

Exploration of the Construct of Reliance Among Patients Who Talk With Their Providers About Internet Information

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Three hundred fifty participants, recruited from Internet health message boards, completed online surveys about their experiences talking with health care providers about Internet health information. Two distinct dimensions of reliance emerged from the data, one regarding the patient's reliance on the health care provider for decision making and the other regarding the patient's reliance on the health care provider to stay healthy. Self-reliant patients tended to be female, have lower incomes, and report less frequent visits to the health care provider than did health-care-provider-reliant patients. Age, comfort level, and frequency of talking about Internet health information were not related to reliance level.

Introduction

The paternalistic model of the doctor—patient relationship that holds the doctor as expert and patient as submissive has been challenged (e.g., Engel, 1977; Stewart et al., 1995), and a variety of models have been proposed in its place. Central to these other models is the notion that patients vary in their attitudes and preferences about health and health care. A particular area of variance that has received much attention in the literature is patient preferences for involvement in medical decision making.

One specific way of conceptualizing patient preferences for involvement is a construct proposed in the *Journal of Health Communication* by Makoul (1998) termed *reliance*. Conceptually, Makoul defined reliance to have two opposing

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orientations—physician reliance and self-reliance. Physician-reliant patients may want information about medical decisions, but ultimately they want to rely on the physician for direction and are expected to comply. Self-reliant patients view the physician's role as an advisor and are actively engaged in decision-making processes. Operationally, Makoul defined reliance as being based on two dimensions of authority. First, legitimate authority is the notion that physicians keep people healthy as part of their job. Second, expert authority has to do with the knowledge and skill that physicians have. The measure of reliance that has demonstrated validity and reliability is a composite of these two dimensions and is made up of two Likert-scaled statements: *I rely on a doctor to keep me healthy* and *I prefer that my doctor just tell me how to deal with my health problems rather than give me choices* (Makoul, 1998, p. 241). In Makoul's research, these two statements were indexed into a composite reliability variable ($\alpha = .71$). Makoul then developed a dichotomized variable to include only those who were strongly physician reliant or strongly self-reliant.

Using a sample of patient–physician interactions from the Oxford, England, area, Makoul reported physician-reliant patients to be older, more closely associated with the working class, visit the doctor more frequently, and be less involved in medical decision making than self-reliant patients. There was no difference between physician- and self-reliant patients regarding their self-reported health or the seriousness of their specific, current health problem about which they came to see the physician. Although these findings make sense in light of other literature on this topic, this assessment of reliance was performed before the Internet had changed the way patients get health information. We expect that we may encounter a different picture of reliance when the construct is examined among a sample of those who actively use the Internet to seek health information and who talk about that information with their health care providers.

Internet Health Information

Recent reports find that 40%–66% of Americans have been online to search for health or health care information (Baker, Wagner, Singer, & Bundorf, 2003; Diaz et al., 2002; Fox & Fallows, 2003), although 80% of respondents say that they search for health information every few months or less (Fox & Fallows, 2003). Females who are more educated, have higher incomes, and are younger than 65 are more likely to search for health information on line (Diaz et al., 2002; Fox & Fallows, 2003). Further, those who report a poorer health status are more likely to go online for information (Baker et al., 2003; Fox & Rainie, 2002). Those who are searching for information are more often than not searching for information for someone else, with parents, women, and those in good health being more likely to do so (Fox & Fallows, 2003).

The quality of Internet health information is a concern in the medical field (Kunst, Groot, Latthe, Latthe, & Khan, 2002; Ullrich & Vaccaro, 2002). However, Internet seekers seem to be critical in their searches. Although 72% of Internet health information seekers report that they believe all or most of the health information that they read online, 73% say that they have rejected Internet health information at some point for reasons such as that it was too commercial or they could not determine the source or the date (Fox & Rainie, 2002). Nearly one third of respondents reported that they looked at more than one website when gathering health information (Houston & Allison, 2002).

The outcomes of researching health information on the Internet vary. Studies show that 18% of people report diagnosing or treating themselves based on this information without consulting a doctor. Approximately two fifths (37%–41%) report that they discussed the information with their doctor (Diaz et al., 2002; Fox & Rainie, 2002). For the most part, health seekers believe that the information they find does make a difference in the health decisions they make and that it has improved the way they take care of their health (Fox & Fallows, 2003; Fox & Rainie, 2002).

Internet health information has the potential of making a considerable impact on the physician–patient relationship. Certainly, a patient bringing Internet health information to a health care provider might lead to problems in the provider–patient relationship. Health care providers may feel like their authority is being challenged, that inappropriate self-diagnosis will take place, that Internet research will make hypochondriacal patients feel more anxious (Hart, Henwood, & Wyatt, 2004), or that patients may become unwilling to accept the treatments offered to them (Ziebland, 2004). Patients also report feeling disapproved of when health care providers react poorly to the patients' initiating discussion of Internet information (Broom, 2005). Some physicians may feel defensive, however, because their own competencies at online searching are poor (Hart, Henwood, & Wyatt, 2004).

The impact of Internet information on patient decision making is especially notable. In the past, the physician's role was to have the medical knowledge, while the patient's role was to be accountable for his or her own preferences. With information from the Internet, patients "potentially have a different position in the decision-making process; possessing both preferences and knowledge prior to any physician contact" (Gerber & Eiser, 2001, p. 2). Based on previous literature that shows information preferences often to be higher than decision-making preferences (Ende, Kazis, Ash, & Moskowitz, 1989; Nease & Brooks, 1995), however, Gerber and Eiser (2001) also propose that just because a person looks up information on the Internet does not necessarily mean that he or she will want to participate in decision-making processes.

Through research, there is an emerging description of those who discuss Internet health information with their health care providers. Compared with those who do not discuss this information, they are less healthy (Houston & Allison, 2002) and rate the quality of the information higher (Diaz et al., 2002). Gender, education level, and age (Diaz et al., 2002), however, were not shown to be associated with whether they discussed the information with their providers. Despite these findings, there are still many things we do not know about how those who do talk about Internet health information with their providers differ from those who do not. The concept of reliance is a useful one with which to make this comparison, as the action of searching for health information on the Internet and talking about it with a health care provider centers on the idea of reliance on a provider.

Research Questions and Hypotheses

This first purpose of this study was to examine the concept of reliance within a sample of patients who talk with their health care providers about Internet information. Generally, we followed Makoul's conceptual and operational definitions of this construct. As our participants reported on interactions with all types of health care providers, rather than only physicians, however, we use the terms *provider reliance* to

represent those who rely more on a health care provider and *self-reliance* to represent those who rely less on a health care provider.

RQ1: How does the operationalization of the construct of provider reliance in the sample of patients who talk about Internet health information with providers compare with the sample found by Makoul (1998)?

Further, we queried if patients' comfort level in talking about Internet health information varied with provider- and self-reliance.

RQ2: Is there a difference between provider-reliant patients' and self-reliant patients' comfort level of talking about Internet health information with the health care provider?

As previous research has indicated, patients' desires to be active in decision making is negatively associated with age, positively associated with income, and higher among females than males. Therefore, we predicted similar patterns to exist in this sample:

H1: Self-reliant patients will be younger than will provider-reliant patients.

H2: Self-reliant patients will have higher incomes than will provider-reliant patients.

H3: Female patients will be more likely to be self-reliant than will male patients.

We also expect to find, as Makoul (1998) did, that the number of visits a patient makes to a health care provider is related to reliance level:

H4: Self-reliant patients will report fewer visits to the health care provider in the last year than will provider-reliant patients.

Finally, because they report relying more on their providers, we expect provider-reliant patients to more often share Internet health information with their health care providers:

H5: Self-reliant patients will report talking less frequently to health care providers about Internet health information than will provider-reliant patients.

Method

Participants

The study sample of 350 respondents was drawn from a larger sample of participants recruited during a 6-month period (July 2003–January 2004) to participate in an online survey, which has been shown to be as reliable as a written survey (Ritter, Lorig, Laurent, & Matthews, 2004). The larger sample was purposely recruited, with

an eye toward finding participants who had had experience with discussing Internet health information with a provider. Thus, we recruited patients from Internet health message boards. Participants in the study sample reported that they had researched their or their loved one's health on the Internet within the last year and had talked with a clinician about that information.

Participants were overwhelmingly female (86.7%), Caucasian (93.8%), and from the United States (85.1%), with a mean age of 44.05 years ($SD = 10.89$) and a median annual household income of \$40,000–\$59,999. On a scale from 1 to 5, respondents reported using the internet frequently ($M = 4.39$, $SD = .75$) and having high levels of experience with ($M = 4.06$, $SD = .82$) and access to ($M = 4.73$, $SD = .55$) the Internet. One third (33.3%) of participants reported living in a large urban area, with 38% living in a small urban or suburban area, and the remaining 28.7% living in a small town or rural area.

Participants were asked to report on a specific, recalled interaction with a health care provider that happened in the previous 12 months. The majority of patients reported on an interaction with a physician (88.1%), with 4.9% recalling an interaction with a nurse practitioner (N.P.) or physician's assistant (P.A.), and 4.4% reporting on an interaction with a D.O. (Doctor of Osteopath). Seventy-five percent of the recalled interactions were with a male health care provider, and 54.7% reported on an interaction with their primary health care provider. Participants had visited this particular health care provider a mean of 6.77 times (median = 4) in the previous year and had been a patient of this health care provider for a mean of 45.95 months (median = 24 months). On a scale from 1 to 5 measuring how well the patient perceives knowing the health care provider at the time of the interaction, the mean reported score was 3.53 ($SD = 1.41$).

Procedure

After gaining approval from the IRB, we approached moderators of health message boards on 76 unique websites with health message boards located through search engines. Many of these sites had more than one board, often with separate moderators. We gained permission to post our recruitment script on one or more boards on 50 of these websites. The recruitment script provided a link to the online survey. In total, we posted to 385 individual health message boards.

Survey Measure

After two screening questions to determine those who had searched for health information on the Internet and discussed such information with a health care provider in the past 12 months, participants completed a 30-item survey. The survey began with two closed-ended and one open-ended question about participants' general behaviors and feelings about discussing Internet health information with their providers. The two closed-ended questions are pertinent to this article. We measured the comfort level in talking about information from the Internet with their or their loved one's health care provider on a 1–5 scale, with 5 being very comfortable and 1 very uncomfortable. We also assessed how frequently respondents discuss Internet information with a health care provider by asking, *In general, how often do you talk about the information you find on the Internet with your (or your loved ones') health care*

provider? Participants were given five options, as designated on a 1–5 scale: rarely, seldom, sometimes, often, and very often.

We then asked participants to recall a specific medical encounter that they had in the last 12 months in which they talked about Internet health information, with 11 follow-up questions regarding the encounter and communication with providers. As one of these questions, the 350 participants in this sample were asked to rate the following two statements on a scale from 1 to 5, with 5 being strongly agree and 1 being strongly disagree, based on Makoul's operationalization of reliance, with the wording changed from "doctor" to "health care provider":

- "In general I prefer that my health care provider just tell me how to deal with my problems rather than give me choices."
- "I rely on a health care provider to keep me healthy."

Finally, we asked 15 questions to assess the patients' and providers' demographics, as well as the length of the relationship.

Results

Reliance Operationalized

Our first research question explored the operationalization of the construct of reliance in a sample of patients who talk about Internet health information with their health care providers. The distribution of the first item ($n = 343$), *I rely on a health care provider to keep me healthy* (hereafter referred to as *healthy*), had a mean rating of 2.94 ($SD = 1.35$) on the 1–5 rating scale. Both our data and Makoul's data had means very close to the midpoint of the scale. As Makoul used a 1–6 scale, we standardized the means to a 1.0 scale to compare. Our data mean for *healthy* on the standardized scale was .59, and Makoul's data was .65 standardized, just a 6% difference.

The distribution of the second item ($n = 346$), however, *In general, I prefer that my health care provider just tell me how to deal with problems rather than give me choices* (hereafter referred to as *decision*), was negatively skewed, with 80.7% of respondents choosing "1" or "2" as a response to the question. The mean score in our data was 1.61 ($SD = 1.0$). Again comparing this mean to Makoul's on a standardized scale, we found that our data had a mean of .32, while Makoul's was .59, a 27% difference.

Makoul combined the two items into one composite variable representing reliance ($\alpha = .71$). However, our data did not provide sufficient support for one composite variable, with ($\alpha = .18$). Consequently, we treat the two items as measuring distinct dimensions of reliance, and we report on each variable separately.

Following Makoul's lead, we dichotomized the *healthy* variable, so those who had answered a "1" or a "2" were considered to be self-reliant and those who had answered a "4" or a "5" were designated as provider reliant. For the remaining analyses, this reduced the sample size to $n = 239$ for the *healthy* variable, with 50% provider reliant and 50% self-reliant. We followed a similar pattern with the *decision* variable ($n = 346$), but due to the negative skew, we included the "3" responses also in the provider-reliant group, which led to 19% provider-reliant and 81% self-reliant to be used in our remaining analyses.

Comfort Level

Self-reliant participants and provider-reliant participants did not differ significantly on their level of comfort in talking to the health care provider about the Internet health information on either the *healthy* or *decision* variables.

Patient Demographics

Our first three hypotheses were intended to test associations that have been found to exist in a variety of samples between patients' reliance levels and patient demographics. Self-reliant and provider-reliant participants' age did not significantly differ for either the *healthy* or *decision* variables, offering no support for H1.

H2 predicted that income level would be negatively associated with reliance. As we measured annual income as ordinal data, we used a Mann-Whitney test to examine this hypothesis. This test revealed that for the *healthy* variable, those who were more provider reliant had higher incomes than those who reported being more self-reliant ($p < .05$). This finding was in the opposite direction of our prediction. There was no significant association for the *decision* variable.

Regarding H3, female and male respondents did not significantly differ on the *healthy* variable, but they did differ significantly on the *decision* variable ($\chi^2 = 5.9$, $p < .05$), with females more likely to be self-reliant. This offered some support for H3.

Number of Visits

Provider-reliant patients on the *healthy* variable had visited the health care provider more frequently in the past year than had self-reliant patients ($t = -2.05$, $p < .05$, mean difference = 2.99 times). There was no difference between provider-reliant and self-reliant patients on the *decision* variable; thus H4 was supported in part.

Frequency of Talking

There was no significant difference between groups, on either reliance variable, offering no support for H5.

Discussion

The purpose of this study was to further investigate the theoretical construct of *reliance* as defined by Makoul (1998) among the specific subset of patients that discuss Internet health information with their health care providers. Clearly, there are some unique patterns that characterize this group of patients. Primarily, it is noteworthy that we were unable to combine the two reliance items into a composite variable, as has been done previously. The stark difference between the distributions on the two variables in our sample and the standardized means on the *decision* variable between our sample and Makoul's illustrates that the sample of patients who discuss Internet health information with their health care providers prefer to be very active in decision making.¹ Certainly, this is understandable, if not expected, from such a

¹We did change the wording of the items slightly from Makoul's work, most notably being from doctor to health care provider. If that were to have an effect, we expect it would have affected both items; thus, we do not attribute the large difference in standardized means to the word change.

group of patients. These distributions also illustrate that the dimensions of reliance can be distinct. Patients can rely considerably on health care providers to keep them healthy, yet they still want to be actively involved in decision-making processes. In fact, they may be discussing the Internet health information with their providers because they *do* rely on their providers.

Returning to Makoul's (1998) operational definitions, he stated that the *healthy* variable was based on the notion of the doctor's legitimate authority while the *decision* variable was based on the doctor's expertise authority. One explanation for our findings is that online health research offers a way for patients to lessen the expertise gap between them and the health care providers, leading to higher self-reliance. Thus, this explains this difference in findings between this sample and Makoul's. In many cases, though, the lessening of this gap may be where the conflict arises between provider and patient. As Broom (2005) stated,

The reaction of some specialists to the apparent threat of a disruption to the lay-expert divide within the consultation is to create a relationship dynamic whereby the patient feels "bad" for attempting to understand or question the information being provided by the specialist. This produces a complex process of contesting, redefining, and, in some cases, reinforcing the dominance of the passive patient role in the treatment process. (p. 334)

Internet health information does not provide a way to lessen the authority gap between provider and patient, however—the health care provider still has legitimate authority (e.g., training) whether or not the patient has investigated Internet health information. Thus, we see little difference between this sample and Makoul's earlier work on the *healthy* variable. In his essay on how the growing use of the Internet may affect the professionalism of medicine, Blumenthal (2002) argues that although patients' access to information may well change the balance of information, or expertise authority, it will not eliminate that balance completely, as health care providers will "continue to offer genuine technical competence that will be difficult, or impossible, to replicate from other sources" (p. 543).

Further, this data seems to contradict the fear of some that patients who use the Internet for health information are doing so instead of receiving health care from a professional. In fact, as Fox and Fallows point out (2003), "E-patients are, for the most part, supplementing their doctor's counsel with information gathered from family, friends, medical journals, and the internet" (p. 15).

Our underlying assumption has been that the difference between our sample and Makoul's sample (1998) is that our sample was made up of patients who discuss Internet health information with providers, while Makoul's was not. Alternative explanations for these differences, such as culture, recency of measurement, and differences in providers, while worth considering, do not explain the unique differences between our data sets. Each of these alternative explanations is discussed below.

First, Makoul's original study participants were British, while ours were mostly from the United States. More recent work by Makoul and Schofield (2000) supports the notion that there are differences between British patients and U.S. patients, with U.S. patients tending to be more self-reliant. Despite this finding, Makoul and Schofield's data indicated the two reliance items were more consistent

($\alpha = .66$) than were ours ($\alpha = .18$). Thus, culture does not appear to be an explanation for why our sample was so much lower on the *decision* variable than on the *healthy* variable.

Second, the original study's data were gathered in the fall of 1989, about 14 years before our data were gathered. Makoul and Schofield's more recent work (2000) discussed in the preceding paragraph reported on data collected in 1997, again not offering evidence to explain why the two reliance items had a low internal consistency in our data set.

Third, Makoul's original study was focused only on general practitioners and specifically physicians, while we cast the net more widely to include all health care providers, including specialists. To address the possibility that this difference in the type of health care providers might explain the different performances of the *healthy* and *decision* variables, we performed post-hoc analyses on our sample. We divided the providers into two groups: (1) primary care physicians and (2) all others. *T* tests indicated that there were no significant differences on either the *healthy* or *decision* means between these groups.

Thus, the characteristic of our study sample that seems to be the most reasonable accounting for the lack of consistency among the reliance items remains that of discussion of Internet information with a health care provider.

The comfort level of talking about Internet health information with a health care provider was not significantly associated with either reliance variable. This may be due, in part, to the fact that this particular sample was used because they have talked to health care providers at least once in the past year about Internet health information.

In the literature, age is the most consistent correlate of reliance; however, we were surprised to find a lack of a significant relation between age and reliance. Two possible reasons may exist for why this association was not seen in our data. First, the age distribution of the sample was not highly varied. The mean age in our sample was 44.05 years, with a standard deviation of 10.89 years. (As a comparison, Makoul's study had a mean age of 37.5 years and a standard deviation of 22.5 years.) In fact, less than 5% of our sample were over 60 years old. Perhaps we did not have enough older respondents to replicate the association with age and reliance. Second, perhaps the homogeneity of the sample—those who are Internet literate and actively discussing information with their providers—is strong enough that it overrides any difference by age.

Regarding income, participants who were provider reliant on the *healthy* dimension of reliance were more likely to have a higher income than patients who were self-reliant. There was no relation on the *decision* variable. This is counter to our prediction and what is found in other literature (Ende et al., 1989; Nease & Brooks, 1995; Street, Krupat, Bell, Kravitz, & Haidet, 2003), although that literature tends to focus on the decision-making portion of reliance. Perhaps it is the case that patients who have more money have better access to health care and thus *can* rely on health care providers more than can those with less money. Our finding that females tend to be more self-reliant when it comes to decision-making preferences, however, is well supported in other literature (Arora & McHorney, 2002; Nease & Brooks, 1995). This finding also highlights the high percentage of females in our sample. Because females are important players in health care both on- and off-line (Fox & Fallows, 2003), we found the high percentage of female respondents to our survey to be just what we would have expected.

The result that self-reliant and provider-reliant patients differed among the number of visits to their health care provider on the *healthy* variable, but not on the *decision* variable, seems reasonable. Those who rely on their health care providers more to keep them healthy would understandably see their providers more frequently. A patient who relies on the provider to make decisions (when there is a decision to be made), however, would not necessarily need more visits. Interestingly, the average number of visits to the health care provider in our sample (6.77) was high above the national average of 3.8 physician visits in a year (Center for Studying Health System Change, 2003).² Thus, the patients in our sample may be visiting health care providers more often and thus may have more opportunities to talk about Internet health information.

Limitations

This sample was a convenience sample of participants who self-selected to participate in the online survey. Although we purposely sampled those who use the Internet for health research, we still may have a skewed sample in terms of who was willing to participate. Further, because of this intentional sample of Internet health seekers, this study cannot be generalized to a larger population; however, the intent of this study was never that it would be generalizable to that group, but that it would allow us to better understand those who seek Internet health information and speak with their health care providers about it.

Our research also did not make any distinctions in the quality or source of information that the patients looked up and discussed with their providers. The general term "Internet health information" used here by us, as well as by others, can include a wide variety of materials, from a randomized, controlled study found on PubMed to one person's opinion posted to an Internet health message board. Future research should examine how the source of the information affects the conversation that happens between provider and patient. For example, Zachry, Dalen, and Jackson (2003) found that when doctors were presented with a hypothetical patient asking for a prescription drug, those that had a scenario in which the patient stated the information source was from direct-to-consumer advertising were less likely to answer questions and provide additional written information, a prescription, or a sample, and were more likely to become annoyed than when the hypothetical patient stated the information source was from a drug reference book. We might expect similar results if the difference was between a scientific journal article located on the Internet and a lay person's website about his experiences with alternative treatments. In addition, given that 26% of Americans have researched prescription drugs online (Fox, 2004), it may be interesting to examine how doctors' perceive the credibility of online searches as compared with direct-to-consumer advertising.

Further, the validity of this measure as an indicator of reliance in this sample may be questionable. This measure was designed for and used with a population that differed from ours in many ways, including nationality, age distribution, and use of

²This is not a perfect comparison, though, for three reasons: (1) We asked about visits to the particular health care provider that the respondent was reporting on, rather than any visit. This may mean our sample's mean is actually underreporting total visits to health care providers. (2) The national average focuses on doctors' visits, while ours focuses more broadly on health care providers in general (though most reported about a doctor). (3) We included participants from outside this country (though most were from the United States).

the Internet. It may not accurately represent the construct of reliance for this population. Particularly, the wording of the decision reliance item: "I prefer that my doctor just *tell* me how to *deal* with my health problems rather than give me choices" (emphasis added) may have prompted an antiauthoritarian response in these highly motivated subjects. Future research should explore the validity of this measure in different populations.

Implications

Certainly the Internet has changed the way patients seek health information and, consequently, the way that providers and patients talk about health. This research has implications for both the study of patients who talk about Internet health information, as well as the conceptual study of reliance. Regarding the former, this study aids in our descriptive understanding of the type of patient that discusses Internet health information with a health care provider. A practical application of this for providers might be that a patient who discusses Internet health information very likely also has high preferences of participating in decision making. It is important to note here that we are not proposing that the act of looking up health information on the Internet means that a person wants to be involved in the decision-making process, as other literature shows that information preferences and decision-making preferences are not always the same (Ende et al., 1989; Nease & Brooks, 1995). It seems that, at least in this population, however, the act of actually talking about the information with a health care provider indicates a high desire to participate in the decision-making process. This could be useful information for health care providers when trying to involve patients in decision making, while being sensitive to the patients' individual preferences. Our data is cross sectional in nature, and we cannot claim a causal relationship between low *decision* reliance and talking with providers about Internet health information. Future research might explore the causality of this with an experimental design that measures self-reliance before and after online health information exposure.

Furthermore, these data demonstrate that the construct of reliance is multi-dimensional and may be better understood as having two separate components, especially today with an abundance of health information available online. Future research using this construct should investigate the possibilities of treating the *healthy* and the *decision* variables as distinct subcomponents of the theoretical construct of reliance.

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