

# Is it a Question of Trust?

## How Search Preferences Influence Forum Use

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### ABSTRACT

Searching for health information online is becoming increasingly common. The variety of peer reports and facts available online is also increasing. Yet little is known about how users come to trust the material they encounter. Our paper explores the impact of individual differences on trust in the context of information seeking behavior. Twenty-six people participated in an online study, which included a survey and a search. We developed two scales to measure trust in websites and trust in forums. We found that experience with chronic disease was related to increased trust in forums, while trust in websites stayed constant. We draw implications from our results and relate them to the literature on trust.

### Categories and Subject Descriptors

H.5.m [INFORMATION INTERFACES & PRESENTATION (e.g., HCI)]: Miscellaneous.

### General Terms

Human Factors.

### Keywords

Health; Search; Social Media; Trust

## 1. INTRODUCTION

Forums, blogs and other primarily user-generated content (UGC) are increasingly important sources of information for people managing chronic health conditions. Approximately one out of every four Internet users seek or have read online peer reports about health conditions [3]. In these settings, discussions may focus on experiential information, such as personal stories, or factual information, such as published papers, statistics, or treatment guidelines. There is evidence that people differ in whether they are drawn to factual or experiential information in the case of health content [10]. Similarly, in e-commerce settings, some individuals may trust institutions more while others may trust individuals more [21]. Our focus in this article will be on information seeking, in particular the decision of whether to trust

online material that is peer-produced. Our hypothesis is that individual differences (such as health history) can have an impact on whether people trust forums *vs.* websites when seeking health information.

We present a study that explores the impact of individual difference on information seeking in a forum context. Our contributions include two scales designed to differentiate trust in peer-produced content (in the form of forums) *vs.* trust in institution-produced content (in the form of websites) and trust in facts *vs.* experiences. Further, we explore search habits and describe how they relate to trust. We found that experience with chronic disease leads to greater trust in peer-produced content while young, healthy individuals are more likely to use websites for their health information seeking needs.

### 1.1 Trust in Peer-to-Peer Health Communication

In a review of studies of peer-to-peer health communication, Ziebland & Wyke identified seven possible activities such as finding information, feeling supported and telling stories [26]. Focusing in on information seeking, multiple studies show that the decision of where to seek health information and what to trust is multi-faceted (e.g., [10; 17; 19-20]). For example, based on multiple longitudinal studies, Sillence *et al.* describe a staged model of trust by which health information seekers screen for sites that look trustworthy before developing a longer-term trusting relationship with a site [20].

The concept of trust has been defined in many ways, but one of the most influential papers on the topic defines it as “*the willingness of a party to be vulnerable to the actions of another party...*” [11]. In an article on trust in physicians, Hall *et al.* [5] use a similar definition and emphasize that vulnerability is “primary and unavoidable in medicine” (p. 615). Both articles describe trust as willingness to take a risk. Note that although trust is inherently an *interpersonal* construct, there is evidence in the e-commerce literature that it translates fairly directly to *institutional* or *informational* contexts (such as online websites or forums), e.g., [4, [8], 21]. One area where online activities differ from interpersonal trust is in the expected depth of the relationship. While some online experiences involve ongoing relationships, the focus of this paper is on encounters with online places that may be in a known class (such as forum) but are generally unfamiliar.

One *consequence* of trusting, therefore, is an actual act of risk taking. This definition is very appropriate to the problem of health care management. Individuals who trust information they receive from a website or forum may take the risk of trying a new treatment or asking their doctors about it, may take the risk of sharing personal information, and so on.

Mayer *et al.* [11] argue that a trustor’s beliefs about three factors may influence interpersonal trust: ability, benevolence and

integrity. In the context of a health forum, ability might be judged based on perception that a poster is knowledgeable about the topic in question because they are a doctor, speak intelligently, have a history of giving good advice, and so on. In evaluating a specific treatment, consensus on its effectiveness would map to ability. Benevolence is defined as “the extent to which a [poster] is believed to want to do good to the trustor” (*ibid.*, p. 718).

As an example, a blog post may have low perceived benevolence because it may or may not be intended to help the individual reading it, while a kind and thoughtful direct response to a question that a person posts in a discussion group may have high-perceived benevolence. A treatment that is known to be risky and/or costly might have low perceived benevolence.

Finally, integrity reflects shared goals and values. For example, a post about a new medication sold by the poster may be perceived as having low integrity if profit seeking does not match the reader’s values or goals. A treatment that does not match a patient’s health care paradigm may have low perceived integrity (*e.g.*, an homeopathic remedy might not be trusted by someone who typically uses allopathic approaches).

In addition to an individual’s judgment of these extrinsic factors, Mayer *et al.* address the importance of intrinsic factors such as an individual’s willingness to take risks and the failure or success of previous risks that the individual has taken in similar circumstances [11]. In the context of health, intrinsic factors may include how desperate a person is to find relief and their experiences with traditional and alternative approaches in the past.

Mayer *et al.*’s model of trust is primarily a cognitive model [11], but others, including the same authors in a later retrospective publication, have argued that emotion also plays a role in trust [*e.g.*, 5, 12, 16]. Hall *et al.* [5] argue that the emotional component of trust is particularly salient in medical settings, and that negative emotion can decrease trust. Emotional responses may change over time: For example, explaining and/or understanding something can reduce a person’s affective response [25]. Putting these two results together, the implication is that when information is uncertain, thus harder to explain or understand, it may lead to ongoing negative emotional consequences and higher perceived risk.

## 1.2 Trust in Peer-Produced Online Content

Although trust is typically seen as a relational construct such as trust between people, models of trust in information may also be important to understanding how people approach online peer-produced content (*e.g.*, institution- [13] or peer- [1] based trust). Kelton *at al.*’s review paper synthesizes the trust literature into a model of trust in people and a proposed equivalent model for trusting in information [8]. For example, a precondition for trust in another person is *vulnerability*. Its proposed equivalent is *potential harm from using poor information*. They argue for a shift from “the attributes of the information itself to the perceptions of the person who is using that information” [*ibid.*, p. 371].

There is some disagreement in the literature as to whether peer-produced content is typically trusted by patients. On the one hand, it appears that patient testimonials may influence decision making even in cases where they contradict fact (*e.g.*, [22]). One reason for this may be the accessibility of the presentation (such as presenting statistics using a pictograph [2]). In contrast, Silience *et al.* found that although peer reports were viewed positively, they

were not necessarily seen as trustworthy [19]. Advertising may be one explanation for this [*ibid.*, 24].

However, another possible factor could be that personal history leads to shifts in trust for objective information (such as clinical studies) *versus* experiences (such as patient reports). This echoes Kelton’s argument mentioned above [8]. For example, in a survey study of anecdotal, statistical, and causal evidence, Hoeken found a slight benefit of statistical evidence over the other two [6]. A qualitative study of individuals with a highly contested condition (Lyme disease) found that people may differ greatly in whether they trust information (such as clinical studies) *versus* experience (such as patient reports) [10]. Participants in the Lyme disease study reported a shift in what they trusted over time as they worked with peers to develop a model of their illness and the viewpoints associated with it.

Thus, perhaps trust in specific types of online content may not be a *trait* (which is stable over time) but a *state* (which may change over time) [4]. Models such as PRISM [7] and its extensions (*e.g.*, [15]) suggest that variables that can change, such as subjective norms [7] and self-identity as an information seeker [15], may affect trust. For example, reading an essay that pushes one treatment and compares it negatively to another treatment may shift a person’s trust from one option to another. If a person must choose a single treatment plan, increased trust in one of these options may lead to decreased trust in the other. However, trust and distrust may be separable dimensions, meaning a person can both trust and distrust a single entity [9].

## 1.3 Summary

To summarize, a number of past works have explored how properties of websites (and especially, peer communication sites) affect consumer trust (*e.g.*, [19, 20]). In contrast, we are interested in how properties of information seekers affect what they trust, specifically how people differ in their trust of peer-produced content and why.

In this paper, we seek to separate two key variables drawn from our literature survey: peer-produced *vs.* institution-produced content; and experiential *vs.* objective information. *Peer-produced content* (epitomized in the present work on health forums) is content that is written by end-users (typically patients, possibly caregivers, *etc.*) for end-users. *Institution-produced content* (epitomized in our work by websites about health) is content that is written by organizations such as the CDC, Mayo center, or even corporations and intended for end-users. *Experiential* information is closely aligned with peer-produced content, and is defined by its focus on relating *experiences* (a form of anecdotal evidence). *Objective* information may be found in forums or on websites, and is defined by its focus on relating *facts* (a form of scientific evidence based on studies, theoretical knowledge and so on).

## 2. STUDY OF TRUST IN HEALTH INFORMATION SEEKING

We designed a study of the relationship between health history, predilection to trust different types of online health content, and health information seeking behaviors. Our study tested the following hypotheses about individual differences in information seeking:

First we hypothesized that people vary in their trust of institutional *vs.* peer produced data. Thus, we adapted an “institution-based trust” (as opposed to interpersonal trust) [13] measure of trust in

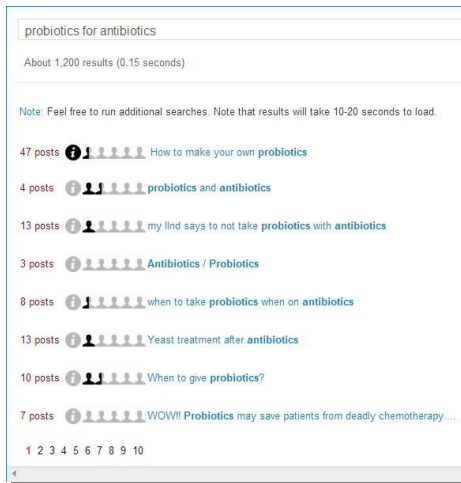
websites and of trust in forums. We also developed a new scale that compared trust in factual vs. trust in experiential information.

Second, we hypothesized that people's preference for institution or peer produced data would affect their search behavior. Thus, we collected data about people's search habits by asking them about a recent health search.

Third, we hypothesized that people who trust peer-produced data will react differently to a forum search task than those that trust institution produced data. Thus, we explored how individuals relate to information seeking behavior on a series of proscribed forum-search tasks.

## 2.1 Method

Our IRB approved study was conducted online. Participants were offered a chance to win \$50 in a raffle on completion of the study. Participants answered questions about their opinions and use of health forums and factual websites. Next we asked about the most recent health search they had done and what sort of information (facts or experiences) they had looked for. Finally we asked about their health and knowledge about some common diseases. Following the survey, participants were asked to perform a search task on a Lyme disease forum. Participants were asked to answer questions about the effectiveness, popularity, and factual support for three treatments they searched for. Next, participants were asked to rate each treatment and explain their rating. Finally, we ended with a brief set of demographic questions.



**Figure 1: Sample screenshot of the search interface presented to participants. The icons next to the search results indicate whether the thread links to information, and the percentage of posts in the thread that are experiential.**

To facilitate our online study, we built a custom website that walked participants through the survey questions, then embedded the search results in a web page (Figure 1) side by side with the task related questions. Search results were collected from the Google Search API, limited to an existing popular Lyme Disease forum. The search interface masked all forum details for anonymity. Only the thread title was visible on the search results page. If the user clicked on the thread title, the contents, authors, and dates associated with the thread were shown, but no

identifying information associated with the forum. In addition, the search results were limited to before 2005 to ensure that they did not change from participant to participant. Figure 1 shows an example of the search results for the search *probiotics for antibiotics*.

At the beginning of the search task, participants were told that a friend has Lyme disease and wants their opinion about three treatments that could supplement the antibiotics they are taking. The treatments were selected based on their acceptance in traditional western medicine. One was highly alternative, one was used more commonly but not standard for Lyme disease, and one is used commonly in conjunction with antibiotics. Treatments were defined in an unbiased manner as shown in Table 1. After reading the scenario, participants were shown the titles of the top 8 search results, each of which linked to a thread on the forum. Ten pages of search results were available (80 search results total). Participants could click on any links, move to another page of search results, or enter a new search in a live search box showing the search term used.

**Table 1: Treatments and definitions used in the search task.**

**Hyperbaric oxygen therapy (sometimes abbreviated HBO or HBOT) during which the patient sits in a chamber filled with oxygen at higher than normal pressure.**

**Rife therapy (named after its inventor) during which low-voltage electricity is applied to the patient's body.**

**Probiotics are dietary supplements containing microorganisms.**

## 2.2 Annotated Search Interface

The search results were automatically annotated to indicate the presence of links out to information resources and/or experience. Our goal in doing so was to highlight the presence of *both* experiential and objective information in the forum data.

The search annotation showing the percentage of a thread that is *experiential* was based on natural language processing techniques. A classifier was created using a hand-labeled set 1400 posts (Kappa = .78). We used wrapper-based feature selection across unigram, bigram and trigram frequency and custom features generated from a small experimental data set. Using 35 features and 10-fold cross-validation we achieved 83% accuracy (Kappa = .66).

The *information* annotation was based on a hand labeled domain set drawn from five years of forum data (Kappa = .80). Domains that were commercial, forums, or no longer valid were ignored, as were domains that were linked to less than 10 times. What remained, *Information* domains, made up 54% of the original link set. Of these, 10.3% were .gov, 31.1% were .org, and 6.6% were .edu. The top five *Information* domains were: ilads.org; Lymeinfo.net; igenex.com; ncbi.nlm.nih.gov; and cdc.gov. Although our data were a few years old, these domains match top domains still in use today for obtaining information about Lyme disease. During the study, we extracted the domain name from any new links and labeled that search result as *Information* if the link matched an *Information* domain. Although links out do not

directly map on to our definition of objective information, we felt that this was a good proxy for the focus of a post including some factual information, or at a minimum valuing the factual information associated with the link.

### 2.3 Participants

Participants were recruited from a local participant pool typically used for a broad range of studies and consisting mainly of younger adults. A total of 88 people began the survey, with 62 people completing it. Participants were 25% male, 66% single and 46% students (21% undergraduate, 25% graduate). Ten percent were employed full time. Eighty-three percent were from the US and ninety percent spoke English as their first language. Ages ranged from 19 to 76 (median 26).

## 3. RESULTS

Our results are organized around the three hypotheses mentioned earlier. First we describe the participant group in terms of health history. Next we describe the scales we created and what they show about participants. Third, we explore the individual differences among participants regarding their search preferences and reports of their past health searches. Following that, we look at their search behavior in the search task conducted during the study.

### 3.1 Participant's Health and Search History

Overall, participants were healthy (87% rated their health as Good, Very Good or Excellent). We asked participants how frequently they searched for health information in forums and in websites. Fourteen answered "Rarely or Never" to both questions and were excluded from the study because they did not have sufficient experience with seeking health information online. After removing those participants, ninety-six percent reported searching for health information online Sometimes (40%) or Often (56%).

We also summarize participant experience with chronic disease in general and Lyme disease in particular. Participants were knowledgeable about chronic disease. When asked about Cancer, Diabetes, Heart Disease, Lyme Disease, and Other (of their choice), 27% of participants rated themselves as *Somewhat* or *Very* knowledgeable about one disease, and 58% about one or two diseases, with 81% knowledgeable about one to four diseases. With respect to the topic of the final proscribed search task (Lyme Disease), only 24% of participants were *Very* or *Somewhat* knowledgeable and only 11% (5 participants) either had Lyme disease or were close to someone who had it.

### 3.2 Individual Differences in Search Preferences

As mentioned earlier, we designed the survey to explore individual differences from several perspectives so as to better understand what individual differences affect what sort of

**Table 2: [Left] Questions used to differentiate trust in websites and trust in forums, adapted from [MckNight 2003]. Answers are: Strongly disagree; Somewhat disagree; Neither agree nor disagree; Somewhat agree; Strongly agree; and N/A. Each question is asked twice (once with "website" and once with "forum"). [Right] Questions used to differentiate Trust in Facts and Trust in Experiences. Answers are: Mostly; Some; Not much; Not at all.**

Trust in Websites/Forums Sub-Scales	Trust in Facts Sub-Scale	Trust in Experiences Sub-Scale
That website/forum provides competent information.	Did you look for claims supported by research studies?	Did you look for claims supported by people's stories?
That website/forum provides unbiased information.	Did you look for agreement among experts?	Did you look for agreement in online discussion groups?
That website/forum stands behind the information it provides.	Did you look for claims supported by statistics?	Did you look for claims supported by blog articles?
I feel good about the information I find on that website/forum.	Did you look for research studies mentioned on trusted websites?	Did you look for personal stories mentioned on trusted websites?
That website/forum does a capable job at meeting reader needs.	Did you look for lists of known side effects?	Did you look for what people said about side effects?
That website/forum is interested in readers' well-being, not just its own well-being.	Did you look for success rates?	Did you look for success stories?
That website/forum provides useful information.	Did you look for multiple research studies that had similar results?	Did you look for multiple stories that had similar outcomes?
That website/forum maintains the accuracy of its information.	Did you look for articles published in familiar medical journals?	Did you look for experiences you could relate to?
That website/forum would act in its readers' best interests.		
I am comfortable making health decisions based on information I find on that website/forum.		
That website/forum does its part when I interact with it.		
If a reader required help, they could find it on the website/forum.		

information people trust. Table 2 shows the questions we used. Our first measure asks directly about trust in forums and websites. Our second measure asks about types of information that are sought (factual information and experiential information). We designed both to function as scales and describe their performance below, as well as what we learned about how people vary in their trust of institutional-produced, peer-produced, factual, and experiential data.

### 3.2.1 A Scale Measure for Trust in Forums vs. Websites

Because we were measuring trust in a conceptual entity, we used a 12-question scale adapted from an e-commerce designed to investigate “institution-based trust” (as opposed to interpersonal trust) [13]. Our adaptation was designed to explore trusting beliefs that people had in specific forums and websites as a proxy for their institution-based trust in those types of contexts. A factor analysis showed that all items were highly correlated, and the Chronbach’s *alpha* was .888 for the website trust questions, and .899 for the forum trust questions.

For this reason, we calculated a mean of all 12 items for forums and of all 12 items for websites and used these as overall measures of trust in forums and trust in websites. We also measured frequency of visit to either type of site on a simple three point Likert scale (Often, Sometimes, Rarely or Never). Using these scales we asked participants to report their trust in forums and in websites separately, with respect to a specific forum and website of their choice.

### 3.2.2 A Scale Measure for Trust in Facts vs. Experiences

To better understand whether participants trusted facts or experiences, we asked participants about their preferences for each type of information. We developed two 13 item subscales: The *factual information* subscale asked questions about factual information that might be useful. For example, we asked “Do you look for claims supported by research studies?” and “Do you look for claims supported by statistics?” The *peer information* subscale asked similar questions about peer information that might be useful. For example, we asked “Do you look for claims supported by people’s stories?” and “Do you look for multiple stories that had similar outcomes?” Questions from both subscales were combined in random order.

A maximum likelihood factor analysis was used to analyze the 26 items. Our initial hypothesis that our questions represented two separate factors was supported. A Varimax rotation procedure yielded two factors corresponding to the items we predicted would be associated with factual and peer information. One item, “Did you look for success rates” was ambiguous (scored highly in both scales) and was removed from further analysis. The *factual information* subscale accounted for 52% of the variance; Chronbach’s *alpha* = .904. The *peer information* subscale an additional 14% of the variance; Chronbach’s *alpha* = .902.

### 3.2.3 Variations in trust within our participants

We hypothesized that different people would trust facts, peers, forums and websites to different degrees. Our scale analysis above indicates that there is some validity to this hypothesis (otherwise the scales wouldn’t hold together statistically). We calculated summary measures for all four subscales by averaging the related questions together. Using the summary measures for *trust in forums*, *trust in websites*, *trust in peers*, and *trust in facts*, we investigated the relationship between the subscales.

We found that trust in forums and in websites is highly correlated, and high general health (which may be a proxy for their level of experience seeking health information online) seems to predict more trust overall. When controlling for health (measured using a robust question from the SF-36 [23]), trust in forums and websites is highly correlated: ( $R=.664$ ,  $p<.001$ ), see Figure 2.

We also expected trust in forums to be correlated with trust in experience (and trust in websites with trust in facts). However this was not supported: R values are low and the p values are close to or higher than  $p=.05$ .

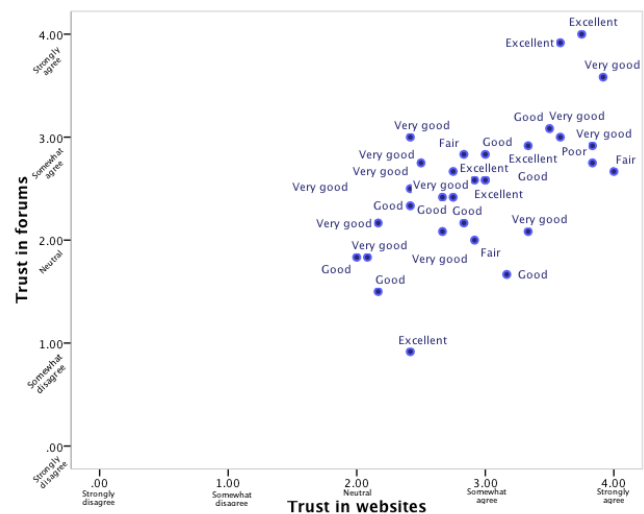
We separated participants into three groups based on their experience with chronic illness (low knowledge, medium knowledge or high knowledge). We found that trust in facts remained constant across the three groups but trust in peers increased as participants knowledge about chronic disease increased ( $F(2,26)=4.416$   $p<.05$ ).

## 3.3 Search Habits and Their Relation to What People Trust

To better understand the relationship between people’s reported trust in different kinds of online data and their search habits, we asked participants about the most recent time they sought health information for themselves or someone close to them.

Participants reported searching for a wide range of health information including acute, chronic and preventative conditions that were in some cases common and others rare.

There was a significant difference in how frequently people visit websites and forums, with 47% of participants reporting that they visit health websites “Often” and 2% “Rarely or Never” while only 27% visiting health forums “Often” and 37% “Rarely or Never”. This difference is significant ( $t(30)=-4.49$ ;  $p<.001$ ).



**Figure 2: Trust in websites (X axis) vs trust in forums (Y axis). Axes are means of several different trust variables all using the same five point scale (strongly disagree to strongly agree) Labels indicate health status of the corresponding participant. When controlling for health,  $R=.664$  ( $p<.01$ ). Note that trust in both websites and forums is generally quite high.**

We coded the website where participants found what they were seeking. WebMD was the most popular single site (30%), while 40% ended up at some other website and only one person reported using advice from a forum. WebMD has aspects of both an information site and a forum, but we do not have data on how it was used in this context.

Several participants reported no satisfactory ending to their online search but reported receiving useful information from friends, a call to the hospital, or a doctor. However we do not have enough examples to determine whether these same people are also more likely to trust in online peers (*e.g. forums*).

We used multiple regression to test whether any of the four *trust* measures, along with age, overall chronic knowledge, and overall health, were able to explain the final website chosen in a person's most recent search. This also was not significant.

### 3.3.1 Behavior during a Laboratory Search Task

We investigated participant behavior during a forum search task. For this analysis, we only considered participants who clicked at least once in all three search tasks (N=29). Such participants viewed an average of 1.5 pages worth of results (SD=.77). They clicked on an average of 1.9 links (SD=.79) and typed in an average of 1.4 queries (SD=.62).

For this portion of the study, the number of participants who interacted significantly with the search results was small (N=29) and we did not have any statistically significant results relating to the impact of their trust predilections on behavior. However, we were able to use a qualitative analysis of participants' written responses to further explore trust in peer-produced content. We coded participant responses about treatment recommendations for positive and negative opinions about forums. Our coding categories were: *spoke against forums*; *used forum* and *needed more information*.

Participants tended to be either very negative or very accepting of the forum as a source of information, and this had a big impact on their estimation of whether they had enough information from which to make a solid recommendation. For example, someone who spoke against forums wrote *"It's very hard to tell whether I can trust these people's answers on the forum--I would like more than just anecdotes."* While someone who used the forum data wrote *"It seems like low risk and there was more mention of success stories as well as mention of more formal opinions of doctors."*

These opinions also influenced participant ratings. For example, all four participants who spoke against forum data as a good source of information for hyperbaric oxygen treatment answered "Not enough information" when asked to rate the treatment option, while none of the participants who spoke positively about getting information from the forum (10 total) gave that answer.

## 4. DISCUSSION

In this study we found support for our hypothesis that people vary in their trust of institutional vs. peer produced data. Specifically we found that healthy individuals tend to have high trust for both forums and websites. However, participants in our study reported that they had visited websites twice as often as forums. In fact, almost 40% of the cohort rarely or never had visited a forum for health information. This was true when we asked about

information health seeking in general and also when we asked what specific Internet sites they had recently visited.

The most popular website was WebMD. Sillence *et al.* [18] found that participants were likely to trust sites that had information on a wide range of topics as well as features that made the data actionable, *e.g.*, hints and tips. WebMD has all of these attributes. However Sillence *et al.* found that participants were distrustful of sites with advertisement from pharmaceutical companies and the like. While this is true of WebMD it may be that advertisement is an accepted component of a website revenue stream under certain presentations. It might also be that in contrast to Sillence's cohort, who were facing a major health decision, our cohort were for the most part very healthy with 87% reporting that their health was Good, Very Good or Excellent.

In this paper we adapted a 12-question scale about trust in institutions for the purpose of evaluating trust in forums and trust in websites [13]. Results indicate that this adaptation was successful and researchers now have two measures that will facilitate cross study comparisons about information seekers trust in websites versus forums. These were highly correlated, and further studies are needed to confirm them. However, we believe the correlation was due more to the relatively healthy nature of our cohort than any issue in our ability to differentiate. This belief is supported by the fact that one of our analyses showed an increase in trust in forums as participants' own experience with chronic disease increased. Thus, our measure was able to differentiate forums from websites effectively where the population differed.

In our endeavor to understand how individual differences affect trust we also developed a new scale to explore trust in experiences vs. facts. While further studies would be needed to validate this scale, our study showed promising results with regard to the scale's ability to separate participants into two coherent groups. One open question is why there was no significant correlation across the two scales (for example between trust in forums and trust in experience). One possible explanation is that people who trust forums believe them to be good sources of both facts and experiences, and similarly for websites.

Our third hypothesis was that people who trust peer-produced data will react differently to a forum search task than those that trust institution produced data. Thus, we explored how individuals relate to information seeking behavior on a series of forum-search tasks. When we examined the relationship between our measures of trust in forums, websites, experience, and facts and participant search activities there was no significant quantitative relationship in either the recent search question or the laboratory search task. One possible explanation for this is the relatively small amount of data in our sample; another is the artificial nature of our search task. Sillence's work suggests that when participants do not have a sufficiently salient stake in the outcome (such as in our artificial final task) they may not really engage in the task [18].

Our protocol states that a friend needs advice. Although we considered having participants imagine they themselves were ill, we felt that participants could more easily relate to a friend needing advice than imagine the full experience of Lyme disease. Future studies could manipulate the participant's "stake" by stating that the friend was actually going to try the therapy being recommended or could focus on participant-defined tasks. However, qualitative data drawn from participant explanations of their recommendations lends some credence to our hypothesis that

individual differences can have a big impact on trust in peer-produced data.

A limitation of our study is that a majority of the participants had never been on a forum. While this may have impacted their ability to make recommendations, it also provided us with a relatively blank slate meaning that our measures of their trust in forums demonstrate pre-existing biases (individual differences) rather than positive or negative experiences in a forum context.

## 4.1 CONCLUSIONS AND IMPLICATIONS FOR THE FUTURE

In follow up work we would like to further explore individual differences such as health experience (with their own health or with that of someone they are close to) and specific events in a person's health history in more depth to see how they affect what people trust. To do so we would like to recruit people who are ill rather than (mostly) healthy. We would also like to expand our search task to compare searching behavior in forums and websites. Past work has shown that the severity of a person's condition affects their search behavior [14]. However it is important to also understand how this affects trust in the *content* of search results. We would also like to explore whether the people who abandon online searches for information tend to have stronger preferences for experiential or objective information or whether they have a stronger institutional distrust of the Internet as a whole.

In this paper we contribute a validated set of scales for testing trust in peer websites, trust in information websites, trust in facts, and trust in experience. Our question sets explored trust from multiple perspectives with high reliability. Our analysis shows that trust in forums and trust in websites were highly correlated among healthy individuals. Our work is of use to those who wish to further explore trust in online health information and the set of scales we have developed will allow these researchers to speak with a shared lexicon.

## 5. ACKNOWLEDGMENTS

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