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The curious case of cyberchondria

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2018

document version

Publisher's PDF, also known as Version of record

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citation for published version (APA)

te Poel, F. (2018). *The curious case of cyberchondria: A study of the relationship between online health information seeking and health anxiety.*

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English Summary

Background

This dissertation discusses a collection of studies, with the aim of shedding more light on the phenomenon of cyberchondria. Scientists have adopted the term cyberchondria from the popular media. It refers to a reciprocal relationship between online searching for health-related information, and a resultant anxiety concerning one's own health. This relationship has been studied to a limited extent to date, and the few studies that exist are unable to provide conclusions about a possible reciprocal relationship.

Many people currently use the internet to search for health-related information for themselves or others (European Union, 2014; Krijgsman et al., 2016). It is the most common source for health-related information in the Netherlands, followed by the general practitioner (Van de Belt, Engelen, Berben, Teerenstra, Samsom, & Schoonhoven, 2013). The internet has many benefits. Among other things, it is anonymous, low cost, and the information is always available (Chung, 2013; Cline & Haynes, 2001). However, information concerning health that is found online also has disadvantages. For example, it is not always well organized and there is no assurance of its quality. It is also sometimes unclear whether the information is reliable. The use of technical language means that the information that is found is not always clear, which prevents it being used optimally (Cotten & Gupta, 2004; Korp, 2006). Furthermore, previous research indicates that online health-related information can make people feel confused and overwhelmed (Ahmad, Hudak, Hollenberg, & Levinson, 2006; Chung, 2013; Fox, 2006).

The above-mentioned negative aspects of seeking health-related information online may be particularly problematic for people who

are overly concerned about their health. Health anxiety is a naturally occurring phenomenon that protects us from health risks. For example, if someone ignores the signs of a heart attack, there is a risk that they will die. However, when people are constantly worried about their own health, and their worries are unwarranted, their level of health anxiety is too high. In such cases, physical signals, such as an increased heart rate or skin rash, are unnecessarily interpreted as the presence of disease. People with a high level of health anxiety are extremely concerned about and preoccupied with their health (Abramowitz & Moore, 2007; Salkovskis, Rimes, Warwick, & Clark, 2002). This affects 10% or less of the population (American Psychiatric Association, 2013).

An important characteristic of people with unwarranted health worries is their constant search for reassurance. For example, they make frequent visits to the doctor, but they also search for information online (Abramowitz & Moore, 2007, Salkovskis et al., 2002). Despite seeking reassurance in all sorts of ways, such people appear to remain equally anxious (Abramowitz & Moore, 2007). In addition, it appears that they mainly focus on information that confirms their unfounded worries or fears. Information that contradicts these worries is often ignored (Abramowitz, Schwartz, & Whiteside, 2002), thereby further perpetuating the unfounded fear concerning their health.

The most common scientific definition of cyberchondria describes the phenomenon as an "excessive or repeated search for health-related information on the internet, driven by distress or anxiety about health, which only amplifies such distress or anxiety" (Starcevic & Berle, 2013, p. 206). On the basis of this definition it can be stated that, while people who are very anxious about their health search online for reassurance, they ultimately become much more

anxious due to the information they find online. However, both the popular media and other scientific definitions of cyberchondria also often refer to the adverse effects of online health-related information on people who do not have serious health anxiety. Such information could lead to them becoming more anxious about their health. The current dissertation studies both groups of people, that is, both those with and those without severe health anxiety.

The Research

The first three studies described in this dissertation are based on data obtained from a four-wave survey with two-monthly intervals, which was conducted among approximately 5,000 Dutch respondents. The questions were related, among other things, to their degree of health anxiety and their behaviour in searching for online health-related information. Additional data were collected for the fourth study, in which 123 people indicated the sort of information they would look for online when experiencing a physical symptom.

The Most Important Results

Because it is important to measure health-related fears in a valid and reliable way, a frequently-used measure of health anxiety was first translated into Dutch and critically examined. On the basis of the data obtained in the first two waves, it was concluded that the scale used was a valid and reliable instrument for measuring fears concerning one's own health (see Key Finding 1 in Chapter 6).

According to Starcevic and Berle (2013), cyberchondria is related to an excessive or repeated online search for health-related information. This implies that it is particularly individuals who are

overly worried about their health who search a great deal for online information. However, the results in this dissertation do not indicate this. Over a period of two months, the excessively anxious respondents searched for health-related information online an average of four to six times. However, it should be noted that the current results do not indicate how long people spent searching for health-related information. It is possible that, while they did not search very often, they spent much more time online when they did search (see Key Finding 3 in Chapter 6).

Furthermore, results indicated that the more often people searched online for information concerning their own health, the more distressed they also felt by the information found. This was particularly true for people with an average or higher level of health anxiety. However, it should be noted that the level of distress experienced was minimal, even when people searched online very often or were overly anxious about their health (see Key Finding 4 in Chapter 6).

In addition, the results of this dissertation indicated that the more often people searched online for information concerning their own health, the more anxious they were about their health. These results confirm the results of previous studies (see Key Finding 2 in chapter 6), and suggest that increased online searching for health-related information may lead to increased anxiety. It is possible that a person who starts searching more will become increasingly anxious. However, it is also possible that when someone becomes more anxious they increase the frequency of their health-related searches. This dissertation paid specific attention to this reciprocal relationship on the individual level, which had not been studied before.

Two important findings emerged from the results. Firstly, it emerged that people who were already very anxious about their

health did not increase their online search for health-related information when their fear became worse than it had been. Nor did they become more anxious about their health when they sought information more often. Therefore, no support was found for a reciprocal relationship, and hence no support was found for the phenomenon of cyberchondria as described by Starcevic and Berle (2013; see Key Finding 6 in Chapter 6).

The second important result indicates that the reciprocal relationship, that is cyberchondria, does occur in people with a 'normal' degree of anxiety concerning their health. When such people started searching online for health-related information more frequently, they also became more anxious about their health. Moreover, when they became more anxious about their health, their online searching for health-related information increased (see Key Finding 5 in Chapter 6). Furthermore, the results indicated that this reciprocal relationship could be precipitated by an increase in anxiety, but that it could also be precipitated by increased online searching.

The final study in this dissertation revealed that the more anxious people were, the more they were tempted to search online for threatening health-related information. This indicates that people with a higher level of health anxiety tend to focus their attention on information that confirms their suspicions that they may be ill (see Key Finding 7 in Chapter 6).

Practical Recommendations

One can find a great deal of information about health on the internet. The studies in this dissertation demonstrate that this information can make people feel more anxious about their health. Previous research

indicates that people who search online for health-related information also visit their general practitioner more often (Lee, 2008, Singh & Brown, 2014). General practitioners can therefore play an important role in informing people about the adverse consequences of online health-related information. For example, they can inform their patients about reliable online sources with clear information. One example of this in the Netherlands is the website thuisarts.nl. This website is an initiative of the Dutch association for general practitioners (Nederlands Huisartsen Genootschap [NHG]; www.thuisarts.nl) and contains reliable medical information that is explained in terms a layman can understand (Spoelman et al., 2016).

This dissertation furthermore indicates that more than 90% of people use a search engine to find health-related information. However, search engines present their results on the basis of algorithms that do not take into account the reliability or relevance of the medical information presented (White & Horvitz, 2009b). It is therefore possible that the first search results for a query regarding a symptom present unreliable or irrelevant information concerning serious illnesses. Therefore, I propose that these algorithms be modified so that the search results shown are more related to diagnostic criteria. In addition, more research should focus on applications such as Google *m-health* (Pinchin, 2016). This application ensures that reliable medical information is displayed when searching for a bodily symptom. Moreover, this information is also placed strategically above the regular search results, and therefore immediately catches the eye.

The above recommendations are mainly intended for the general public, whose level of health anxiety is not extremely high. For people who are overly but unnecessarily concerned about their health, it is important that treatment focuses, among other things, on

decreasing their online search behaviour, as well as giving them increased insight into their own search behaviour. It is important for such people to realise that they tend to focus particularly on information that confirms their fear of illness (although this may not be the case). Gaining insight into this pattern could help them to better regulate their search behaviour.

A New Definition of Cyberchondria

To conclude, the results presented in this dissertation ultimately led to the following new definition of cyberchondria: A reciprocal relationship between health anxiety and online health-related information seeking among the general (non-clinically anxious) population that is either initiated by anxiety about one's health or by online health-related information seeking.