the prescribing decision making process after providing them with information about treatment options could result in improved patient treatment experience,

patient satisfaction, and treatment outcomes.⁵ This partnership between patients and providers about prescribing decisions is especially important with older adults.

Older adults frequently are excluded from randomized clinical trials that investigate the benefits of medications that are prescribed to treat chronic diseases such as hypercholesterolemia and hypertension.^{6,7} Therefore, studies may fail to address important aspects of drug use from the patient's perspective such as adverse events, drug–food interactions, cost, and drug–drug interactions. Furthermore, medications may be prescribed inappropriately to ambulatory elderly patients.^{8–11}

An increasing number of people use the Internet to seek medical information and participate in Internet chat groups.¹² However, there are major differences in the frequency of Internet use for health-related activities in different sociodemographic groups. Age, income, ethnicity, and sex are major determinants of Internet use for health related issues. Older adults, men, low-income people, minorities, and people with low educational and health literacy levels are less likely to use the Internet for health related issues.^{13–16} In contrast, people who have chronic diseases or who are diagnosed with new medical conditions and prescribed new

Abbreviations: BMQ-General, Beliefs about Medicines questionnaire General scale; BMQ-Harm, Beliefs about Medicines Questionnaire Harm scale; BMQ-Overuse, Beliefs about Medicines Questionnaire Overuse scale; HRQoL, health-related quality of life; MCS-12, SF-12 Mental Component Summary; PCAS-Communication, Primary Care Assessment Survey Communication scale; PCS-12, SF-12 Physical Component Summary; PROMEX, Patient Reviews of Medication Experience questionnaire; SF-12, Short Form 12 health survey.

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medications or treatments are more likely to use the Internet for health related issues.^{16,17} Furthermore, patients who feel that their doctors provide them with less information regarding their medical conditions, and engage them more in the decision making process, are more likely to use the Internet for health related issues.¹⁸

People who have mental health issues and who fear hospitalization, taking medications, and social stigma are more likely to use the Internet to seek social support.^{19,20} In addition, the use of the Internet in older adults is associated with lower perceived life stress, improved psychological well-being, self-confidence, and higher personal satisfaction with social relations including family members and friends.^{21,22} Furthermore, Internet use for health related issues may help reduce the feeling of depression and loneliness in patients, especially patients who have serious health conditions, and may improve health-related quality of life (HRQoL).^{23–25} However, literature search showed no previous studies of HRQoL as a potential predictor of the perceived value of specific health education Web sites such as medication rating Web sites.

The development of health education Web sites is rapid and may affect the way patients interact with their health care providers.¹⁸ Many federal and private health institutions, such as the United States Centers for Disease Control and Prevention, MedlinePlus, and Mayo Clinic, provide online educational information about different medical conditions and treatments.²⁶ However, the information presented on these Web sites about different treatments, including invasive surgery or noninvasive pharmacological treatment, is similar to information provided in the patient information leaflets. In an era of empowered consumers, many Web sites provide consumer feedback about different products and services. Moreover, multiple Web sites enable patients to evaluate medications and services provided by medical professionals. Therefore, patients who seek primary or specialty health care services or who are treated with a specific medication have the opportunity to review evaluations and overall ratings by other patients.¹² However, there is limited information available about the factors that affect patient opinions about the content and value of these Web sites.

The purpose of the present study was to evaluate the factors that affect the perceived value of online ratings of medications in Web sites, such as Askapatient.com and Drugs.com, to older adults including sociodemographic factors, HRQoL scores, beliefs about medications, satisfaction with communication with the provider, health literacy, and preferences for involvement in the health care decision making process. We hypothesized that medication rating Web sites may be perceived more favorably among older adults who have multiple comorbidities, high level of education and health literacy, low HRQoL, low levels of satisfaction with provider communication, negative beliefs about medications, and preference in sharing their health care decisions with their providers.

Materials and methods

Study design and selection

This was a pharmacist-led cross-sectional study that used a convenience sampling strategy and battery of self-administered questionnaires. Older adults were recruited when they: (1) were aged ≥ 60 years; (2) were taking prescription medications; and (3) agreed to sign a consent form indicating their willingness to participate in the study. The minimum sample size necessary for a medium effect size at power 0.80 and α 0.05 for path analysis that included 15 measured variables was 225 participants.²⁷ Therefore, a sample size of 300 participants was selected to ensure adequate statistical power.

Participants were recruited for the study at 7 senior centers in the city of Memphis, Tennessee and surrounding areas. The senior center coordinators notified older adults about the study, and a pharmacist and research assistant explained the study to the participants. The participants gave written informed consent and were advised that participation was voluntary and withdrawal from the study was allowed at any time without penalty.

Before beginning the survey questionnaires, participants were shown an example of a medication rating Web site and a sample of commonly prescribed antihypertensive medications that were star-rated by anonymous self-reported hypertensive patients. Participants who completed the survey received a \$20 grocery gift card. Data collection was performed from August to December 2013. The study was approved by the Institutional Review Board of the University of Tennessee Health Science Center.

Sociodemographic and health characteristics

Participants were asked to report their age, education, sex, marital status, race, preference for involvement in health care decisions, number of prescription medications taken daily, and health literacy. Participant level of health literacy was measured using a single health literacy screening question “How confident are you filling out medical forms by yourself” that previously was validated in studies that used the Short Test of Functional Health Literacy in Adults and Rapid Estimate of Adult Literacy in Medicine scores as reference standards; the screening question was effective in screening for inadequate health literacy.^{28,29} Participants also were asked about their preference for involvement in decision making about their health care. Based on the responses, participants were categorized into 2 groups: participants who (1) preferred to share and have an equal partnership with their health care provider or (2) did not like to share their health care decisions with their providers, either by maintaining control or deferring to the providers. This health literacy screening question was part of a survey instrument and was used as an independent variable in a previous national study.³⁰ Participants were asked to identify their medical conditions from a list of > 14 medical conditions prevalent in the general United States population, especially older adults.³¹

Patient Reviews of Medication Experience questionnaire

The Patient Reviews of Medication Experience (PROMEX) questionnaire was used to assess participant opinions of online reviews of medications. The PROMEX was a newly developed questionnaire consisting of 6 questions, each with a 5-point Likert scale. These questions examined the perceived value of medication rating Web sites, such as Askapatient.com or Drugs.com, in facilitating patient-provider communication, trustworthiness, and effect on participant medication preference. These questions were designed on the basis of previous research findings about online health information usability by older adults and potential effects on the patient-provider relationship.^{12,26,32} The possible total PROMEX score ranged from 6 to 30, and a higher PROMEX score indicated greater participant belief in the usefulness of medication rating Web sites. In this study, Principal Component Analysis and Varimax Rotation methods showed that PROMEX had good construct validity. Furthermore, the internal consistency of PROMEX was acceptable (Cronbach alpha = 0.85).³³

Short Form 12 item health survey

The HRQoL was measured using the Short Form 12 (SF-12) health survey, version 2, which was a validated generic questionnaire that assessed general self-reported health and limitations in

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