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Exploring factors impacting sharing health-tracking records



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KEYWORDS

Self-tracking;
Health-tracking;
Information sharing;
Health motivation;
Health belief model

Abstract

With the introduction of modern health technologies, the phenomenon of patients tracking health records has increased considerably in the recent past. The current study aims to examine the sharing of health-tracking records (HTR) by patients with different categories of acquaintances (spouse/partner, relatives, doctors, other). In this paper, we explore the critical factors that impact sharing of self-tracked information across two levels of sensitivity of HTR. Our study investigates how health motivation (HM), perceived health status (PHS), severity of health, and age influence sharing of self-tracked information. To do so, we adapted and applied the Health Belief Model (HBM) as a theoretical framework. The study employed multinomial logistic regression analysis to investigate the various factors that influence sharing of two types of HTR with different acquaintances. The statistical results were weighted to correct for known demographic discrepancies. Results indicated that HM, severity, and age substantially increase the likelihood of sharing HTR with health or medical professionals in comparison to other categories. In contrast, PHS increases the likelihood of information sharing with “other” acquaintances as opposed to with doctors. These findings are consistent with existing theory on HBM, wherein behavior appears to be predicted on the basis of/by both the individual’s motivation to achieve an outcome and the expectation that a specific action will result in that outcome.

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Introduction

As one of the greatest Roman poets Publius Vergilius Maro (Virgil) wrote, “The greatest wealth is health.” Indeed, almost everyone cares about his or her own health. Modern health technologies, such as computer programs, websites and online tools, applications for mobile devices, and medical sensors, are motivating many of today’s consumers and patients to become even more active participants in

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their own care. According to a Pew Internet Health Study [1], 7 in 10 U.S. adults track at least one health indicator for themselves (e.g. weight, diet, exercise routine, blood sugar, sleep patterns, headaches, etc.). Of those adults, 34% share their health-tracking records (HTR) or notes with others, such as relatives or healthcare professionals. Yet, others prefer not to disclose sensitive health data, thus maintaining their privacy. Self-tracking of health indicators can be used for self-reflection to help people become more aware of their own behavior [2], make better decisions [3], and even affect health care behavior [4].

Keeping self-tracked health information often leads to concerns about exposure of these data (similar to concerns about personal health information in electronic medical record systems) and therefore, raises privacy concerns, especially if the information is recorded and stored electronically, locally, or in “the cloud.” Such concerns are also manifest when self-tracked information is stored offline. Risks stemming from exposure of such information include, but are not limited to, identity theft, personal image damage, and reputation damage. Even though health information tracking and sharing of records afford numerous benefits to consumers and patients, they could also increase the likelihood of unauthorized privacy disclosure, thereby producing negative consequences.

Sharing of HTR appears to blend the information-sharing phenomenon with the embedded component of information privacy. The sharing can occur either offline or online—not only can one verbally share sensitive information on self-tracked health indicators with acquaintances in personal communication, but also share such information using Internet tools, such as social media, health social networks, health-tracking services, blogs, etc., thus raising considerable concerns about privacy. Adapting the definition of Rafaeli and Raban [5], we define information sharing as the act of providing or contributing information (e.g. HTR) with the aim of receiving an answer or reply, in the form of words or through some action. A sizable body of literature deals with information sharing issues, but the issues of patient sharing of health tracking records remain largely unaddressed. This study focuses on the issues pertaining to sharing HTR of two different types with four categories of acquaintances. Particularly, it explores the critical factors that influence sharing of HTR by investigating how health motivation, perceived health status, severity, and age impact the sharing of one’s health indicators with spouse/partner, relatives, physician or healthcare professional, and other acquaintances. We use the Health Belief Model [6] as the theoretical basis for investigating the factors that impact sharing HTR with others—specifically, by adapting a model proposed by Becker et al. [7]. Additionally, the study explores whether sharing HTR behavior might differ between individuals of different ages. The findings could be of value for scholars studying privacy in healthcare, engineers and software developers working in the field of self-tracking IT-artifacts, or policy makers addressing issues of online privacy. The research question can be summarized as follows:

RQ: What is the impact of health motivation, perceived health status, severity, and age on the likelihood of a

patient sharing different types of HTR with their spouse/partner, relative, doctor, or other acquaintances?

The paper is organized as follows. The next section reviews the literature on information sharing, information privacy, and self-tracking. The paper subsequently discusses the research model, which is followed by an explication of the method used. After presentation of the results, the paper concludes with a discussion of those findings and their implications.

This research paper makes two significant contributions to the literature. First, it explores how health motivation impacts sharing of health-tracking records with different categories of acquaintances. Second, it adapts the Health Belief Model while applying that model to the context of sharing self-tracked health information. Additionally, the paper advances current knowledge on the issues pertaining to the concept of self-tracking by examining them from the perspectives of information sharing and information privacy.

Literature review

Perspectives on information sharing and privacy

Whereas information sharing has been widely addressed in various studies, sharing health-tracking records is a phenomenon of the recent past. Consequently, there is scarce information about this topic available in the literature. Importantly, HTR contains information that could be classified as sensitive or confidential, requiring special care and handling. To shed light on the sharing of HTR, we investigate it from two perspectives: one pertaining to information sharing, and another pertaining to information privacy. A study of 511 patients, [8] found that the majority (>90%) supported computerized sharing of health related information, yet fewer agreed that it should be shared outside of the health care circle (<70%) Another (qualitative) study of consumer attitudes showed that sharing psychological electronic records is beneficial for cancer patients, yet it also demonstrated that they felt strongly about the privacy and control over the information they provide [9]. Additionally, another study on sharing health data between people with epilepsy on an online platform revealed a number of benefits, such as finding another patient experiencing the same symptoms, gaining a better understanding of seizures, and learning more about symptoms or treatments [10]. In terms of the categories with whom people tend to share health related information, one study showed that 4 of 5 respondents were interested in sharing access to their personal health records with someone outside of their health system—a spouse, a child, or other family members [11]. This notion found support in a recent study of patients who share transparent visit notes with others, highlighting that more than half of the participants would like the option of letting family members or friends access their records [12]. And also in a study of patients using mobile phone application, it was emphasized that a vast majority would allow their health records to be shared with family members, medical workers, and health care providers [13].

Sharing of information differs from posting information

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