

# Searching for health: Doctor Google and the shifting dynamics of the middle-aged and older adult patient–physician relationship and interaction

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## Abstract

While online health information (OHI) has become ubiquitous, little is known about its use by middle-aged and older adults. This contribution examines the role of OHI and its influence on the patient–physician relationship. This qualitative study reports the thematic analysis of 40 semistructured, in-depth interviews with Flemish middle-aged and older adults between the ages of 50 and 80 years. Middle-aged and older adults obtain OHI pre- and post-consultation, albeit with different motivations and in search of different types of information. Patients strategically and carefully introduce OHI in the clinical encounter. “Doctor Google” expands the traditional patient–physician dyad into an information triangle. The findings have implications for policy guidance and clinical practice. Public campaigns against “Googling” for health information might have to be amended to be successful. Importantly, physicians are increasingly expected to refer to and appraise OHI and put it into the individual patient context.

## Keywords

health information seeking, online health information, Doctor Google, middle-aged adults, older adults, patient–physician relationship

## Reference

Huisman, M., Joye, S., & Biltereyst, D. (2019). Searching for health: Doctor Google and the shifting dynamics of the middle-aged and older adult patient–physician relationship and interaction. *Journal of Aging and Health*. Advance online publication. <https://doi.org/10.1177/0898264319873809>

## 8.1. Introduction

While physicians were once the sole source of health information for patients (Ong et al., 1995; Vanderminden & Potter, 2010), the Internet and online health information (OHI) have influenced the relationship and communication between patients and physicians within the clinical encounter (Broom, 2005; Chiu, 2011; Chung, 2013; Gualtieri, 2009; Iverson et al., 2007; Kivits, 2006; Tan & Goonawardene, 2017; Van Riel et al., 2017; Wald et al., 2007). Previous work has explored middle-aged and older adults' health information-seeking behaviors (Czaja et al., 2010; Huang et al., 2012; Medlock et al., 2015; Morrison, 2015; Sanders et al., 2015) and interactions with doctors (Eliassen, 2016; Thompson et al., 2004), but few studies have examined the use of OHI, specifically its influence and impact on the clinical encounter and the relationship with the physician (see Haluza et al., 2017; Scott et al., 2017; Silver, 2015; Xie, 2009). This relatively small number of studies is rather surprising as the chances of chronic health issues increase around the age of 50 years (Silver, 2015; Xie, 2009), suggesting that middle-aged and older adults stand to benefit from obtaining OHI. Moreover, individual health management and information needs and uses have been found to be shaped and influenced by age (Haluza et al., 2017; Miller & Bell, 2012; Xie, 2009), which suggests the importance of studying various age groups, including middle-aged and older adults. Finally, demographic projections estimate that the worldwide number of adults aged 60 years and over will double between 2015 and 2050 from 906 million to 2.08 billion (United Nations Department of Economic and Social Affairs/Population Division, 2017). With societies graying, physicians welcoming more middle-aged and older adults in their offices, and the growing digitalization of everyday life and health care, it is thus both important and topical to understand middle-aged and older adults' use of OHI and its influence on the patient–physician relationship. Before detailing the study design and findings, the following sections briefly discuss OHI, Internet use in relation to age, and the patient–physician relationship.

## 8.2. Literature review

### *OHI*

By making health information conveniently and freely available, the Internet has brought about a shift toward health consumerism (Vanderminden & Potter, 2010). People can nowadays educate themselves online about medical conditions and health-related issues independently from, or in conjunction with, consulting a physician (Tan & Goonawardene, 2017; Vanderminden & Potter, 2010). Looking for health information online has become an everyday activity (Kivits, 2006; Tan & Goonawardene, 2017; Van Riel et al., 2017), carried out reflexively to get a first opinion on health issues and fill information gaps outside of the clinical encounter (Frosch et al., 2012; Gualtieri, 2009), and/or in anticipation of or in response to consulting a doctor (Lee et al., 2014; Tan & Goonawardene, 2017).

Past research has outlined positive aspects of OHI, which include people being better informed, more appropriate and efficient use of health care services (Broom, 2005; Tan & Goonawardene, 2017), and improved patient–physician communication and decision-making leading to better health outcomes (Czaja et al., 2010; Galarce et al., 2011; Sommerhalder et al., 2009; Tan & Goonawardene, 2017). However, OHI can also undermine individual and public health. Concerns have consistently been raised about the quality and reliability of OHI, which ranges anywhere from evidence-based and peer-reviewed work to personal opinions and anecdotes (Tan & Goonawardene,

2017). OHI can be incomplete, inaccurate, outdated, and even plain wrong and misleading (Haluza et al., 2017). Furthermore, Internet users are largely left to themselves to interpret OHI and determine its reliability and relevance (Morrison, 2015). People who lack the necessary skills and media, Internet, and (e-)health literacy to access, understand, and appraise OHI might misinterpret or misuse it (Chung, 2013; Gualtieri, 2009; Iverson et al., 2007; Lee et al., 2014; Silver, 2015). Failure to properly select and appraise OHI can lead to anxiety, confusion, escalating health concerns (Chung, 2013; Van Riel et al., 2017) as well as undesirable health behavior such as self-diagnosis and self-treatment (Tan & Goonawardene, 2017) and requests for inappropriate or unavailable diagnostic testing and treatment (Iverson et al., 2007).

Importantly, most Internet users start their quest for OHI by entering a query in a search engine (Christelijke Mutualiteit [CM], 2016; Fox & Duggan, 2013; Gualtieri, 2009; Huang et al., 2012; Lee et al., 2014). While “Doctor Google” might be interpreted as a shorthand for searching for OHI, the term can be taken quite literally given Google’s dominant market share. In May 2019, Google handled 92.04% of all web searches worldwide and 95.71% of all web searches in Belgium (Statcounter, 2019a). It is within this context of Google’s dominance on one hand and the tendency of Internet users to obtain OHI by using a search engine, likely Google, on the other hand, that the Flemish government in 2014 launched a campaign called “Don’t Google It.” The campaign urged citizens to visit the reputable and accredited Belgian health website “Gezondheid en Wetenschap” (“Health and Science” — [www.gezondheidenwetenschap.be](http://www.gezondheidenwetenschap.be)) to obtain health information, rather than “Googling” for medical symptoms and relying on incomplete or incorrect OHI (Larimer, 2014).

#### *Age and Internet use*

The use of Internet among older adults has been related to improved self-reported physical and mental health and a lower risk of developing functional impairments (Hunsaker & Hargittai, 2018; Miller & Bell, 2012). Although overall Internet use by older adults has considerably increased over time (Hunsaker & Hargittai, 2018), past studies containing within group comparisons have consistently found that Internet-use rates drop with increased age (CM, 2016; Friemel, 2016; Hunsaker & Hargittai, 2018). Concurrently, using the Internet for health (information) purposes has been negatively associated with older age (Galarce et al., 2011; Hunsaker & Hargittai, 2018; Miller & Bell, 2012; Thompson et al., 2004; Xie, 2009). Individual age-related factors such as impaired vision and declining cognitive abilities (Czaja et al., 2010; Morrison, 2015; Xie, 2009) as well as functional literacy decline have been linked to difficulties using the Internet and finding and understanding OHI (Friemel, 2016; Huang et al., 2012; Hunsaker & Hargittai, 2018; Lee et al., 2015; Scott et al., 2017). Importantly, Silver (2015) found that adults over 50 years of age have various concerns with using the Internet in relation to health issues. These include recognizing their own limitations, a lack of skills and confidence as Internet users, the questionable credibility of OHI, and concerns that they might upset their physician by consulting OHI.

#### *The patient–physician relationship*

Communication between patients and physicians forms the cornerstone of health care (Haluza et al., 2017; Vanderminden & Potter, 2010), determining quality of care and health outcomes as well as patient motivation, satisfaction, and treatment adherence (Broom, 2005; Duggan & Thompson, 2011; Haluza et al., 2017). The clinical encounter involves the exchange

of information to diagnose, discuss, and direct medical care (Ong et al., 1995; Roter & Hall, 2011), with patients relying on doctors to get objective and reliable information (Galarce et al., 2011). Traditionally, the patient–physician relationship was characterized by information asymmetry and an unequal power balance between authoritative, decision-making medical experts and passive patients (Ong et al., 1995; Vanderminden & Potter, 2010). Health care has largely moved away from this paternalistic model to an approach which emphasizes patient involvement, collaboration, and informed or shared medical decision-making (Duggan & Thompson, 2011; Ong et al., 1995; Tan & Goonawardene, 2017; Xie, 2009). However, older adults who were brought up with the idea of the doctor as medical authority are likely to find being assertive, asking questions, or engaging in discussion with the doctor difficult (Eliassen, 2016; Thompson et al., 2004). Compared to younger individuals, older adults have been found less motivated to seek out health information and be involved in medical care decision-making (Galarce et al., 2011; Thompson et al., 2004). They are likely to rely on physicians for health information and decision-making (Eliassen, 2016; Fox & Duggan, 2013; Medlock et al., 2015; Scott et al., 2017), which suggests that for older adults the physician remains the “ultimate medical authority” (Eliassen, 2016).

The Internet and OHI have not only contributed to transitions in health care and the emergence of health consumerism (Chiu, 2011; Haluza et al., 2017; Iverson et al., 2007; Tan & Goonawardene, 2017), but they have also raised new challenges for physicians. Patients want doctors to refer them to reliable health websites (Lee et al., 2017) and critically appraise OHI and bring it into the patients’ context (Lee et al., 2015; Roter & Hall, 2011; Sommerhalder et al., 2009). Some scholars therefore argue that discussing and interpreting OHI might become a crucial task for physicians (Chiu, 2011; Tan & Goonawardene, 2017; Van Riel et al., 2017), with the doctor essentially filtering search-engine findings and thus functioning as a “ultimate referent” (Kivits, 2006).

However, the literature suggests that the majority of patients does not talk about their Internet searches for health information during the clinical encounter, finding it difficult to ask questions or disagree with the physician (CM, 2016; Chung, 2013; Frosch et al., 2012; Imes et al., 2008; Iverson et al., 2007; Tan & Goonawardene, 2017). Patients tend to conform to “socially sanctioned roles” based on expectations of what a “good patient” should do and not do (Chiu, 2011; Frosch et al., 2012). They are careful to not appear confrontational and disrespectful, not wanting to challenge the doctors’ expertise (Gualtieri, 2009; Imes et al., 2008; Sommerhalder et al., 2009) as this might elicit dismissive reactions and have a negative impact on the relationship (Chiu, 2011; Frosch et al., 2012; Lee et al., 2015; Tan & Goonawardene, 2017). Nonetheless, past studies have found that patients employ various strategies to more or less involve OHI in the clinical encounter, including bringing along printouts, asking questions to understand differences between the doctors’ advice and OHI, making suggestions based on OHI, and quietly comparing and verifying information received from the doctor with OHI without discussing it (Gualtieri, 2009; Sommerhalder et al., 2009; Tan & Goonawardene, 2017).

### *The present study*

The literature suggests that OHI has come to play an important role in the health care landscape and clinical encounter, although it remains largely unclear to what extent this applies to middle-aged and older adults. This study examines the OHI-seeking behavior of

middle-aged and older adults and its outcomes in terms of impact on the relationship and interactions with the physician. Our empirical data come from Flanders, the Dutch-speaking region of Belgium. Flanders offers an interesting case as many citizens seek health information online: a 2016 survey found that almost 91% of Flemish adults over the age of 18 years searched for health information online (CM, 2016). This study is guided by the following research questions:

**Research Question 1:** Why do Flemish middle-aged and older adults seek or not seek OHI?

**Research Question 2:** Where, when, and how do Flemish middle-aged and older adults obtain OHI, what kind of information do they search for, and why?

**Research Question 3:** What is the impact of OHI on the relationship and interactions with the physician?

### 8.3. Design and method

#### *Sample and data collection*

Forty qualitative, semistructured in-depth interviews were conducted between April and September 2015 in the Flemish city of Ghent with adults between the ages of 50 and 64 years (middle-aged adults) and 65 and 80 years (older adults). While definitions of middle and old age in terms of age boundaries differ greatly (Hunsaker & Hargittai, 2018), the age cutoff at 65 follows the Belgian retirement age (as of 2018), while also reflecting the larger audience research about health communication and aging that this study is part of. To prevent sample bias, a heterogeneous group of respondents was recruited in terms of age, gender, and education. No selection criteria were used for ethnicity. Respondents were recruited via a paper intake survey with the help of local service centers and Open, Christian, Respectful, and Active [Open, Kristelijk, Respectvol en Actief] (OKRA), a Flemish association for the elderly.

The study sample included 18 men and 22 women. The youngest respondent was 51 years old and the oldest 80 years old, with an average age of 64.9 years. There was a minor tendency toward higher (bachelor/master/university degree; HE) and middle (higher secondary; ME) education compared with lower (no degree, primary and lower secondary; LE) education levels (HE: 35%, ME: 37.5%, LE: 27.5%). The group of participants consisted of patients with diagnosed conditions as well as healthy individuals without diagnosed conditions. The interviews were conducted using a predefined topic list designed to broadly explore respondents' health information behavior and experiences. All interviewees signed an informed consent to guarantee confidentiality and agree to the interview being recorded.

#### *Analysis*

All interviews were digitally recorded and transcribed verbatim. After a first thorough reading, the interview transcripts were imported into NVivo 12 for the management and analysis of the data. A member of the larger research team carried out a first analysis by broadly identifying and coding relevant themes in the transcripts. By comparing with these codes and notes, specific relevant parts of the interview transcripts were subsequently identified, interpreted, and thematically coded by the first author, an experienced qualitative researcher, by employing thematic analysis (Boyatzis, 1998) to structure respondent statements into broad themes by comparing within and between transcripts. Inductive categories (from the data) and deductive coding categories (derived from the literature) were simultaneously employed in this early phase. A subsequent round of coding by the first author

grouped the observations and descriptions, allowing for rigorous and coherent interpretation and translation into concepts. During the final analysis stage, the data were further reduced to focus on relevant concepts and subcategories and simultaneously arranged into chronological order, that is, relative to OHI search practices and the clinical encounter between patient and physician.

The following sections discuss four themes which emerge from the data in relation to middle-aged and older adults obtaining and using OHI and the influence on the patient–physician relationship. The themes are presented in the following chronological order: (a) using the Internet for health information, (b) searching for OHI, (c) moments and motivations, and (d) OHI in the clinical encounter. All respondent quotes have been extracted from the interviews, anonymized, and translated from Dutch into English by the authors.

## 8.4. Results

### *Using the Internet for health information*

The Internet was used by 31 out of 40 respondents to find health information. OHI-seeking respondents described the Internet as a formidable and inexhaustible up-to-date database, which allowed them to quickly find answers to pertinent health questions as well as general information about health matters. Respondents characterized the Internet as accessible, direct, effective, and quick, although some noted that skills are required to find and select information.

*It is a world library in which everyone can search. Of course, you have to learn how to make a selection: what is good information and what is wrong information.*

(Male, 68, HE)

Nine respondents in total did not use the Internet to obtain health information. Seven of them were from the older adult group (65–80 years), the other two aged 64 years were at the upper limit of the middle-age group (50–64 years). Five respondents did not use the Internet at all, while the four others rejected the Internet as a source of health information. They preferred to visit their doctor in case of health issues and questions, and did not trust the Internet as a source of health information.

*I think personal contact with doctors and specialists is much more important than the internet.* (Male, 76, LE)

*I don't think you find the right information on the internet. I think you need a doctor who received training and knows where to press and feel.* (Male, 68, HE)

The type of information OHI-seeking respondents sought depended on individual health contexts and information needs (solving health issues) and wants (curiosity, general interest). While personal health was the primary reason to seek information, respondents occasionally also sought out health information on behalf of relatives, friends, and other acquaintances.

*My grandchild was operated on a brain tumour. I was very involved, reading on the net about it. Of course it interests me when something like that happens in*

*the family.* (Female, 77, HE)

Health(-related) information looked up online ranged from health conditions (symptoms, disease progression) and treatments (explanations, outcomes) to diet, exercise, and products (e.g., supplements), as well as practical information (about hospitals, health insurance) and, importantly, the experiences of others, that is, how others cope with and treat medical issues.

#### *Searching for OHI*

Remarkably, Google was mentioned by all 31 OHI-seekers as their obvious starting point to search for and obtain OHI. Using Google simply seemed a matter-of-course, with a few respondents mentioning that they had been taught to use Google at computer lessons.

*Google is your best friend, I learned at computer lessons. So you type in "stomach pain" and get an enormous amount of links.* (Female, 68, ME)

Respondents related that their quest for OHI started by entering a straightforward elementary search string (e.g., "diabetes") without using any advanced search commands or Boolean operators. Respondents described "Googling" for OHI as both easy and quick.

*I am not good with computers, but looking for information is not a problem. I mean, Googling something is easy.* (Female, 67, HE)

Few respondents went beyond Google's first page of search results when searching for OHI. The first page usually offered a sufficient amount of relevant websites. Titles and descriptions of websites were scanned and matched with the search query before clicking on a website. If respondents did not find the information they were looking for on a given website, they would go back to the Google search results and try another website.

*If it doesn't satisfy me, if it is not what I want, or when it does not give me a clear answer, then I try again by going back to the first page of results to see what is next.* (Female, 67, ME)

Typically, highly educated respondents attempted to appraise the reliability and correctness of OHI by seeking consensus. After visiting a website, they would return to Google's search results to compare it with different websites. When multiple websites offered the same OHI, that information was deemed likely to be reliable and correct.

*When I look something up, I will not believe just what one website says. I will visit multiple websites and compare what they are saying. Does it match? Are they the same? Or do they contradict each other?* (Male, 68, HE)

However, the majority of respondents did not or hardly use any critical selection criteria when browsing Google's search results. Just a few respondents, again mostly highly educated, checked the URL and extension of the website as they preferred to visit Belgian websites and/or websites of hospitals, educational institutions, or health insurance companies. The former were deemed more relevant than foreign websites, while the latter were deemed reliable and trustworthy as the information was supplied by reputable and credited

authorities and institutions and likely supported by scientific research.

*The thing I look for is whether there is something there from a research centre, or a university. Because I think that is more scientifically based.* (Male, 60, HE)

As a result of using Google to seek OHI and almost never bookmarking websites, respondents seldom knew the names or URLs of health websites they had visited. Only platforms like Wikipedia and the Belgian health website [www.gezondheid.be](http://www.gezondheid.be) and seniors website [www.seniorennet.be](http://www.seniorennet.be) were mentioned.

#### *Moments and motivations*

OHI was sought out both *before* and *after* the clinical encounter. Pre- and post-consultation information seeking differed not just in terms of the type of information sought, but also the motivation for doing so.

*Pre-consultation OHI-seeking.* Motivations to seek information prior to consulting a physician included understanding symptoms, determining whether visiting a doctor was necessary, finding comfort and reassurance, and preparing to visit the doctor in order to accurately describe health problems and ask pertinent and critical questions. This respondent preferred to thoroughly prepare her visit to the doctor by looking up OHI prior to the clinical encounter:

*I feel more at ease if I can ask targeted questions. If I go to the doctor, I have my list with things I need to ask ready...* (Female, 70, HE)

Irrespective of age, gender, and education level, respondents searched for OHI to determine whether their condition warranted or required visiting the doctor. In the case of minor health issues, health problems that respondents were not particularly worried about, or when general health information was wanted, OHI provided sufficient answers.

*Should I get worried I will go to the doctor. But if I am not worried, I might just take a look on the Internet.* (Female, 59, HE)

*If it is general information I think the internet and Wikipedia are useful and sufficient. If it is about myself and if I want specific health information about something important to me, than I will ask my doctor.* (Male, 64, HE)

If health problems appeared urgent or severe and did not disappear on their own over time, when specific information was needed, or when the Internet offered insufficient or ambiguous information, respondents would visit their physician.

*Sometimes I am in doubt about something I read on the internet. When there are multiple possibilities I go to the doctor and hear what it is effectively about.*  
(Male, 53, HE)

Doctor Google and OHI were also consulted in the hopes of being able to save time and money by not having to visit the doctor.



*The internet is much more direct, you always have it near at hand. To go to the doctor you need to make an appointment, you have to drive there, it costs money and time... The internet is immediate.* (Female, 55, LE)

While serving to postpone or negate visiting the physician, OHI sometimes also triggered respondents to make a doctors' appointment. Having looked up his symptoms online, this respondent for example promptly went to his physician:

*I had an inexplicable thirst. I read that the cause could be diabetes, so I made an appointment with the doctor. He pricked in my finger, but my sugar levels were perfect and that was that.* (Male, 51, ME)

Searching for OHI, specifically the experiences of others, was also carried out to find comfort and reassurance. However, respondents recognized that OHI could also in fact raise concern and increase uncertainty, sometimes making OHI the reason to visit the doctor.

*I think it helps to reassure. Like, "it is not really that bad, there are many people who have this problem." Although I am of course aware that it can have the opposite effect, but in that case I will always go to the doctor.* (Female, 68, ME)

Finally, OHI was obtained in the pre-consultation phase to prepare for consulting a specialist. Respondents related how specialists often punctuated the clinical encounter with medical jargon and generally had little time to explain and answer questions.

*After a skiing accident I needed to have my meniscus operated on. Surgeons and doctors often have little time to explain, so I searched for it. What does it mean that they remove your meniscus? Which consequences can it have?* (Female, 52, ME)

*Post-consultation OHI-seeking.* Once respondents had visited a physician, different motivations and information needs arose. OHI was sought post-consultation mainly to clarify information received from the doctor and to obtain additional information (explanations, illustrations). Additional information served not only to gain a better understanding but also to satisfy curiosity.

*A doctor does not always have time to explain everything, so I look for information myself, depending on how far I want to take it. Purely as an addition to what I have heard from the doctor.* (Female, 59, HE)

*Based on what the doctor tells me, I often search the internet for descriptions of the problem. The experiences of other people, how they solved it.* (Male, 53, HE)

Less frequently mentioned motivations for post-consultation OHI-searching were to find how others coped with health issues, to get a second opinion, and the physician having referred to an online information source. Being referred to reliable OHI by the doctor was greatly appreciated by respondents.

*The specialist told me to look on the website of the hospital. There was a comprehensive explanation of Meniere's disease, that was really great.*  
(Female, 55, LE)

Overall, respondents using the Internet for health information purposes related that taking care of their health involved a pre- and post-consultation interplay between Doctor Google and their physician, depending on the seriousness and urgency of their health issues and information needs.

*On the internet and at the doctor . . . a combination, yes.* (Female, 54, HE)

#### *OHI in the clinical encounter*

Notwithstanding Doctor Google and the ubiquity of OHI, the general practitioner was mentioned by 39 out of 40 respondents as the most trusted and reliable source of health information. Often based on a perception internalized from a young age, respondents viewed and relied on the doctor as the learned expert and medical authority.

*We were taught to start with the house doctor, who will tell you what the problem is, that testing is needed, what hospital or specialist to visit.* (Male, 64, LE)

*I find it difficult to say to a doctor, "didn't you forget this or that?" It has to do with your upbringing, with your parents telling you that a doctor is a highly regarded person. You remember it the rest of your life, even if you are a critical person.*  
(Male, 68, HE)

At the same time, respondents talked about the changed relationship between patient and physician, particularly in terms of being able to ask questions. Thirty years ago there was a much bigger distance between doctor and patient.

*It is much easier now to ask for an explanation. I couldn't do that thirty years ago. That is a very positive evolution, together with the increased empowerment of the patient.* (Female, 65, ME)

Nonetheless, most respondents were reluctant to mention to their physician that they consulted with Doctor Google, nor did they ask questions or challenge their physician based on OHI. Respondents found it too confronting and feared that the doctor might react negatively and dismissively, or even berate them for bringing along and trusting OHI. As a result, most respondents either held back in their interactions with the doctor or employed a strategy to carefully involve OHI in the clinical encounter. The first of these strategies entailed letting the doctor talk first and only afterward share thoughts based on health information obtained from the Internet.

*When you visit the doctor and you say that you have looked this and that up on the internet, they are not really enthusiastic. Because they think that people play doctor themselves. So I let the doctor talk first, and then tell him what I saw on the internet.* (Female, 62, LE)

A second strategy involved carefully weaving OHI into the conversation by mentioning symptoms and their impact, without voicing suspicions of what might be the matter or intruding upon the diagnostic process.

*If I visit the doctor I will not tell him what I think I have, because that is his job. I will say that I looked up the symptoms and what I feel. But I try to be careful, because people sometimes say that you are diagnosing yourself rather than letting the doctor do his work. I don't want that. (Female, 54, HE)*

Third, some respondents took a silent approach. They listened politely to their physician without discussing the diagnosis and advice. Ultimately, these individuals decided for themselves what they thought was best based on the clinical encounter, OHI, and their own common sense. This pertained specifically to mild or everyday small medical issues, rather than serious medical issues.

*I let him say what he has to say. I follow his advice of course, but I will not go into discussion. I will not contradict him. I think, 'OK, he has prescribed me this, but I have read this and that.' I am not talking about life threatening things, but everyday health things. If I think, 'I am not going to do that,' I keep it to myself. (Female, 65, ME)*

On the other end of the spectrum we found a minority of respondents who were open and assertive in their interactions with the doctor with the goal of achieving better care and health outcomes. These respondents were likely to be younger and, importantly, self-confident with regard to using the Internet. In some instances, OHI and experiences of others prompted these respondents to directly question the diagnosis and treatment advised by their doctor.

*When the doctor prescribes you medication, and you look online and some people say that that medication didn't really help. . . That sticks somehow. It would hasten my decision to go back to the doctor and say, 'I have the impression it is not working,' instead of waiting it out. (Male, 53, HE)*

*When I visit a doctor I will tell him about the information I found and ask him if it is correct and if it applies to me. (Female, 66, LE)*

Yet even among assertive respondents like the 53-year-old male above, there was a certain anxiety and sense of needing courage to speak up and question or challenge the doctor. This sentiment was expressed verbally by respondents who talked about “daring” to tell their doctor about the OHI they found.

*When I visit the doctor or a specialist, I dare to say that I found that information and ask what they think of it. (Male, 53, HE)*

In expressing a high regard for the doctor and confirming his or her central role in health management and decision-making, all respondents stated that they would never bypass their physician and treat themselves with medicine or other products.

*I will not easily take action based on what I found on the internet. I will not try a treatment or medicine because it was recommended on the internet without consulting my doctor. (Male, 68, HE)*

*When it concerns really serious things, I will only trust my doctor. (Female, 52, ME)*

Having presented our study findings pertaining to OHI and the middle-aged and older patient–physician relationship, the following section will discuss how they relate to previous research and how they might have an effect on public health policy and clinical practice.

## **8.5. Discussion**

This study set out to understand why Flemish middle-aged and older adults between the ages of 50 and 80 years seek OHI, where and how they seek OHI, what kind of information they search for, and finally what the impact of OHI is on the relationship with the physician. Within our sample of 40 respondents, we found age and education level to be discriminating factors with regard to whether individuals sought OHI or not. Older and lower educated individuals were more likely to reject the Internet and to rely on their doctor as source of health information, whereas younger and more highly educated individuals were likely to consult with Doctor Google and obtain OHI. This is consistent with previous studies about Internet and health information use among older adults (Chung, 2013; Haluza et al., 2017; Hunsaker & Hargittai, 2018).

Confirming previous work on older adults' search skills (Morrison, 2015), respondents entered straightforward elementary search queries (e.g., "diabetes") to find OHI. We found in addition that selecting websites with OHI from the search results was also straightforward for most respondents. Study participants almost never went beyond the first page of Google's search results, to which they returned in case a website did not provide sufficient information or when they wanted to compare websites. Few respondents appeared critical of the sources of OHI they consulted, with the exception of higher educated individuals. They were more likely to critically assess and employ strategies (comparing websites, checking URLs, looking for websites from medical and educational institutions) to browse OHI and appraise its reliability.

At different moments (pre- and post-consultation) and stemming from different motivations and information needs and wants, respondents searched for and obtained different types of OHI. Importantly, by obtaining OHI in the pre-consultation stage, respondents took it up themselves to establish the seriousness and urgency of their health issues and decide whether a visit to the doctor was warranted. Doctor Google thus offered respondents what might be called a first or preliminary diagnosis (Gualtieri, 2009). While underlying motives are clear, that is, the convenience and quickness of using Doctor Google and wanting to save time and money by not visiting a doctor, respondents' online diagnosis might be problematic. After all, the quality and reliability of OHI are not guaranteed. Moreover, respondents have to interpret OHI themselves, although they likely do not have

the medical training to appraise whether their condition warrants visiting the doctor. While consulting Doctor Google might lead to postponing or not visiting a physician, we found that OHI can also encourage a visit to the doctor. Moreover, there seems to be synergy between Doctor Google and the physician (Miller & Bell, 2012). That is, questions raised by one can be answered and clarified by the other, while they can also provide additional information and explanations. With waiting rooms full and consultations limited in time, respondents related that OHI served to fill information gaps left unaddressed during clinical encounters, by finding additional information and explanations, examples, and experiences of other patients on how to cope with health issues.

Although most respondents searched for and obtained OHI, they remained keenly aware of their role as patient and the relationship with their physician. Respondents respected the expertise and authority of the physician and were generally reluctant to disclose and discuss OHI. Instead, they quietly compared information or carefully introduced OHI into the clinical encounter. These findings support earlier work which found that patients “strategically consider” the impact of OHI on their relationship with the physician (Imes et al., 2008; Tan & Goonawardene, 2017). However, the strategy of introducing OHI in the clinical encounter by bringing printouts which is mentioned in the literature (Tan & Goonawardene, 2017) was notably absent among our respondents. Given respondents’ general reluctance to discuss OHI and their desire to avoid appearing disrespectful, bringing printouts might be too direct and confrontational. Only a minority of assertive patients, usually younger (middle-aged) and appearing self-confident in using the Internet, openly discussed OHI with their doctor. To achieve better understanding and health outcomes, these patients wanted their physician to appraise the OHI and bring it into their personal context.

Ultimately, for the greater number of respondents, the Internet appears to be a convenient and empowering source of health information. OHI is quick and easy to obtain and described as helpful to personal health management and decision-making. Despite individual differences in outlook, attitude, and behavior, and a general reluctance to openly discuss OHI in the clinical encounter, Doctor Google and OHI appear to function in conjunction. In line with previous work which found that individuals who obtain OHI do not necessarily want to challenge or bypass the physician or diagnose and treat themselves (Lee et al., 2015; Sanders et al., 2015), Doctor Google and OHI mostly appear as addition to, rather than replacement of, the physician. Whereas the physician remains the expert medical authority who takes a central role in medical decision-making, Doctor Google is considered and consulted as the convenient and free “know-it-all.” For the majority of the respondents, the traditional dyadic relationship of patient–physician has thus expanded into an information triangle or triadic relationship (Wald et al., 2007) involving patient, physician, and Doctor Google/OHI.

In terms of implications for public health policy and clinical practice, our findings suggest that Flemish government efforts to discourage citizens from Googling health information and instead visit reputable health websites (Larimer, 2014) have, at least among our respondents, had little to no effect. Google was the obvious, matter-of-course starting point for respondents using the Internet to obtain health information. Few URLs were bookmarked and hardly any names of health websites were known. Future campaigns might, for example, try to raise public awareness of reputable health websites and how to use and bookmark these online platforms. Moreover, although beyond the scope of this contribution to discuss

in detail, it can be argued that search engines like Google have a responsibility to ensure the quality of the information highlighted in their search results. Within that context, Google might make efforts to ensure that its users find accurate and reliable OHI, for instance, by giving priority to reputable and accredited health websites on the first page of search results.

Although most respondents did not or reluctantly discuss OHI with their physician, doing so could be beneficial and contribute to more effective communication, improved health outcomes, and increased patient satisfaction (Haluza et al., 2017; Tan & Goonawardene, 2017). A 2017 study with nine Flemish general practitioners found that eight of them were positive about the contribution of OHI to the clinical encounter, which included learning new things; being able to pick up on concerns, ideas, and expectations of patients; and adding to the diagnosis process (Van Riel et al., 2017). It would thus seem that there is room for improvement in the primary health care setting by addressing the discrepancy in perceptions and expectations between patients and physicians when it comes to OHI. Particularly toward middle-aged adults, as well as higher educated older adults and those actively using the Internet, it might be helpful if physicians inquired about the use of the Internet to obtain health information in order to make OHI open for conversation. Moreover, physicians could advise and refer to reliable and reputable websites to supplement the information given to patients, so that they might guide rather than ignore patients who search online for health information. Underwriting past research (Chung, 2013), we expect that doctors will increasingly be asked and expected to guide their patients through the muddy waters of OHI. With the amount of middle-aged and older adults expanding in the years to come and their ranks likely consisting of proficient Internet users, the doctor might have to increasingly act as a filter to search-engine findings by interpreting OHI and putting it in the proper patient context.

## **8.6. Study limitations**

First, a key limitation of this study, in common with much qualitative research, is to what extent findings from our limited sample apply to the wider middle-aged and older adult population. A quantitative study might be helpful to test and enrich our findings, for instance, by linking sociodemographic factors to middle-aged and older adults' health information seeking and relationship with the physician. Second, we are aware that our respondents are spread out over a considerable age range, but do not consider this an inhibiting factor. Besides reflecting the larger audience research that this study is part of, recruiting pre- and post-retirement age groups helped to get a sense of differences between middle-aged and older adults. Third, we acknowledge that 4 years have passed since data collection took place. Technology and search engine-use patterns and norms might have changed in these years, although we did not find evidence for this in the literature. Fourth, findings on *how* middle-aged and older adults find OHI via search engines might be further elaborated upon by conducting an Internet skills performance test, which allows the researcher to give tasks to respondents (e.g., finding health information on the Internet) and directly and in detail observe how respondents carry out those tasks.

## **8.7. Conclusion**

Our qualitative study contributes new insights about "Doctor Google" and OHI, their use by middle-aged and older adults, and their influence on the relationship with the physician. The study findings suggest that Doctor Google and OHI considerably influence and shift the

dynamics of the relationship and interactions between middle-aged and older adults and physicians in Flanders. The convenient, free, and quick “know-it-all,” or rather “find-it-all,” Doctor Google and the trusted real-life doctor as medical authority seem to function in tandem as complementary sources of health information. All in all, the physician continues to play a central role in health management and critical treatment decision-making, while also providing reliable health information to patients and dealing with and contextualizing OHI obtained from Doctor Google. With younger generations able and willing to use the Internet for health information purposes, it would appear that Doctor Google is here to stay. Some of the respondents in our study are perhaps the last generation to not go online to obtain health information.

### Declaration of Conflicting Interests

The authors declare that there is no conflict of interest. No ethical issues had to be addressed.

### Funding

This work was supported by the Special Research Fund of Ghent University [Grant BOFGOA 2014 000 604 “(De)constructing Health News”].

### References

- Boyatzis, R.E. (1998). *Transforming Qualitative Information: Thematic Analysis and Code Development*. Thousand Oaks, CA: Sage.
- Bowes, P., Stevenson, F., Ahluwalia, S., & Murray, E. (2012). ‘I need her to be a doctor’: patients’ experiences of presenting health information from the internet in GP consultations. *British Journal of General Practice*, 62(604), e732-e738.
- Broom A. (2005). Virtually he@lthy: the impact of internet use on disease experience and the doctor-patient relationship. *Qualitative Health Research*, 15(3), 325-345.
- Case, D.O. (2012). *Looking For Information: A Survey of Research on Information Seeking, Needs, and Behavior (3<sup>rd</sup> Edition)*. Bingley: Emerald.
- Chiu Y. (2011). Probing, Impelling, But Not Offending Doctors: The Role of the Internet as an Information Source for Patients’ Interactions With Doctors. *Qualitative Health Research*, 21(12), 1658-1666.
- Chung J.E. (2013). Patient–Provider Discussion of Online Health Information: Results From the 2007 Health Information National Trends Survey (HINTS). *Journal of Health Communication*, 18(6), 627-648.
- Cocco, A.M., Zordan, R., Taylor, D.M., Weiland, T.J., Dilley, S.J., Kant, J., Dombagolla, M., Hendarto, A., Lai, F., & Hutton, J. (2018). Dr Google in the ED: searching for online health information by adult emergency department patients. *Medical Journal of Australia*, 209(8), 342-347.
- Christelijke Mutualiteit (2016). *Bijna negen op de tien Vlamingen raadplegen dokter Google [Almost nine out of ten Flemish consult doctor Google]*. Retrieved from <https://www.cm.be/professioneel/pers/persberichten-2016/dokter-google>
- Czaja, S.J., Sharit, J., Hernandez, M.A., Nair, S.N., & Loewenstein, D. (2010). Variability among older adults in Internet health information-seeking performance. *Gerontechnology*, 9(1), 46-55.
- Davis, J.K. (2018). Dr. Google and Premature Consent: Patients Who Trust the Internet More Than They Trust Their Provider. *HEC Forum*, 30(3), 253-265.
- Duggan, A.P., & Thompson, T.L. (2011). Provider–Patient Interaction and Related Outcomes. In T.L. Thompson, R. Parrott, & J.F. Nussbaum (Eds.), *The Routledge Handbook of Health Communication (Second Edition)* (pp. 414-427). New York, NY: Routledge.
- Eliassen, A.H. (2016). Power Relations and Health Care Communication in Older Adulthood: Educating Recipients and Providers. *The Gerontologist*, 56(6), 990-996.

- Fox, S., & Duggan, M. (2013). Health Online 2013. Pew Research Center. Retrieved from <http://www.pewinternet.org/2013/01/15/health-online-2013/>
- Frosch, D.L., May, S.G., Rendle, K.A.S., Tietbohl, C., & Elwyn, G. (2012). Authoritarian Physicians And Patients' Fear Of Being Labeled 'Difficult' Among Key Obstacles To Shared Decision Making. *Health Affairs*, 31(5), 1030-1038.
- Galarce, E.M., Ramanadhan, S., & Viswanath, K. (2011). Health Information Seeking. In T.L. Thompson, R. Parrott, & J.F. Nussbaum (Eds.), *The Routledge Handbook of Health Communication (Second Edition)* (pp. 167-180). New York, NY: Routledge.
- Gualtieri, L.N. (2009, April 4-9). The Doctor as the Second Opinion and the Internet as the First. Paper presented at ACM CHI Conference on Human Factors in Computing Systems, Boston, NY (pp. 2489-2498).
- Haluza, D., Naszay, M., Stockinger, A., & Jungwirth, D. (2017). Digital Natives Versus Digital Immigrants: Influence of Online Health Information Seeking on the Doctor-Patient Relationship. *Health Communication*, 32(11), 1342-1349.
- Hinman, L. (2008) Searching Ethics: The Role of Search Engines in the Construction and Distribution of Knowledge. In A. Spink & M. Zimmer (Eds.). *Web Search: Multidisciplinary Perspectives* (pp. 67-76). Berlin: Springer.
- Huang, M., Hansen, D., Xie, B. (2012, February 7-10). Older Adults' Online Health Information Seeking Behavior. Paper presented at iConference, Toronto, Canada (pp. 338-345).
- Imes, R.S., Bylund, C.L., Sabee, C.M., Routsong, T.R., & Sanford, A.A. (2008). Patients' Reasons for Refraining from Discussing Internet Health Information with Their Healthcare Providers. *Health Communication*, 23(6), 538-547.
- Iverson, S.A., Howard, K.B., Penney, B.K. (2007). Impact of Internet Use on Health-Related Behaviors and the Patient-Physician Relationship: A Survey-Based Study and Review. *The Journal of the American Osteopathic Association*, 108(12), 699-711.
- Jiang, M. (2013). The business and politics of search engines: A comparative study of Baidu and Google's search results of Internet events in China. *New Media & Society*, 16(2), 212-233.
- Johnson, J.D., & Case, D.O. (2012). *Health Information Seeking*. New York, NY: Peter Lang.
- Kivits, J. (2006). Informed Patients and the Internet: A Mediated Context for Consultations with Health Professionals. *Journal of Health Psychology*, 11(2), 269-282.
- Larimer, S. (2014, November 11). Can this ad campaign get people in Belgium to stop Googling their symptoms? *The Washington Post*. Retrieved from <https://www.washingtonpost.com/news/to-your-health/wp/2014/11/11/can-this-ad-campaign-get-people-in-belgium-to-stop-googling-their-symptoms>
- Lee, K., Hoti, K., Hughes, J.D., & Emmerton, L.M (2014). Dr Google and the Consumer: A Qualitative Study Exploring the Navigational Needs and Online Health Information-Seeking Behaviors of Consumers With Chronic Health Conditions. *Journal of Medical Internet Research*, 16(2), e262.
- Lee, K., Hoti, K., Hughes, J.D., & Emmerton, L.M. (2015). Consumer Use of "Dr Google": A Survey on Health Information-Seeking Behaviors and Navigational Needs. *Journal of Medical Internet Research*, 17(12), e288.
- Medlock, S., Eslami, S., Askari, M., Arts, D.L., Sent, D., De Rooij, S., & Abu-Hanna, A. (2015). Health Information-Seeking Behavior of Seniors Who Use the Internet: A Survey. *Journal of Medical Internet Research*, 17(1), e10.
- Miller, L.M.S., & Bell, R.A. (2012). Online Health Information Seeking: The Influence of Age, Information Trustworthiness, and Search Challenges. *Journal of Aging and Health*, 24(3), 525-541.
- Morrison, R. (2015). Silver Surfers Search for Gold: a Study Into the Online Information-Seeking Skills of Those Over Fifty. *Ageing International*, 40(3), 300-310.
- Murray, E., Lo, B., Pollack, L., Donelan, K., Catania, J., Lee, K., Zapert, K., Turner, R. (2003). The Impact of Health Information on the Internet on Health Care and the Physician-Patient Relationship: National U.S. Survey among 1,050 U.S. Physicians. *Journal of Medical Internet Research*, 5(3), e17.
- Nouri, S.N., & Rudd, R.E. (2015). Health literacy in the "oral exchange": An important element of patient-provider communication. *Patient Education and Counseling*, 98(5), 565-571.



- Ong, L.M.L., De Haes, J.C.J.M., Hoos, A.M., & Lammes, F.B. (1995). Doctor-Patient Communication: A Review of the Literature. *Social Science & Medicine*, 3(7), 157-174.
- Pearce, C., Arnold, M., Philips, C., Trumble, S., & Dwan, K. (2011). The patient and the computer in the primary care consultation. *Journal of the American Medical Informatics Association*, 18(2), 138-142.
- Rider, T., Malik, M., & Chevassut, T. (2014). Haematology patients and the internet – The use of on-line health information and the impact on the patient–doctor relationship. *Patient Education and Counseling*, 97(2), 223-238.
- Rohrich, R.J., & Weinstein, A. (2016). Paging Dr. Google: The Changing Face of Plastic Surgery. *Plastic and Reconstructive Surgery*, 138(5), 1133-1136.
- Roter, D.L. & Hall, J.A. (2011). How Medical Interaction Shapes and Reflects the Physician-Patient Relationship. In T.L. Thompson, R. Parrott, & J.F. Nussbaum (Eds.), *The Routledge Handbook of Health Communication (Second Edition)* (pp. 55-68). New York, NY: Routledge.
- Sanders, K., Sánchez Valle, M., Vinaras, M., & Llorente, C. (2015). Do we trust and are we empowered by “Dr. Google”? Older Spaniards’ uses and views of digital healthcare communication. *Public Relations Review*, 41(5), 794-800.
- Scott, G., McCarthy, D.M., Aldeen, A.Z., Czerniak, A., Courtney, D.M., & Dresden, S.M. (2017). Use of Online Health Information by Geriatric and Adult Emergency Department Patients: Access, Understanding, and Trust. *Academic Emergency Medicine*, 24(7), 796-802.
- Silver, M.P. (2015). Patient Perspectives on Online Health Information and Communication With Doctors: A Qualitative Study of Patients 50 Years Old and Over. *Journal of Medical Internet Research*, 17(1), e19.
- Sommerhalder, K., Abraham, A., Zufferey, M.C., Barth, J., & Abel, T. (2009). Internet information and medical consultations: experiences from patients' and physicians' perspectives. *Patient Education and Counseling*, 77(2), 266-271.
- Statcounter (2019). *Search Engine Market Share Worldwide – January 2019*. Retrieved from: <http://gs.statcounter.com/search-engine-market-share>
- Tan, S.S., & Goonawardene, N. (2017). Internet Health Information Seeking and the Patient-Physician Relationship: A Systematic Review. *Journal of Medical Internet Research*, 19(1), e9.
- Thompson, T.L. & Robinson, J.D., & Beisecker, A.E. (2004). The Older Patient-Physician Interaction. In J.F. Nussbaum, & J. Coupland (2004), *Handbook of Communication and Aging Research (Second Edition)* (pp. 451-477). New York, NY: Routledge.
- United Nations Department of Economic and Social Affairs / Population Division (2017). *World Population Prospects 2017*. Retrieved from: <https://esa.un.org/unpd/wpp/>
- Vanderminden, J., & Potter, S.J. (2010). Challenges to the Doctor–Patient Relationship in the Twenty-First Century. In W.C. Cockerham (Ed.), *The New Blackwell Companion to Medical Sociology* (pp. 355-372). Chichester: Blackwell Publishing.
- Van Riel, N., Auwerx, K., Debbaut, P., Van Hees, S., & Schoenmakers, B. (2017). The effect of Dr Google on doctor–patient encounters in primary care: a quantitative, observational, cross-sectional study. *BJGP Open*, 1(2), BJGP-2017-0833.
- Wald, H.S., Dube, C.E., & Anthony, D.C. (2007). Untangling the web—The impact of Internet use on health care and the physician-patient relationship. *Patient Education and Counseling*, 68(3), 218-224.
- Xie, B. (2009). Older Adults' Health Information Wants in the Internet Age: Implications for Patient–Provider Relationships. *Journal of Health Communication*, 14(6), 510-524.

