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# Seeking Health Information on the Internet

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# SEEKING HEALTH INFORMATION ON THE INTERNET

## Different genders, different uses, different risks

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## Abstract

*The primary objective of this research is to obtain insight into information seeking behaviour on the Internet with regard to health information. Theories from two research areas are used to explain the use of the Internet for health information: health behaviour and the adoption and use of new technologies. The data was gathered through a pencil-and-paper questionnaire (N=123), between August and October 2003. All respondents were experienced with using the Internet to seek health information.*

*Using both lineair and logistic regression we investigate how demographic differences (e.g. age, gender, marital status), internet accessibility (e.g. physical, use patterns) and user needs (e.g. general health situation, limitations) influence: 1) the frequency of going online for health information 2) the kind of health information that is sought after, 3) the online sources that people use for health information (e.g. portals, newsletters, various websites). Results show that gender, Internet experience and physical limitations are significant for the frequency of going online. For the kinds of information that people look for only gender has significant influence. Furthermore, the places that people look for health information are influenced significantly by gender and (to lesser extent) whether people have an Internet connection at home. There is also a significant difference between men and women with regard to the number of websites visited and the way they use the gathered information. This investigation shows that men and women seek information differently. As a consequence, different groups are confronted with different risks.*

*Keywords: health information, health, Internet, usage, gender differences, risks*

# 1 INTRODUCTION

Research on health information on the Internet is conducted quite frequently. We have identified two prominent types of research that have been conducted. First there is research that concentrates on the activity of seeking health information online and secondly, research on the risks involved with carrying out that activity. Studies that focus on online activities of people provide figures on the quantity of people that go online to gather health information (Maltha, Bongers, Schuurman, Vandeberg, Vermaas & Van de Wijngaert , 2003; UCLA, 2003; PEW; Nammacher & Schmit, 1999). These studies show that many people nowadays go online to find health information. Maltha et al. (2003), in their research into the use of (broadband) Internet, for example found that 51% of 2,404 Dutch Internet users goes online for that purpose. Internationally, comparable figures were found. Health information on the Internet is one of the top 10 activities (UCLA, 2003). According to PEW (Fox and Fallows, 2003) 80% of US citizens look for health information on the Internet. This relatively high percentage is due to the fact that assisted recall was used. These kinds of studies are important because they show the scale of the usage.

Another example of relevant studies are studies on the use of and needs regarding the internet in specific circumstances, for example among oncology patients, HIV patients and primary care patients. (Weissman, Gotlieb, Ward, Greenblatt, Casper, 2000;Metz,Devine, DeNittis, Stambaugh, Jones, Goldwein, Whittington, 2001; Sciamanna, Clark, Diaz, and Newton, 2003; Kalichman, Weinhardt, Benotsch, DiFonzo, Luke, Austin, 2002; Rozmovits, and Ziebland, S. 2004). These studies provide insights into the use of the Internet for health information by specific groups of patients. Results show that a significant number of cancer patients utilize the Internet to obtain information about cancer and treatments (Metz et al, 2001). The question however is whether people who are not directly patients use the Internet in the same way as people with specific diseases and limitations.

This paper complements the two aforementioned types of studies in the following ways. First, it complements research that focuses on the exact figures of Internet users that search for health information by gaining more in-depth information on what people actually do with the online health information. Secondly, it puts research on the use of the Internet in specific circumstances into a wider context: the everyday lives of people that are not necessarily patients. Thirdly, this paper places the *potential* threats in a broader context. The effect of false health information may be very harmful, but the *actual* risk also depends on the chance that this effect will occur (risk = chance * effect).

Therefore this study focuses on the issues of *how people use the Internet to gather health information* and *how they use the collected information in their health decisions*. More specifically, it focuses on possible differences in usage patterns of different kinds of people. Insights in these differences may be important for government information and awareness campaigns, because they can better determine target groups.

# 2 THEORETICAL FRAMEWORK

The issue of this research covers two research areas: the area of health behaviour and the area of the adoption and use of new technologies. In order to understand how people use the Internet to gratify their health information needs the first step is to explain why people want to find health information in the first place. After that the question rises which factors influence the decision to use the internet as a medium to gather the health information.

- *Health information seeking and behaviour:* One of the first models designed to understand health behaviour as a reactive process is the Health Belief Model (HBM) (Hochbaum, 1958, Rosenstock, 1974, Becker & Maiman, 1975). The basic assumption is that an individual in the absence of any symptoms will not take action to avoid a disease unless that person is

psychological ready (when somebody feels vulnerable to a disease), believes the preventive measure is feasible and efficacious or a stimulus occurs to trigger any action (advice of others, illness of family or friends). A similar approach is taken in the Fear Appeals Theory (Witte, 1992). This theory explains how fear of becoming ill can motivate (preventive) health behaviour. The Activation Theory of Information Exposure, that can be applied to research on health communication argues that people do not only seek for (health) information to just fulfil the need for information, but also to fulfil the need for stimulation or entertainment (Donohew, Lorch & Palmgreen, 1998).

- *Needs:*In fact, the concepts of Health Belief Model and Fear Appeals Theory are quite similar to some theories on the adoption (Rogers, 1995) and use (Katz, Blumler and Gurevitch, 1974) of technologies: there has to be a need in order for people to act (to look for health information and to use the internet doing so). In the context of health information on the Internet one can imagine that the task (looking for health information) or need (for health information) depends on the health situation of the person, the fear someone has to become ill or the intensity of the proactive need someone feels to be avoid becoming ill. Also, for example, the need for information on sensitive topics such as sexually transmitted diseases or mental diseases and the anonymous character of the Internet is possibly a good fit.
- *Demographics:* The decision whether or not to use new technologies instead of more traditional means to gather information, is not likely to be the same for every person. Demographical characteristics are measured in many studies on technology use and it is often fortified with evidence that adopters and users of new information and communication technologies have higher incomes, are younger and better educated than people who lag behind (Atkin & Larose, 1994, James et al., 1995, Lin 1998).
- *Internet experience and access:* Another factor that might influence the usage of the Internet is the experience of the user with this technology. The more experience an individual has with a particular technology; the more likely it is that that an individual will use it (Fulk, Schmitz and Steinfield, 1990; Venkatesh and Davis, 2000). 'Mastery experience' is also the most influential determinant of self-efficacy (Bandura, 1986).

### *2.1.1 Relation between theories and research questions*

The relation of the variables that were presented and this research is outlined in figure 1. The dependent variables in this model are online and offline health behaviour. The online behaviour involves the gathering of online health information. This is divided into three items: the frequency of looking for health information, the kind of information that is looked for and the online sources that people use for the required information. The offline behaviour reflects what people actually do with the acquired information.

According to the research model demographics (income, gender, work situation, household situation, education and age) influence this behaviour. The demographical characteristics may influence the way people look for and use (online) health information. Internet access at home, the type of connection and Internet experience may influence the way people use the Internet for health information. Also the health situation has influence on online health behaviour. The health situation involves: the general medical condition people are in, whether they or anybody they know has a handicap, chronic disease or discomfort that limits them in their daily lives (further referred to as 'limitation'), but also the fear of becoming ill. The health situation influences the particular health needs people have and in turn, these needs influence health behaviour.

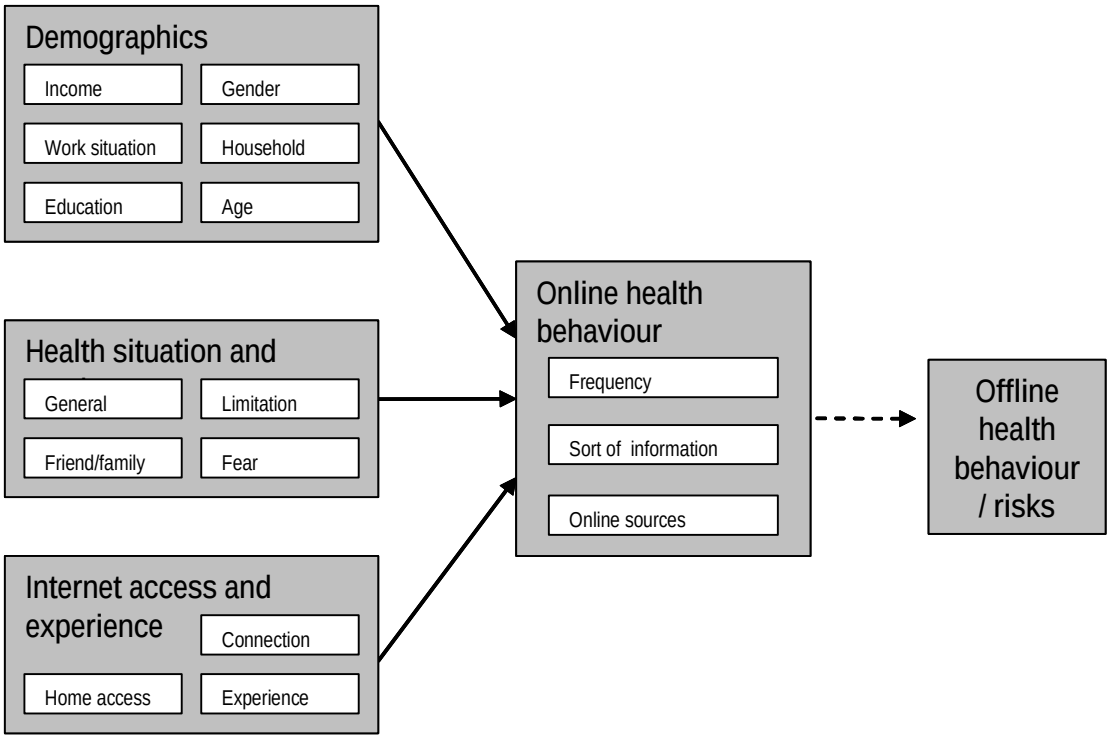


*Figure 1. Research variables*

# 3 RESEARCH METHOD AND DATA-ANALYSIS

The respondents for this study were recruited between August and October 2003. First people were asked whether they had ever used or regularly use the Internet to look for health information. Only the people that answered confirmatively were requested to fill in the questionnaire. As a result a total of 123 Internet users completed the questionnaire. The respondents filled in a printed questionnaire at the supervision of a researcher. This was done because in this way the researchers could gain more in-depth information on the topics of the questionnaire (the respondents were sometimes asked to give supplementing information about their answers). The demographical characteristics of the respondents are depicted in Table 1. Although the respondents in this study form a relatively small group, the results are likely to give a representative view on online health behaviour, based on the fact that the respondents are diverse: both men and women are well represented in this study and also, people of different ages, from different household types, with different education levels, working situations and incomes are represented.

Regression analysis was performed to determine whether demographic characteristics, health characteristics, Internet experience and Internet access were significant predictors of the frequency of Internet usage (to gather health information). Of the characteristics that showed to be significant predictors cross tabulations were run to determine what the differences were exactly.

Then the patterns of Internet usage were examined (what kind of health information do people look for and through which online means (e.g. portals, forums, websites) do they look for that information? etcetera). For each sort of health information people look for and each online mean logistic regression was performed to determine the predicting factors. Afterwards cross tabulations were run to determine the exact differences. The second research question on the use of the gathered information and the decisions was examined by running frequencies and cross tabulations.

| | | |
|---|---|---|
| Gender | male | 56% |
| | female | 44 % |
| Age | mean/std.dev. | 37.04/13.72 |
| | 12 - 25 | 25% |
| | 26 - 35 | 29% |
| | 36 - 45 | 21% |
| | 46 - 55 | 13% |
| | 56 - 65 | 10% |
| | 66 and higher | 2% |
| Household | couples without children | 30% |
| | singles without children | 28% |
| | single parents | 24% |
| | couples with children | 19% |
| Work situation | full-time job | 67% |
| | full-time study | 14% |
| | part-time job | 7% |
| | retired | 5% |
| | without or between jobs | 7% |
| Education[1] | primary school | 3% |
| | pre vocational secondary education | 27% |
| | vocational | 31% |
| | university's or UPE | 33% |
| Income | 0-15.000 euro | 25% |
| | 16-30.000 euro | 29 |
| | 31-45.000 euro | 29% |
| | 46-60.000 euro | 6% |
| | no answer | 12% |

*Table 1. Demographical characteristics of the respondents*

# 4 RESULTS

In general the respondents were in good (51%) or reasonable (31%) medical condition. 10% was in excellent condition. 8% of the respondents state that they are in bad medical condition. These figures are comparable with overall statistics in the Netherlands (CBS, 2003). A third of the people often fear that they will become seriously ill (31%). Another third worries about that sometimes (32%) and just as many respondents (32%) hardly ever have the feeling that they are vulnerable to a disease. 88% did not have a limitation that causes trouble with working or studying. The overall percentage of people with a limitation in the Netherlands is around 14% (CBS, 2002). 85% does not know someone with such a handicap, limitation or a chronic disease.

For the purpose of this study only Internet users were recruited. Most respondents (52%) were relatively new users, having Internet experience for up to 3 years, whereas 33 % had been using the Internet between 4 to 6 years. 15% of the respondents had been using the Internet for 6 years or more.

Furthermore the respondents had different Internet connections. The largest group (62%) consisted of people that go online though a traditional telephone line and a modem. This is somewhat more than the overall percentages of Dutch Internet users: 50% has such a narrowband (dial up) connection (CBS, 2004). Then there was a group that had cable access (17%) (26% of all Dutch citizens according to CBS, 2004). ISDN (16% of all Dutch citizens according to CBS, 2004) and ADSL users were also represented (both 7%). Finally 5% of the respondents did not have access to the Internet at home and had to go somewhere else if they wanted to go online.

This section will further focus on answering the research questions. First the following research question on how people use the Internet to gather health information will be addressed. Moreover the

demographical and health characteristics, Internet experience and access will also be taken into account.

### *4.1.1 Frequency of internet use for health information*

Most of the respondents (42%) look for online health information a few times a year. Also vast amounts of people (20%) visit the Internet more than once a week or everyday (11%) to search for health information (4% had already been online the day they filled in the questionnaire). Remarkable is that 12% of the respondents say they do not go online frequently (less than once a year), but when these respondents were asked when they last did that 13% had been online the day they filled in the questionnaire, 40 % in the same week, 27% in the same month and for 20% it had been less than six months ago. This could indicate that people tend to underestimate the frequency they look for online health information when not reminded of specific days.

Regression analysis shows that the frequency of Internet usage in order to obtain health information can only be associated with gender and Internet experience (table 1). Other demographic characteristics, the health situation of the respondents and Internet access do not account for the decision to go online for health information or not.

| | | Beta | Sig. |
|---|---|---|---|
| Demographics | | | |
| | Income | -.006 | .927 |
| | Gender | **.637** | .000 |
| | Work/study situation | -.009 | .889 |
| | Marital Status | .021 | .750 |
| | Children | .013 | .847 |
| | Education | -.015 | .811 |
| | Age | -.108 | .117 |
| Internet | | | |
| | Access at home | -.008 | .904 |
| | Connection (narrow/ broad) | .084 | .224 |
| | Experience | **.244** | .000 |
| Health situation | | | |
| | General | .054 | .414 |
| | Limitation | .147 | .035 |
| | Limitation friend/family | -.065 | .350 |
| | Fear of becoming ill | .125 | .062 |
| | Constant | | .064 |

| | |
|---|---|
| R Square | .600 |
| Adjusted R Square | .546 |

*Table 2. Regression analysis: factors that predict the frequency of going online.*

Because the model explains much of the variance with only two significant influencers, we have checked for interaction effects. However, no significant interaction effects were found. The odd result for friends/family with a limitation (people that do know somebody with such a limitation look less for health information than those who do not know somebody with a limitation) can be explained by the skewed distribution. 85% of the respondents does not know somebody with a limitation.

Further analysis shows the differences between men and women with regard to the frequency of going online for health information (table 3). Women are online more frequently than men in order to satisfy their need for health information. For example none of the men say they go online every day, while a

quarter of the women say they do. Most men (59%) go online a few times a year or less than once a year (20%).

| | | Frequency | | | | | Statistics | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Every day % | A few times a week % | A few times a month % | A few times a year % | Less than once a year % | $Chi^2$ Value | df | Sign. |
| gender | Male | - | 2.9 | 17.4 | 59.4 | 20.3 | 60.282 | 4 | 0.000 |
| | Female | 24.1 | 42.6 | 11.1 | 20.4 | 1.9 | | | |
| Internet experience | 0-3 years | 4.4 | 14.7 | 8.8 | 58.8 | 13.2 | 27.717 | 8 | 0.001 |
| | 4-6 years | 22.5 | 30 | 17.5 | 22.5 | 7.5 | | | |
| | More often | 6.7 | 20 | 33.3 | 20 | 20 | | | |
| Health Situation | Limitation: Yes | 5.9 | 52.9 | 41.2 | - | - | 30.703 | 4 | 0.000 |
| | Limitation: No | 9.8 | 14.7 | 10.8 | 51.0 | 13.7 | | | |

*Table 3. Frequency of going online for health information and differences between en and women*

### *4.1.2 Sort of health information that people look for on the Internet*

Table 4 shows the nature of the health information people look for on the Internet. It is clear that a large variety of health information is accessed through the Internet. Information on chronic diseases (49%) and weight or fitness (42%) is the most required information. Also information on medication (37%), new diseases (diseases, discomforts or symptoms that people have not had before) (34%) and alternative drugs and treatments (32%) are sought after. Furthermore the Internet seems to be a good way to learn more about sensitive topics such as sexual transmitted diseases (28%) and mental heath problems (24%). Diseases of family and friends (24%) are also reasons for people to go online. People that want to know more about certain treatments also find their way to the Internet (20%). The online health information that is least popular is information on insurances (13%), addictions and physicians, hospitals or clinics (12%).

Logistic regression was conducted on each sort of information separately. For five sorts of information none of the variables (demographical, health and internet characteristics) could explain the variance (use the internet for that sort of health information or not). For the remaining seven only the demographical characteristic ‘gender’ proved to be associated with going online for that sort of health information. In table 4 only the characteristics significantly associated with the kinds of information people look for are shown.

| Kinds of information:<br>* More than one answer was allowed | Have looked for this info % | Characteristics associated |
|---|---|---|
| Physicians, hospitals or clinics | 12 | - |
| Addiction | 12 | - |
| Insurance | 13 | Gender |
| Treatments | 20 | - |
| Depression/mental health | 24 | Gender |
| Disease family/friends | 24 | Gender |
| Sensitive | 28 | Gender |
| Alternative drugs/treatments | 32 | - |
| New diseases | 34 | Gender |

| | | |
|---|---|---|
| Medication/drugs | 37 | Gender |
| Weight / fitness | 42 | - |
| Chronic disease | 49 | Gender |

*Table 4. Kinds of information sought after*

Further examination of the differences between men and women shows that men look for a greater variety of health information (table 5) on the Internet. They search more often for information on depression and mental health, sensitive topics, new diseases and medication. Women more often look for information on chronic diseases and tend to fulfil a more caring role with regard to their health information need; women look more often for health information on the Internet if it is for family and friend with health problems. This could be caused by the traditional role of women as caretakers for their children. Also women more often have a need for information on health insurance.

| Kinds of information:<br>* More than one answer was allowed | Gender | | Statistics | | |
|---|---|---|---|---|---|
| | Male % | Female % | $Chi^2$ Value | df | Sign. |
| Insurance | 31 | 69 | 4.611 | 1 | 0.03 |
| Depression/mental health | 83 | 17 | 11.951 | 1 | 0.00 |
| Disease family/friends | 37 | 63 | 6.083 | 1 | 0.01 |
| Sensitive topics | 82 | 18 | 13.152 | 1 | 0.00 |
| New disease | 83 | 17 | 19.210 | 1 | 0.00 |
| Medication/drugs | 74 | 26 | 9.470 | 1 | 0.00 |
| Chronic disease | 38 | 62 | 15.010 | 1 | 0.00 |

*Table 5. Kinds of information sought after; differences between men & women*

### *4.1.3 The online sources that people use for online health information*

People look for health information on different places on the Internet. Table 6 shows that most respondents look for health information on commercial websites and forums (40%). Again logistic regression was conducted for the sources people use for health information. For commercial websites, portals (saved as favourite) and newsletters gender is associated again. No significant differences were found on the basis of age, education, work situation, marital status, having children or not, income, Internet experience, access at home and type of connection. The use of forums for health information is associated with whether or not people have Internet access at home.

| The online sources people use for information<br>* More than one answer was allowed | Have looked on such a site % | Characteristics associated |
|---|---|---|
| Commercial websites (manufacturers medic./drugs) | 40 | Gender |
| Websites of hospitals, health institutions, MD's | 3 | - |
| Forums | 40 | Connection at home |
| Portals (saved as favourite) | 28 | Gender |
| Patients' association | 19 | - |
| Newsletters | 18 | Gender |
| Portals (not saved as favourite) | 16 | - |

*Table 6. The online sources people use for information*

A closer look shows that especially women turn to sites of the health industry (drug manufacturers etcetera). Portals that are visited regularly (saved as 'favourite') and forums are important information sources for both men and women (respectively 44%/56% and 57%/43%). Medical newsletters are more of interest to men (82%). Furthermore, people that have Internet access at home more often use forums.

| The online sources people use for information<br>* More than one answer was allowed | | | | Statistics | | |
|---|---|---|---|---|---|---|
| | Gender | Male % | Female % | $Chi^2$ Value | df | Sign. |
| Commercial websites (manufacturers medic./drugs) | | 41 | 59 | 7.722 | 1 | 0.005 |
| Portals (saved as favourite) | | 44 | 56 | 2.738 | 1 | 0.098 |
| Newsletters | | 82 | 18 | 7.197 | 1 | 0.007 |
| | Internet at home | yes % | no % | $Chi^2$ Value | df | Sign. |
| Forums | | 67 | 33 | 3.015 | 1 | 0.065 |

*Table 7. Differences between men and women*

Most of these website are found by search engines (46%) and by surfing the WWW (38%). Also many respondents got the addresses of friends or family (28%). In less than 7% of the cases the website is recommended by a physician. In general most respondents find the needed information in most of the cases (68%) but almost 10% does hardly ever find the needed information. Most people consult one or two places on the Internet to find out more about their health questions (66%). 22% visits three to five places and 11% between six and ten. Less than one percent visits more than 10 sites online. Men visit more websites per disease or medical discomfort. This may explain the fact that men more frequently say that they find the required information.

## 4.2 The use of the gathered information

In this section the question of how people use the collected information in their health decisions will be addressed. If we look at online health information as preparation, replacement or complement, the following results can be depicted.

Table 8 shows that most of the time the health information that people find on the Internet is used as a preparation for a doctor's visit (59%). A quarter (26%) of the information is searched for after paying a visit to a physician. Also a vast amount of information is used to replace a visit to a physician (29%).

Again, the differences between men and women are examined. The biggest difference between men and women here is that men use it more than women as a replacement of a doctors' visit (83%).

| Using health information: | Have used info as/to % | Gender | | Statistics | | |
|---|---|---|---|---|---|---|
| | | Male % | Female % | $Chi^2$ Value | df | Sign. |
| As a preparation for a doctors visit | 59 | 47 | 53 | 5,554 | 1 | 0.018 |
| As a replacement of a doctors visit | 26 | 83 | 17 | 15,330 | 1 | 0.000 |
| To gather some extra information after a doctors visit | 29 | 47 | 53 | 2,701 | 1 | 0.100 |
| other | 3 | 50 | 50 | 1,494 | 1 | 0.222 |

* more than one answer was allowed.

*Table 8 Use of health information*

Furthermore a third (33%) of the respondents say they decide on a certain treatment for their health problems. Here also there is a difference between men and women: women more often decide to want a certain treatment based on online information than men (F 65% - M35%, $Chi^2 = 10.713$, df=1, sign. = 0.001).

When we look at attitudes towards and experiences with online health information we see that more than half of the respondent (53%) is neutral towards the usefulness of online health information, 20% state that the find it useful and 17% says it is very useful. Towards the trustworthiness of the information respondents tend to be more positive: 60% says the information is very trustworthy. That seems to be in contrast with what the respondents say about false health information that was ever given to them: 58% has ever received incorrect health information via the Internet. Most respondents however state that the consequences of this wrong information have not been severe for them; they (or someone they know) have not been damaged in any way by this information. In stead many respondents (41%) say that they or someone they know have been helped by the health information found online. That may explain that 20% of the respondents say that their hope of a cure for their problem is increased based on online information, despite the fact that their physician tells them otherwise. This is especially so for women (F 67% - M 33% Chi $^{2}$ = 6.274, df=1, sign. = 0.012). Furthermore, for a quarter of the respondents the way they regard health in general changes, because of what they have found on the Internet. This is especially the case with men (F 69% - M31%, Chi $^{2}$ = 2.811, df=1, sign. = 0.094). Results show that the fear of becoming ill has no significance influence on how online health information changes people's thoughts on health in general.

The fact that much information is gathered does not imply that all of it is used in health decisions. Many times people decide to not use the gathered information (61%). The reasons for this are that the visited websites appeared unprofessional (51%), the source was unknown (31%), the websites were of commercial parties (27%) or that the website provided different information than a physician (17%). A significant difference between men and women is that men (68%) tend to value the source more then women (32%) (Chi2=3.391 df=1 sign.= 0.066).

# 5 CONCLUSIONS

Here the overall conclusions and some propositions for further research are presented. Most of the people that search the Internet to satisfy their needs for health information do so at least a few times a year. Furthermore, it has become clear that a large variety of health information is accessed through the Internet, mostly information on chronic diseases, weight and fitness and medication. People mainly look for that information on commercial websites, forums and portals (saved as 'favourite') and usually visit one or two sites per disease or discomfort.

Most use the information as a preparation for a visit to their physician. But the physician does not always have the last say: the health information found on the Internet influences their hope for a cure, despite what their physician tells them. This may be so, because many people know someone that has been helped by online health information or have been helped themselves. Furthermore, the information influences the way people regard their health in general.

And although it is looked for frequently, most people do not find the online health information particularly useful. Towards the trustworthiness of online health information there are more positive feelings, although wrong health information has been given quite frequently. The consequences of this wrong information however have not been severe for most people.

The frequency of visiting the Internet to look for health information is strongly associated with gender and Internet experience and having a limitation, not with other demographical characteristics, nor health situation and Internet access at home. Women go online more frequently than men with regard to health information and people with little experience go online less frequently than people who have been online longer. People with a limitation visit the Internet more often to find health information than those who do not have such a limitation. The summarizing table 9 shows the characteristics that are associated with the frequency of going online, the sorts of health information people look for and the online sites people consult for their need for health information.

| | Demographical characteristics | Health Situation and needs | Internet access & Experience |
|---|---|---|---|
| Frequency of going online for health information | Gender | Limitation | Experience |
| Sorts of health information | Gender | | |
| Online sites looked at for health information | Gender | | Access at home |

*Table 9 Summarizing table*

For most topics of this research the main differences are between men and women and it can be concluded that men and women are at risk in different ways when accessing and using online health information: the risks of women seem to be more in the process of collecting the information, whereas man are more at risk in the process of using the information.

Women turn to commercial websites (that are more likely to provide less trustworthy information) and depend on the first (two) website(s) they visit, but they use this information mainly as a preparation for a visit to a physician in which they discuss the found information. The opinion of that physician however does not always seem to influence their expectations: their hope of a better treatment or miracle cure increases through what they find on the web, despite the opinion of the physician.

Men look for health information on places that are more likely to provide trustworthy information (newsletters and websites of patients' associations), consider the source of the website before using the information and look for the information on more than two websites. With this information they seem to be less at risk than women, but their pit-fall is that they more often replace a visit to a physician with a visit to the Internet. Moreover the online information changes their view on health in general.

No evidence was found for the Fear Appeals Theory: the fear of becoming ill is not related to the frequency of going online for health information.

The fact women are more frequently online visiting mainly commercial sites with health information, but look for less health topics than men, seems so support the Activation Theory of Information Exposure. Women seem to not only fulfil needs for information on specific health topics, yet they seem to surf the web looking for stimulation.

## 5.1 Limitations and further research

Although this research provides in-depth information on how people use the Internet to gather health information and how they use this information, the sample of 123 people could be enlarged to get a more accurate view. Also it would be interesting to see how certain health decisions come about. This could be done through for example a policy capturing approach, in which the factors that influence the decision to use certain information or not become apparent. In order to prevent underestimation of the frequency of using the Internet for health information other research methods could be used, such as a diary research. Furthermore, this research is about Dutch Internet users that look for health information. Comparing results from different countries could also provide more insights on what the influence is of online health information. Finally, this study concentrates on people that have used the internet to find health information. An investigation of those who do not (yet) us the internet for this purpose would be an interesting and important addition to this research.

1 Translation of the Dutch education system. This may not be entirely comparable to other education systems (source: The Dutch Ministry Of Education, Culture And Science)

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