



Socio-demographic differences in risk information seeking sources for non-steroidal anti-inflammatory drugs (NSAIDs)



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ABSTRACT

Objectives: Non-steroidal anti-inflammatory drugs (NSAIDs) are frequently prescribed for musculoskeletal pain and inflammatory conditions. A better understanding of patient information seeking behavior can help bridge the gap between patient knowledge and health care resources. This study examines the primary sources of NSAID risk information and the associations with patient socio-demographic factors. **Methods:** A cross-sectional survey analysis of patients on prescription NSAIDs (n = 220) seen by primary care physicians in Alabama. Bivariate and multivariable, multinomial logistic regression analyses were conducted to evaluate the associations among primary NSAID risk information sources used with patient socio-demographic factors.

Results: The primary patient source of information on NSAID risks was physician (57.3%), followed by internet (16.8%), pharmacist (16.4%), and other sources, such as nurses and family/friends (9.6%). Compared to people who use the internet as a primary source of NSAID risk information, patients who were Black/African-American (p = 0.002) and 65 years of age or older (p = 0.009) were more likely to use a physician. Older patients were also more likely to use a pharmacist (p = 0.008) than the internet. In contrast, females (p = 0.032) were less likely to use the pharmacist compared to the internet (p = 0.032).

Conclusions: Patients obtain information from a variety of sources, but primarily from health care providers. While the internet is a fast growing source of health information, socio-demographic disparities in internet use for seeking information exist. Health care providers should be aware of their patient preferences for information sources on medication risks to meet the age, race, and gender need differences of all patients.

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1. Introduction

In 2014, the Pew Internet and American Life Project reported that 87% of U.S. adults use the internet. Of those who used the internet, 72% searched for health information online and, more specifically, one in three U.S. adults used the internet search for medical-related conditions [1,2]. In general, the internet is used by

patients to seek information to prepare for a doctor's visit [3], validate or refute health information obtained from other sources [4,5], communicate via email with clinicians [3], and learn about what other patients have experienced [6]. Patients also use the internet for the purpose of obtaining more information about their specific medical condition [7,8] such as poisonings [9] regardless of whether there was an intention to obtain a self-cure or not [9], and to more fully understand their medications [6,8,10–12] or treatment regimens [13].

Physicians or other health care providers are generally a key resource for information about serious health episodes [1,2]. However, the Pew study found that second to health care providers is the use of the internet [1,2]. Patients who use the internet to

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seek information, rate it as a trusted source ranked ahead of family, friends, and the media [14]. Patients who have chronic ailments are more likely than healthier patients to consult the internet for health information [15], a finding mirrored in a study that matched health status to the use of internet for information seeking behavior [16].

Fundamental to patient empowerment is accessible and accurate health information that is easily read, understood, and actionable. Recognizing the power of the internet, the 2012 Institute of Medicine (IOM) report *Best Care at Lower Cost – The Path to Continuously Learning Health Care in America* stated that one of the many opportunities that exist for remedying the “wasteful and unsustainable” U.S. health care system is to empower patients. The report concluded that there exists a potential for patients to be active stakeholders and cognizant participants in their health care [17]. The IOM Report also suggested that the power of computers, harnessing information scientifically, mobile computing, the internet, and improving connectivity can lead to better patient-clinician communication [17]. Furthermore, the IOM Report viewed the internet as a powerful force in transforming the nation’s health care system into one that achieves greater value.

Although the internet has been heralded to bring many improvements in patient care, great disparities in the use of the internet exist [18–20]. These disparities are especially pronounced across racial/ethnic [19,21], age [20], and socioeconomic status groups [22]. Research has examined the larger array of internet information seeking behaviors [23], but have largely been focused on specific language groups [24], age groups [11,25–27], psychiatric health [6,10], specific cancers [28–30], physicians seeking information [30], specific care settings (e.g., inpatient or outpatient) [13,27], specific medical conditions [13,25], or the credibility and accuracy of medical information available online [7,9,12,31,32].

Studies that have evaluated online medication information seeking behavior have focused on non-prescription medication [33], psychosocial health [6,10], and non-adult populations [11]. In contrast, this paper explores online medication risk information sources among medically underserved and vulnerable populations with a specific focus on nonsteroidal anti-inflammatory drugs (NSAIDs). Specifically, we first describe information sources (i.e., the internet, physicians, pharmacists, or other) that patients use when seeking risk information about prescription NSAIDs. A second objective identifies variations in the socio-demographic factors (i.e., race, age, gender, education, income sufficiency, and health literacy) associated with medication risk information seeking from traditional sources compared to the internet.

1.1. Conceptual framework

Non-steroidal anti-inflammatory drugs (NSAIDs) in both prescription and over-the-counter formulations are frequently prescribed for musculoskeletal pain and inflammatory conditions. Because NSAIDs are available as both prescription and over-the-counter (OTC) products, it is commonly assumed that over-the-counter NSAIDs are safer, less toxic, or have fewer risks than prescription NSAIDs. However, all NSAIDs, regardless of prescription or OTC status, are associated with the risk of adverse events related to the gastrointestinal, cardiovascular, and renal systems especially when used chronically or inappropriately. This gap in patient knowledge of NSAIDs and their associated risk is especially apparent among vulnerable populations where health literacy is a challenge [41,44]. A better understanding of patient use of various types and sources of information about NSAID risks may help bridge the gap between patient knowledge and health care resources.

The evolving use of different medication information sources reflects the growing importance of tailoring health care information for vulnerable population subgroups such as minorities

and those with low income, who are disproportionately affected by low health literacy and may have difficulty processing medically-complex information [48]. Individuals in these socioeconomic groups approach health sources of information differently [4,15,16]. As such, clinicians who are responsible for their care should be aware of how different socioeconomic groups seek medication information on the internet differently from other groups, so as to be better able to respond to their inquiries about clinical diagnosis, condition, treatment plan, and medication.

Today’s internet-driven prescription medication information searches [34,35] call for policymakers to better understand the social and demographic antecedents of patient information seeking behavior. Akin to Schmidt and Spreng’s study on external factors affecting consumer pre-purchase information search [36], we argue that perceived ability to search and perceived benefits of searching online are directly linked to prescription medication information seeking behavior [37–40].

Information processing abilities and motivation to process information are prerequisites for actual information seeking behavior [36]. We posit that individuals in vulnerable populations seek medication risk information differently. Vulnerable groups such as females, older, and minorities as well as those with less education, inadequate health literacy, and inadequate income would be less likely to use the internet as their primary source of prescription medication information [4,15,16]. In part, this may be explained by the lack of confidence by these groups in their ability to search, socioeconomic barriers, and their perceptions of the value of searching online.

2. Methods

2.1. Study design

This study uses baseline, cross-sectional data from patients participating in a group randomized clinical trial (i.e., the Alabama Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) Patient Safety Study: Disparities in Risk Awareness and Communication Project) and has previously been described in detail [49]. Data for this study was collected from March 2011 through November 2011. The study was reviewed and approved by the University of Alabama at Birmingham Institutional Review Board.

2.2. Setting and procedure

Patients were recruited from 41 Alabama physician practices that are geographically representative of the state of Alabama. Patient eligibility was determined by self-report information on patient exit cards left at physician practices that included: (1) being 19 years of age or older; (2) currently taking a prescription NSAID or over the counter ibuprofen/naproxen as recommended by their physician; and (3) consent and willingness to complete a telephone survey that lasted about 30 min. There were a total of 373 patients that met study eligibility and were reachable by phone. Of those eligible participants, 259 patients consented to complete the baseline telephone survey, for a participation rate of 69%. The survey was administered using computer-assisted telephone interview protocols, which performed automatic checks for consistency based on logic and answers that were beyond the range of acceptable responses. Patients were compensated for their time with a \$20 gift card. The research staff interviewers were trained and certified before they were allowed to begin collecting data. Patients who were not currently taking an NSAID or missing data on any of the independent and dependent variables of interest were excluded from analysis. The final analytic sample included 220 respondents from 39 practices.

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