Internet Usage, Physician Performances and Patient’s Trust in Physician during Diagnoses: Investigating Both Pre-use and Not-use Internet Groups

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Abstract

Do patients’ Internet searches of disease information and physician performances affect patients’ trust in physicians during diagnoses? This study proposes a research model concerning the effect of whether patients use Internet and Internet usage on perceived physician performances (including perceived communication time, explanation quality and physician attitude) and on trust. Our empirical study of over 650 subjects in China suggests that for pre-use Internet patients, they feel longer communication time but less quality of physicians’ explanation in diagnosis process. There is no significant discrepancy of perceived physician attitude between two sample groups. We also demonstrate that whether patients search healthcare information through the Internet impacts their trust in physicians through physicians’ explanation quality as well as the communication time. Moreover, this study indicates that physician performances in a diagnosis process play a dominant role in gaining patients’ trust, while the professional status of a physician (i.e. expert) will help improve trust when patients feel warm attitude from physicians. However, longer search time on the Internet will weaken the effect of communication time and explanation quality on trust. Overall, this study suggests that the impact of the physician performances and Internet search are not trivial to physician-patient trust, but even in the high-tech age, high-touch remains an important factor to physician-patient trust.

1. Introduction

The Internet has become a major information source for majority of patients [35]. They use email to share information about their personal health conditions [38], depend on online community to collect healthcare information, explore treatment options, and share personal experiences [24]. The most prevalent use of the Internet is to seek information about a particular disease. According to Dolce [11], the Internet is both the first and the most common source for such information.

The increasing use of the Internet for healthcare is expected to alleviate the traditional information asymmetric between physicians and patients and have a profound effect on patients’ welfare. However, its impact is still controversial [43]. Some studies reported that searching Internet provides patients a massive volume of online information, leading to more appropriate uses of health service resources, better physician-patient relationships, and better health outcomes[50].

Others hold that much of the information is misleading and even accurate information can be misinterpreted which results in inappropriate requests for clinical interventions [15]. On the other hand, healthcare is a complex and dynamic process [49]. The internal mechanism of how searching online information impacts the healthcare is unclear, and this study seek to address these research gaps.

This study focuses on the effects of searching Internet for healthcare information on the patient’s trust. Particularly, this study investigates two different mechanisms. One focuses on whether a patient searches Internet or not before diagnosis, and the other focuses on the effect of search time after patient who has ever the behavior of searching the Internet. We find that although patients’ perceived physician performances (including perceived communication time, perceived explanation quality, and perceived physician attitude) have positive influence on their trust in physicians, searching Internet or not by patients would hold different effects on their perceived physician performances. While, search time as well as physician’s professional status has contingent moderating effects on the relationship between perceived physician performances and the trust. This study contributes to the healthcare literature by exploring the effects of searching behavior.
2. Literature review

2.1. The Patient’s Trust in the Internet Age

Trust defines well-functioning physician-patient interaction and as a determinant of patient satisfaction and treatment success, which is seen as a necessary basis for any sort of satisfactory physician-patient relationship [29]. Patient’s trust in doctors is built on patients’ beliefs that doctors are technically proficient, on interpersonal competence [37]. In the past, patients generally did not challenge a physician’s advice or question the prescribed treatments for the limitation of knowledge. Such physician-patient relationship was defined as a gatekeeper model, in which physicians are keepers of medical knowledge and major decision-makers, with patients assuming a dependent role [10]. The gatekeeper model relies on the fundamental and sustaining knowledge inequality (i.e., information asymmetry) between physicians and patients [33].

The information asymmetry has been significantly reduced by the ready availability of online medical information [26]. This has changed the relationship between patients and physicians. The Internet changes the balance of medical information between healthcare professionals and their patients, empowering patients to become more involved in healthcare decision-making [21]. Patients who have sought health information on the Internet can use that information to propose diagnoses or treatment plans to physicians. In that sense, they are now informed patients.

But the Internet can also misinform patients. Misinformation commonly results from two causes – low health literacy and unreliable information. Low health literacy can make it difficult for patients to understand and interpret healthcare knowledge. Internet healthcare resources are often filled with jargon and many sites that patients can access assume a high level of medical knowledge. Patients can also be exposed to unreliable information. In healthcare information, as in all other kinds of information, patients can be unwittingly exposed to poorly organized and unreliable sources [26]. The risk of misinformation is especially acute on the Internet, as many websites lack clear markers of authorship or credibility [14].

When patients have searched for medical information online, they are likely to be more confident in their own judgment of their health condition regardless of whether they are informed or even misinformed. Consequently, their evaluation of and trust on a physician change.

2.2. The Antecedents of Trust

Prior researches have given the definitions, measures, levels of the concept of trust [19] [13]. Also the relevant factors related to trust can be classified as patient characteristics [32], physician characteristics [45], and relationship or situational factors. Among three distinct predictors, the relationship or situational factors have been shown to be important to trust. Patient’s involvement in medical care is consistent with some desirable forms of physician and patient relationship, which influences the trust in the medical profession [13].

Some studies suggest that trust is promoted by communicating effectively with patients such as by listening carefully, answering questions clearly, giving them as much information as they want, and involving them in medical decisions [13]. When the patients listen to physicians carefully, they will perceive longer communication time. When the physicians answer questions clearly, the patients will perceive that they gain more detail of explanation. The perceived physician’s attitude is related to whether the physicians giving patients as much information as they want. Prior research identified that trust can be easily exchanged between individuals through verbal communication (Morita & Burns, 2012). Thus, in this study, three factors were used to measure the patients’ perceived variables in the communication, which are perceived communication time, perceived detail of explanation, and perceived physician’s attitude. In addition, professional status of a physician plays an important role in the relationship between patients and physicians [52]. The majority of people report following their physicians' recommendations and think that it is better to rely on the expert judgment of physicians and seek professional help. The physician’s role of expert will influence attitudes towards involvement in medical care [53]. Thus, we propose whether the physician is an expert could have a moderating effect on the relationship between these three predictors and the trust.

2.3. The empowerment of patients by the Internet

Power is defined as the control of or capability to influence others (Grimes, 1978; Turner, 2005). The physician-patient relationship in the Internet age can be understood by analyzing the change in their power balance. In the process of diagnose, physicians with superior skills and knowledge exhibit more power (Raven, 1965, 1993). However, the Internet empowers patients to conduct their own health checks, self-diagnoses and treatment by providing information [12]. The empowerment of patients by the Internet makes them better express concerns, communicate with
physicians, and show respect. The information provided through Internet has the capability to influence the communication and trust formation between patients and physicians by patients’ increasing the availability of knowledge and information. In a study of people newly diagnosed with cancer [17], participants reported that health information from the Internet helped them in their conversation with physicians, made them feel more confident in asking questions, and helped them feel empowered to make decisions. On the other hand, bringing information from online searches to the clinical encounter and questioning healthcare providers have been perceived by both patients and healthcare providers as challenging the boundaries of medical expertise [6]. Hardey [21] found that patients use the Internet to find second opinions, interpret symptoms, seek support, help interpret physicians’ advice, and formulate questions for subsequent visits. In doing so, patients challenge the monopoly of medical knowledge by professionals.

However, there is a lack of systematic investigation of how the patient empowerment through the Internet changes the relationship between physicians and patients, and hence affects patient’s trust on physicians. While it has been suggested that online health information searches could improve healthcare outcomes by reducing the healthcare disparity and encouraging patients’ active interaction with physicians [8], there have been few studies that empirically test the effect of Internet usage on patients’ trust in physicians during the diagnosis process. The effect of the Internet on physician-patient relationship is less well understood [47], especially the different mechanisms of the Internet information searching. Whether searching online information or not before diagnosis would affect patient’s trust in a physician? If so, what is the internal mechanism? For patients who have experience of searching online information, does different searching time have distinct effect? This study proposes two research models to test these questions.

3. Research Model and Proposed Hypotheses

Figure 1(a) and 1(b) illustrate our research models:

3.1. Pre-search Internet

The pre-search Internet is the behavior that a patient searching Internet for healthcare information before a diagnosis. When a patient has the experience of pre-searching, usually the patient learns some information or knowledge of the possible diseases, the severity of disease, and the possible treatments. The information help alleviate the physician-patient information asymmetry. It helps a patient describe the symptom in detail, inquire the possible treatments more specifically, which increase the communication time. However, for the perceived explanation quality, due to patients’ confidence in self-diagnosis with more information, pre-search Internet has a negative effect on it. Perceived physician attitude depends on the kindness and warmness of the physician in the process of diagnosis which is supposed not to be influenced by the more information gained by the patient. Hence we hypothesize:

**H1**: Pre-search Internet has a positive effect on perceived communication time (H1a), a negative effect on perceived explanation quality (H1b), and has no effect on perceived physician attitude (H1c).

3.2. Perceived Physician Performances

The power of physicians can also be realized with patients’ perceived physician performances and in their interaction with patients. Healthcare is a “high-touch” profession [23]. The physician performances influence the formation of physician-patient trust. Perceived communication time (PCT) refers to the time duration between a patient and his or her physician in a diagnosis.
process. Perceived explanation quality (PEQ) refers to the patient’s perception of how well the physician explains, listens, and communicates with the patient. Perceived physician attitude (PPA) refers to how friendly and warm of the physician in the diagnosis conversation. Mechanic [36] suggested that patients use interpersonal cues to judge a physician’s competence, such as how the physician asks and answers questions, and communicates about the patient’s disease. Communication time and skills are often regarded as a physician’s interactive power [20]. When patients access to more information, they tend to respond positively and be empowered in the interaction power. A balance in interactive communication helps to form trust between patients and physicians. Mechanic [36] suggests that how a physician communicates and whether the physician is listening and caring is central to patients’ trust. Similarly, Laugharne et al [31] suggest that having a caring attitude is significant to trust building. Hence we hypothesize:

**H2**: Perceived physician performances (H2a1, H2a2: PCT; H2b1, H2b2: PEQ; H2c1, H2c2: PPA) have positive effects on trust.

### 3.3. Professional Status of a Physician: Expert

The professional status of a physician is suggestive of his or her knowledge power. The professional status can be indicated by whether a patient is an expert. In Chinese medical system, patients can choose either specialist clinic or general clinic when making hospital appointment or registration according to their preference. The difference lies in whether the physician is an expert certificated by official medical authority with his or her professional education background and experience. Expert physician usually have better professional capability in some miscellaneous diseases. In fact, for common diseases, due to the limited medical resources, patients are also sometimes assigned to an expert or non-expert physician randomly by hospital. Undoubtedly, the professional certification process in healthcare endows power to physicians [30]. Therefore, the professional status of a physician signals the power and privilege attached to the status [28] suggested that acknowledging medical power is “consistent with” the physician’s medical dominance and professional status. In the event of perceived physician performances, the professional status of a physician can serve as another source of power to enhance a patient’s trust. Most patients cannot judge the technical competence of a physician, but assume that a professional certification process ensures this. A physician’s professional status is such a cue to expert power. Therefore, we hypothesize:

**H3**: The professional status of a physician (Expert) has a positive moderating effect on the effect of perceived physician performances (H3a1, H3a2: PCT; H3b1, H3b2: PEQ; H3c1, H3c2: PPA) on trust.

### 3.4. Mediating Role of Perceived Physician Performances

Next we want to find out the relationship between pre-search and trust. We have hypothesized the direct effect of pre-search on patients’ perceived communication time and explanation quality rather than physician attitude, as well as the influence of physician performances on trust. Due to whether a patient searches healthcare information through the Internet before visiting the physician are determined by many factors such as the severity of disease, the online searching habit and so forth, we do not consider the direct effect of pre-search on trust. Here we hypothesize:

**H4**: Perceived communication time (H4a) and perceived explanation quality (H4b) mediate the effect of pre-search on trust, while perceived physician attitude (H4c) does not have such mediating effect.

### 3.5. Search Time

The amount of time a patient spends online searching for disease information is an indicator of the amount of information a patient gains. When a patient searches longer online, usually the patient learns more about what are the possible diseases to expect, the severity of disease, and the possible treatments [15]. The more information patients obtain from the Internet, the more the physician-patient information asymmetry is expected to be reduced. Iverson et al [25] indicated that more than half the Internet users reported online information changed the way they think about their health. With patients’ lack of medical knowledge and variability in the quality of online information, patients may not be fully confident of their self-diagnosis [39]. However, searching for more information raised patients’ confidence in self-diagnosis [1]. Therefore, patients would believe that the power imbalances between physicians and patients are reduced [22]. The change in power balance makes patients more sensitive to physician performances in a diagnosis process. For a patient who searches more, he or she will feel less surprised if the diagnosis conclusion made by physician is consistent with his or her self-expectation, while she will less trust in the physicians when inconsistency happen. Therefore we hypothesize:

**H5**: Search time has a negative moderating effect on the effect of perceived physician performances (H5a: PCT; H5b: PEQ; H5c: PPA) on trust.
4. Research Method and Hypotheses Test

4.1. Instrument Development

We conducted a survey to test our hypotheses. We adapted existing validated scales whenever possible in developing our survey instrument. Specifically, pre-search was measured by whether a patient had searched disease-related information with the Internet before visiting his or her physician. Trust was measured based on the degree a patient trusted the disease type, severity, and treatment process suggested by a physician, similar to the classification of Thom et al [45]. Search time was measured based on a patient’s recall of time (in hours) spent on the Internet to search for relevant information. Because search time is an objective measure, only one item was used. We adopted the scale of perceived communication time, perceived explanation quality, and perceived physician attitude from Trachtenberg et al [46]. Expert was measured by whether the physician was an expert (1=expert, 0=otherwise). Except for binary items, other items used a five-point or seven-point Likert scale (see Appendix).

Control variables included the patient’s age, gender, education, expense, hospital type and rank, and the patients’ prior visits to the physician and to the hospital. A small convenience sample was interviewed for their comments on the survey instrument. Because it is inappropriate to ask a patient’s specific disease type and severity, we used expense as a proxy. Namely, higher expense generally indicates severer disease.

4.2. Data Collection and Sample

An online survey was conducted in China for the main study. The survey was conducted by a professional online survey company. In total, 869 subjects participated in the survey. 116 cases were discarded because the subjects filled out the questionnaire in time less than the average time minus two standard deviations. Moreover, if subjects chose “Not Sure” for any item of relevant variables (85 cases), they were dropped. The final sample size was 320 for pre-use Internet samples and 348 for not-use Internet samples.

To test H1 and part of H2, we run five OLS regression models among Pre-search, PCT, PEQ, PPA and trust (see Model 1 to Model 4 in Table 1). As Model 1 and Model 2 indicate respectively, Pre-search has a significant positive effect on PCT, while has a significant negative effect on PEQ, which reveal that the pre-use Internet patients usually experience longer communication with physicians during diagnoses; however, they feel less detailed about the physician’s explanation, supporting H1a and H1b. We also find there is no significant effect of Pre-search on PPA in Model 3, in accordance with H1c. In Model 4, just as expected, PCT, PEQ and PPA all have significant positive effects on trust. Therefore, H2a1, H2b1 and H2c1 are supported, confirming the direct effect of physician’s performances on patient’s trust in him or her.

### Table 1. Regression Analyses for Research Model I – Main Effect

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-search Communication Time</td>
<td>Pre-search Explanation Quality</td>
<td>Pre-search Physician Attitude</td>
<td>Trust</td>
<td>Trust</td>
</tr>
<tr>
<td>Theoretical Variables</td>
<td>1.600*** (0.268)</td>
<td>3.499*** (0.255)</td>
<td>5.344*** (0.285)</td>
<td>1.762*** (0.296)</td>
<td>1.706*** (0.302)</td>
</tr>
<tr>
<td>Pre-search</td>
<td>6.297*** (0.073)</td>
<td>-0.399** (0.037)</td>
<td>-0.811 (0.043)</td>
<td>-0.013 (0.001)</td>
<td>-0.092 (0.021)</td>
</tr>
<tr>
<td>Communication Time</td>
<td>4.019*** (0.029)</td>
<td>0.023**</td>
<td>0.315*** (0.010)</td>
<td>0.318*** (0.009)</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>2.225*** (0.020)</td>
<td>0.220*** (0.001)</td>
<td>0.351*** (0.005)</td>
<td>0.220*** (0.001)</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>0.348*** (0.002)</td>
<td>0.348*** (0.002)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
- *p<0.01, **p<0.05, ***p<0.001; robust standard error in parentheses.
Table 2 reports the moderating effect of Expert. We can find that expert has a significant positive moderating role on the effect of PPA on trust, while there is no significant moderating effect of expert on neither PCT nor PEQ’s influence on trust. PCT and PEQ have only direct effects on trust, which indicate that a high professional status of a physician (expert) will promote patient’s trust in him or her when the physician has good attitude during the diagnosis; however, such high professional status will not help physician improve patient’s trust in him or her even when the physician communicates longer and explains over the disease better to the patients. Hence only H3c1 is supported.

Additionally, to test the mediating effect of PCT, PEQ and PPA, we follow the multiple-step Sobel test suggested by Baron and Kenny [4]. In the first step, we test the relationships between predictors (Pre-search) and mediators (PCT, PEQ and PPA). In the second step, we test the relationships between mediators and outcomes (trust), with the effects of predictors on outcomes controlled. In the last, we calculate the statistic z-score to test whether the mediating effect is significant. Table 3 reports the results of mediating effect analysis. The results indicate that both PCT (z-score = 1.52 >1.28, sig. = 0.10) and PEQ (z-score = 1.41 >1.28, sig. = 0.10) significantly mediated the effect of Pre-search on trust. PPA has no significant mediating effect. These results suggest that whether patients search disease-related information through the Internet before diagnosis impacts their trust in physicians through physicians’ explanation quality as well as the communication time during face-to-face diagnosis, supporting H4a, H4b and H4c.

Table 3. Mediating Effect

For research model II, namely for pre-search Internet patients, Table 4 reports that PPA has a significant direct positive influence on building patients’ trust, while expert has a significant positive moderating role on the effect of PPA on trust. However, there is no significant moderating effect of expert on neither PCT nor PEQ’s influence on trust, and PCT and PEQ have only direct positive effects on trust, which is consistent with the results of research model I, supporting H2a2, H2b2, H2c2 and H3c2. Moreover, from Table 4, we can find that Search time significantly moderated the effect of PCT and PEQ rather than PPA on trust, supporting H5a and H5b. The negative moderating effects indicate that the longer one searched online, the weaker the effect of PCT and PEQ on trust.

Table 4. Regression Analyses for Research Model II

Table 2. Regression Analyses for Research Model I – Moderating Effect
We also found that the professional status of a physician will help improve a patient’s trust when that patient feels a friendly attitude from the physician; but professional status does not help even when a patient feel longer communication time with a physician or better explanation on disease from a physician. Meanwhile, for pre-use Internet patients, instead of having a direct effect, search time weakens the effect of perceived communication time and explanation quality on trust. Chen and Siu [7] observed that few patients believed that online healthcare information had directly changed their trust in their physician. However, when a patient’s search increases, the knowledge power each party has affects their trust relationship.

Our findings and prior studies seem to support that physician performance still plays a central role in physician-patient trust, while the change of knowledge power brought about by Internet search plays a secondary role. Bowes et al [5] found that patients value their physician’s opinion over the Internet source when there is an adequate discussion. As Kassirer [27] suggested, the personal interaction between patients and doctors is one of the most powerful influences on the trust that patients have in physicians’ opinions, judgments, and recommendations. Sharma et al [41] suggested that lack of physicality can be considered a major limitation in e-health practice. Similarly, Barnoy et al [3] suggested that patients generally search for Internet medical information as an additional information source, not as a substitute, to the information supplied by healthcare providers. The application of high-tech (i.e., Internet usage) does not diminish the important of high-touch approaches in healthcare.

5.2. Theoretical and Practical Implications

Our research makes interesting theoretical contributions to the literature. First, this study provides a contingent view of how patients’ Internet search affects the physician-patient trust relationship. This view is different from earlier studies that either stressed the benefit of Internet search [34] or raised concerns about the impact of Internet searches on the physician-patient relationship [41]. We found that patients who conduct Internet search of disease information have different perceived physician performances during diagnosis process, while online healthcare information search can weaken the influence of physician performances on trust building. This is particularly strong when patients search more. Second, this study introduces the knowledge power perspective to describe the role of Internet in physician-patient relationship. It has been recognized that Internet search changes patients’ knowledge power and that change in knowledge power

5. Discussion and Implications

5.1. Discussion of Findings

Internet serves as a disease-related information source for many patients. Patients who seek or do not seek information through the Internet before visiting their physicians may have different perceived physician performances during the diagnosis process, which impacts their trust in physicians. Moreover, the availability of online healthcare information has also changed the balance of knowledge power between patients and physicians, which in turn changed their trust relationship. Having previously searched for disease information, patients visit a physician with expectations formed based on that online information. While they might not regard their expectations as reliable, they use their expectations to verify the physician’s diagnosis and to build their trust in that physician. This study set out to test whether and how pre-use or not-use Internet will influence patients’ perceived physician performances during diagnosis process, including communication time, explanation quality and attitude; and how physicians’ performances influence patients’ trust in them; and the moderating role of expert. Additionally, for pre-use internet samples, we test how patients’ online search time shape patients’ trust in a diagnosis process. Except H3a1, H3b1, H3a2, H3b2 and H5c are not supported, all other hypotheses are supported by our empirical study.

Our results indicated that the pre-use Internet patients usually experience longer communication time with physicians during a diagnosis; however, they feel less detailed about the physician’s explanation. There was so significant discrepancy of perceived physician attitude between both sample groups. We found that physician’s performances during diagnosis process (PCT, PEQ and PPA) all have significant direct effects on trust. The significant direct effect of physician performances on trust is not surprising. Many prior studies have suggested the importance of physician-patient communication on the establishment and maintenance of a trusting relationship [2]. A plausible explanation is that in case of diagnosis consistency, physician performances enhances trust through confirming patients’ expectation. In case of diagnosis inconsistency, physician performances enhances trust through thoughtful and empathetic explanation that dismisses suspicion. Therefore, physician performances enhances trust in both cases, although the psychological reasons for trust might differ. In addition, we demonstrated the mediating role of patient’s perceived communication time and explanation quality on the effect of pre-search on trust.
can potentially affect the physician-patient relationship [33]. Third, this study investigated the relative importance of Internet empowerment and physician’s interaction quality. This study suggests that high-touch is still a dominant factor in physician-patient trust building while high-tech plays a secondary role. A physician’s explanation and feedback is still central to a patient’s healthcare as claimed by Shaw and Stahl [42]. This finding suggests that practitioners do not need to overreact to patients’ Internet search or regard it as a prominent challenge to their professional authority. On the other hand, this study confirms that physicians should not dismiss patients’ Internet search as trivial [16].

This study also leads to important implications to practice. First, because pre-search or not will affect patients’ trust through their perceived physician performances, and the impact of Internet search on physician-patient trust is not trivial, physicians should be aware of their patients’ Internet search background. In a suitable context, a physician might ask patients whether they have studied their own disease, and what they have found. This information would suggest to the physician whether it is necessary to explain any difference in views, so that a patient’s suspicions can be addressed [48]. If a patient has been exposed to different views, a detailed explanation is an opportunity to build trust. On the other hand, to gain trust from patients and maintain competitive performance, professional knowledge accumulation is important for physicians [49].

5.3. Limitations

The findings of this study should be interpreted with its limitations. The study uses subjects from China. The degree of physician-patient trust in China is relatively lower than in many developed countries [51]. Therefore, patients in China are likely to be more sensitive to diagnosis process. The effect of the Internet search found in this study may be different in other countries. Second, the quality of healthcare information may differ in various countries, which could further affect the generalizability of our findings. This might be the reason that our findings are different from some of the references. Finally, this study does not specially control for disease type (which is somewhat indicated by expense in the study) and therefore cannot provide a more nuanced guidance for practitioners in a specific disease segment. Future research may apply our framework to specific diseases.

6. Conclusion

With the easy access to online healthcare information, this study seeks to answer the question of whether and how patients’ Internet search shapes their perceived physician performances during diagnosis process, and how physician performances influence patients’ trust in physicians. We also investigates how Internet search changes the power balance between physicians and patients in the diagnosis process, and consequently how it changes their trust relationship, as well as the role of professional status of a physician in trust building. Our empirical study of more than 650 subjects in China (320 for pre-search Internet patients and 348 for not-search) suggests that for patients who searched for disease information online, they feel longer communication time but less quality of physicians’ explanation in diagnosis process. There is no significant discrepancy of perceived physician attitude between two sample groups. Moreover, physician performances will all significantly help the trust building. We also demonstrate that whether patients search healthcare information through the Internet before diagnosis impacts their trust in physicians through physicians’ explanation quality as well as the communication time. However, the moderating effect of expert and search time is contingent. This study finds that physician performances in a diagnosis process play a dominant role in gaining patients’ trust, while the professional status of a physician (i.e. expert) will help improve trust when patients feel warm and friendly attitude from physicians. However, longer search time on the Internet will weaken the effect of communication time and explanation quality on trust. This study suggests that the impact of the Internet search should not be regarded as trivial. Meanwhile, a high-touch approach is still the most important factor to physician-patient trust in the high-tech age.

7. Acknowledgement

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8. References

[35] McMullan, Miriam. "Patients using the Internet to obtain..."


Appendix

Research questionnaire.

<table>
<thead>
<tr>
<th>Constructs and Items</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Trust</strong></td>
<td>Yes, No</td>
</tr>
<tr>
<td>1. How much did you spend on the Internet to search for information about your disease?</td>
<td>1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree</td>
</tr>
<tr>
<td>2. How long did you spend on the Internet to search for information about your disease before visiting your doctor?</td>
<td>1=Less than 1h, 2=1 to 2h, 3=2 to 3h, 4=3 to 4h, 5=4 to 5h, 6=5 to 6h, 7=More than 6h</td>
</tr>
<tr>
<td>3. How much was the attitude of the doctor in your conversation?</td>
<td>1=Very indifferent, 2=Indifferent, 3=Fair, 4=Detailed, 5=Very detailed</td>
</tr>
<tr>
<td><strong>Perceived Power of Physician</strong></td>
<td>Yes, No</td>
</tr>
<tr>
<td>1. How much did you spend on the Internet to search for information about your disease?</td>
<td>1=Less than 1h, 2=1 to 2h, 3=2 to 3h, 4=3 to 4h, 5=4 to 5h, 6=5 to 6h, 7=More than 6h</td>
</tr>
<tr>
<td>2. How long did you spend on the Internet to search for information about your disease before visiting your doctor?</td>
<td>1=Less than 1h, 2=1 to 2h, 3=2 to 3h, 4=3 to 4h, 5=4 to 5h, 6=5 to 6h, 7=More than 6h</td>
</tr>
<tr>
<td><strong>Cultural Variables</strong></td>
<td>Yes, No</td>
</tr>
<tr>
<td>1. Age: What is your gender?</td>
<td>Male, Female</td>
</tr>
<tr>
<td>2. Physician’s role: Which health care professional visited you?</td>
<td>1=Primary care, 2=Specialist, 3=Hospital, 4=Other</td>
</tr>
<tr>
<td>3. Who referred you to the doctor?</td>
<td>1=Primary care, 2=Specialist, 3=Hospital, 4=Other</td>
</tr>
</tbody>
</table>

*Note: Subjects whose age was out of the range of 18 to 60 were dropped.*