ORIGINAL ARTICLE

What Do Patients Want to Know? Questions and Concerns Regarding Mammography Expressed Through Social Media

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Abstract

Purpose: The purpose of this project is to identify questions and concerns patients have regarding breast cancer screening mammography to establish priorities in patient education and health care communication.

Methods: A content analysis of posted questions (June 2010 to February 2017) containing the keywords *mammogram* and *mammography* was conducted on the social media question and answer website Quora (Quora Inc, Mountainview, California). Question topic, responses, and number of views were recorded. Comparisons were made by respondent type (medical professional or nonmedical professional) for screening recommendations and accompanying evidence. Descriptive statistics were employed to summarize the results.

Results: Overall, 197,620 views of mammography-related questions were identified, focused on 51 questions and 172 responses (51 of 172 [29.7%] by medical professionals [n = 25]; 121 of 172 [70.3%] by nonmedical professionals [n = 121]). Mammographic efficacy (16 of 51 [31.4%]) and screening guidelines (10 of 51 [19.6%]) were the most frequently queried topics. Overall, the majority of respondents were supportive of screening mammography. Most medical professionals recommended screening mammography starting at age 40, even after revisions in guidelines. Among nonmedical professionals, 4 of 22 (18.2%) were against screening mammography with less consensus regarding appropriate age of initial screen. Health society websites and journal articles were the most commonly referenced sources among medical and nonmedical professionals, respectively.

Conclusion: A considerable interest in screening mammography guidelines and mammographic efficacy exists among users who seek health information on a social media question and answer website. Awareness of such platforms allows a unique opportunity for targeted health education and dissemination of accurate information, which may be able to reach a potentially untapped or hard-to-reach patient population.

Key Words: Social media, mammography, breast cancer, Quora

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INTRODUCTION

Breast cancer is the most common form of non-dermatological cancer and the second leading cause of cancer-related death in women in the United States [1,2]. The use of mammography has been shown to significantly reduce breast cancer-related mortality through early detection [3]. Despite robust evidence supporting the benefit of screening mammography [4,5], many women forego breast cancer screening [6,7]. In addition, American women face conflicting breast cancer prevention and screening recommendations that have been shown to result in patient confusion and anxiety and may affect screening uptake [8-10].

Although evidence suggests that the majority of patients prefer to discuss medical concerns with a health professional [11-13] and that a physician recommendation is a strong determinant of screening [14], it is important to acknowledge that many individuals increasingly seek health information and advice from online sources [15,16].

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An emergent system of retrieving health information is through question and answer (Q&A) social media websites; such websites, where users ask each other questions and answers, are driven by community collaboration and interaction. In such fora, questions are posed on any topic of interest to a community of Internet users. In addition to traditional online social media response features (eg, "like content," "share content," "follow users"), Q&A websites such as Yahoo! Answers (Yahoo!, Sunnyvale, California), Answers.com (Answers Corporation, St Louis, Missouri), or Stack Overflow (Stack Exchange Inc, Manhattan, New York) have the ability to serve as an online knowledge repository and may also serve to create a sense of community built around personalized topics and forged by individuals of like-minded interests and concerns. Additionally, social media Q&A platforms are typically not subject to a set character limit (contrary to Twitter's 140-character limit), allowing for detailed expression and information exchange. With this in mind, researchers have realized the value in analyzing the content in social media Q&A websites to better understand characteristics and representation of concerns among certain patient populations [17,18].

Although a number of Q&A websites exist, we chose to focus on Quora (Quora Inc, Mountainview, California) as a representative far-reaching website, but also as a notably well-vetted Q&A site. Since its founding in 2009 (publicly available in 2010), Quora has emerged as one of the most popular and largest Q&A websites, attracting more than 100 million monthly unique users [19]. After registering for free, users have the ability to post content anonymously and interact with other Internet users, including those who may have expertise in the topic of interest. Other users can view the questions and answers posted and can also choose to engage in discussion. Alternatively, Internet users may browse content on Quora (attainable by search engine query), without registering for an account.

Quora seeks to build a core of high-quality content in which information can be extracted for people who have the same (or similar) questions. Quora (unlike other Q&A websites such as Yahoo! Answers and Answers.com) reviews all content that is submitted anonymously to decrease spam or harassment [20]. Another unique feature of Quora is the ability for users to "upvote" and "downvote" answers to rate answer helpfulness. Although the number of downvotes per response are not displayed publicly, responses that receive downvotes are flagged for review by community moderators who govern the site and may be collapsed (eg, not directly displayed) if content is considered "spam" or unhelpful to users. Furthermore, to minimize duplicate questions and responses, community members are able to merge questions and their responses. Questions are merged that differ only in phrasing, but satisfy the same intent (eg, "How do I do X?" versus "How do you do X?").

Given the magnitude and popularity of this platform, Quora provides a novel opportunity to access and analyze current discussions surrounding breast cancer prevention and screening in the setting of conflicting guidelines. To our knowledge, this is the first study of breast cancer prevention and screening mammography representation on Q&A websites in general and on Quora in particular.

The purpose of this study is therefore to identify questions and concerns patients have regarding breast cancer screening mammography as represented through Q&A social media and to evaluate what and how information is being disseminated by question respondents. Such analysis may help to establish priorities in patient education and health care communication.

METHODS

Inclusion and Exclusion Criteria

This descriptive study evaluated publicly available information and was exempt from the need for institutional review board approval. We evaluated the content of publicly available question and answers addressing mammography-related clinical topics from June 2010 to February 2017 on the social media Q&A website Quora. All questions and responses were written in English. Questions were manually collected using the following search terms: *mammography, mammogram, mammograms,* and *mammo.* We excluded search terms on non-mammographic modalities—for example *breast MRI* or *breast ultrasound*—given our focus on capturing discussion surrounding breast cancer screening mammography; this yielded 56 questions. Five of these questions posted by users for explicit research purposes (eg, asking for access to a research-focused mammography database) were then excluded, resulting in 51 questions for analysis.

Data Collection and Analysis

We recorded whether question askers posed questions anonymously or nonanonymously. When questions were written by nonanonymous users, we collected information on user demographics including geographic location. For question respondents, we recorded profession (provided by their user profile), medical specialty if the responder was a physician, geographic location, and