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Current Online Health Information Searching Practices of New Zealanders: Preliminary Results from a Pilot Study

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Current Online Health Information Searching Practices of New Zealanders: Preliminary Results from a Pilot Study

Research-in-progress

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Abstract

The availability of free health information online makes the Internet a popular source for health information. The upward trend of online health information seeking has made this a popular research topic. While many researchers have explored various aspects of online health information searching, limited information is available on online health information searching within Aotearoa New Zealand. Existing research studies are dated and do not reflect current online health information searching practices. Thus, in this research in progress paper, we describe the online health information searching behaviour of New Zealanders (n=40). Key findings indicate a variety of sources is used. Participants search experience was either generally good or good. However, there is a need to educate online consumers about local health portals and to pay attention to information sources. Participants indicate the manner in which a search is performed could influence their search experience.

Keywords online health searching, source, search experience, health consumer, New Zealand

1   Introduction

People all over the world perform online health information searching. Citizens in Finland and the Netherlands frequently use the Internet to search for health information (Eurostat, 2021). Australian women regularly use online sources to find health information, advice and support (Maslen and Lupton, 2018).Online health information searching research studies in Aotearoa New Zealand, emerged in the early and late 2000s. New Zealanders use the Internet multiple times in a year to search for information on health and medication (Gauld and Williams, 2009; Honey et al., 2018). They rank the Internet as their third preferred source to obtain information (Honey et al., 2014). Moreover, New Zealanders found that information obtained from the Internet was useful and helpful (Gauld and Williams, 2009; Richards et al., 2018).

Whilst some information about online health information searching behaviour of New Zealanders is known, in recent years there has been a paucity of information. In addition, little is known about where specifically on the Internet do New Zealanders perform a health search. Do they utilise specialised health websites or is the search performed on social media platforms? This information is important as obtaining health information from non-reputable online sources could lead to concerns relating to misinformation (Swire-Thompson and Lazer, 2020). Thus, our first research question, *what are the online sources used by New Zealanders when performing a health search?*

It is acknowledged that performing an online health search can be tedious and many consumers report negative search experiences (Guo et al., 2020; White et al., 2009). Negative search experiences had implications on the search process (Sware et al., 2017). On the other hand, when the search experience was positive, online consumers report many benefits (Inthiran, 2016; Mayoh et al., 2011). The search experiences of New Zealanders has largely been undocumented. Thus, this research study attempts to fill this gap; leading to our second research question *what is the overall online health search experience of New Zealand consumers?* This is particularly important as a positive search experience could encourage future searches whilst a negative search experience could deter future searches. Encouraging future health searches could lead to advances for the consumer (Htay et al., 2022).

In summary, the aim of this research in progress paper is to explore the online health information searching behaviour of New Zealanders. Results of this research study will add to the domain knowledge by providing answers to the two research questions stipulated above. We note that online source is a key topic being discussed in current online health information searching literature. However, literature around search experience is less dominant; yet this area requires attention for reasons mentioned above. The rest of this paper is organised as follows. In the next section, related work is reviewed. The research methodology used to conduct this research study is explained. This is followed by a presentation of key findings and a discussion of key findings. The paper then concludes with insights into study limitations and future research directions.

2   Related Work

The discussion in this section will be divided into two sub-sections; online sources and search experience derived from our research questions. Within these sections we provide a discussion that includes literature from New Zealand (wherever possible) and internationally. Much insight on health information searching can be gleaned from research studies conducted internationally. These research studies are included to provide a worldwide view of the online health information searching scene. The sections below are in no way an exhaustive coverage of literature, rather it is a summary for scene setting for this current study.

2.1   Online Sources

Many New Zealanders indicate that the Internet is a helpful source to locate health information (Honey et al., 2014; Richards et al., 2018; Honey et al., 2018). However, New Zealanders had very little awareness of New Zealand based websites and health portals (Honey et al., 2014). Results from international research studies indicate the majority of online health consumers use general search engines (White et al., 2009; Chi et al., 2020). Very few use specialised health websites, government or educational institution's websites (White et al., 2009; Chi et al., 2020). One would argue that using a specialised health website would ensure information provided is credible (White et al., 2009). However, the situation is different in other parts of the world. For example, in Bulgaria, the majority of online consumers use specialised websites (Stankov et al., 2020). Similarly in Australia, patients waiting to see the doctor at an emergency department used hospital websites and online medical encyclopaedias (Cocco et al., 2018). Results of these research studies indicate there is a difference in sources used

depending on geographic location and the situational context of the search. In Ghana and China, social media platforms are primarily used to obtain health information (Sagnia et al., 2020 and Zhong et al., 2020). However, in the Middle East, social media platforms are avoided due to issues relating to trustworthiness (Alduraywish et al., 2020). Other research studies indicate source selection is dependent on severity of medical condition (De Choudhury, Morris, and White 2014) and search type (Zhong et al., 2020). Results of these research studies indicate the lack of consensus in relation to source selection.

2.2 Search Experience

Results of early studies around online health search experience indicate users encountered a myriad of search challenges (Eysenbach and Kohler, 2002; Mayoh et al., 2011). Results of newer research studies also indicate similar issues (Guo et al., 2021; Pourrazavi et al., 2022). This could mean that searchers still struggle to perform an online health search. In New Zealand, the search experience of consumers has overall been positive (Honey et al., 2014). On the other hand, in South East Asia participants report positive and negative search experiences. When the experience was negative, this led to online consumers feeling distraught and overwhelmed (Inthiran, 2016). Those who had a positive experience indicated being able to locate and comprehend information easily (Inthiran, 2016). Negative issues experienced especially when performing a health search can take a toll on a consumer's mental and emotional health (Inthiran, 2016); largely reducing search satisfaction and search efficacy. Thus, it is important to understand what led to a negative online search experience.

3 Research Methodology

A grounded theory approach using semi-structured interviews was used in this study. This is to allow for the adoption of a neutral view of human action in social context (Simmons, 2006). A purposeful homogenous sampling technique was employed. Semi-structured interviews was used to allow for deep exploration of participants thoughts and experiences (DeJonckheree and Vaughn, 2019). In the following sections, recruitment of participants, data collection and data analysis methods are discussed.

3.1 Recruitment of Participants

Participants were recruited through call for participation notices placed in universities and bulletin boards at community centres. Inclusion criteria included the following: (1) participants had to be New Zealand citizens, (2) be 21 years or older, and (3) needed to have conducted an online health search in the past 6 months. Exclusion criteria included (1) participants must not be working in or (2) have a formal qualification or (3) be in the process towards achieving an academic qualification in the healthcare or allied healthcare sector.

3.2 Data Collection

The interviews began with the researcher obtaining demographic information on age, gender, search experience and questions on online sources and search experience. These questions are: 1) What online source/s do you use when you perform an online health search? Participants were allowed to name as many sources as possible to capture a wide list. A follow up question was asked when participants were not able to name a source or if only search engines were named as source. This follow up question was – 1a. Do you know where the clicked results are taking you? We then asked questions in relation to their search experience - 2) Please rate your overall search experience using an option from the following scale:-Very bad, Bad, Sometimes good/sometimes bad, Generally good, Good, Very Good and 2a) why do you think the search experience was like this (depending on user response). Participants were allowed to express in their own words on how they thought their search experience went. The interviews were audio-recorded and transcribed verbatim to allow close links to be created between the data and the researcher (Strauss and Corbin, 1998). A pilot test was conducted with three participants to check the wording, comprehension and flow of questions.

3.3 Data Analysis

All responses provided by participants were accounted for in the analysis. Results in relation to age, gender and search experience were analysed using descriptive statistics. We used direct quotes when participants provided us with an explanation for online source used. The open data coding technique (Strauss and Corbin, 1998) was used to categorise participant's explanation for search experience. Coding categories were derived inductively from the audio recordings according to the grounded theory approach (Strauss and Corbin, 1998). A master list of codes was first created based on induction. Codes were then reduced to themes using the constant comparative method (Strauss and Corbin, 1998).

4 Key Findings

There were 40 participants in this study. Participants' average age was 37.6 years (SD=15.4, range: 19-70 years). There were 21 males and 19 females. The average online health search experience was 15 years (SD=7.9; range: 2-20 years). Results in Table 1 indicate Google is the most common source used, followed by government websites and health organisation's websites.

Source	Number of participants (%)
Google	18 (45)
Government Websites	6 (15)
Health Organisation Websites	5 (12.5)
Online Journals/Research papers	4 (10)
Healthline	3 (7.5)
Other Search Engines	2 (5)
Facebook	1 (2.5)
Herbal Life Nutrition Website	1 (2.5)

Table 1. Online Sources Accessed

As Google, Baidu and Microsoft Edge (other search engines) are only search engines, we asked participants if they were taking note of the source when they clicked on returned results (Q1a). Most participates who used search engines indicate they do not know where information was coming from (source). Three participants specifically told us that they do not check the source for the following reasons "*I do not check the source as I only look at the top results*" and "*I avoid blogs, so everything else should be okay*". When health organisations were used, only two health organisation websites were specifically named; the World Health Organisation (WHO) and the Centre of Disease Control (CDC). Whilst many participants used government and health organisation websites, they were not able to name the specific website used. Instead, participants indicate checking the web address and only reading information from sites that have .edu or .gov/.govt as the top-level domain indicator. There were also more advanced online health consumers who searched using online journals/research papers. Participants explained the query terms keyed in specifically limited results to research papers. For example, one participant explained, "*I would key in 'diabetic research papers' as a query*". Three participants indicate using Healthline – which New Zealand's Ministry of Health web portal.

Search Experience	Number of participants (%)
Very Good	0 (0)
Good	0 (0)
Generally good	32 (80)
Good	7 (17.5)
Sometime good/sometimes bad	1 (2.5)
Bad	0 (0)
Very Bad	0 (0)

Table 2. Search Experience

Results in Table 2 provide information on participant's search experience. Most participants rated their search experience as either generally good or good. Only one participant rated his experience as sometimes good/sometimes bad. Based on analysis of participant's responses (Q2a) five themes emerged based on search experience. These themes are: query, results, verify, liking and success. The query theme is defined as participants who rely on querying ability to determine search experience. Results is defined as participants who use returned results to determine search experience. Verify is defined as participants who check information for veracity in order to determine search experience. For prefer, participants indicate that the type of search results obtained determines search experience. For success, participants indicate a successful end to a search session determines search experience. Each of these themes are described using illustrative quotes from participants in Table 3. Most participants belonged to the success theme (n=32, 80%). Only one participant each belonged to the following themes: query, verify and prefer. There were five participants who belonged to the results theme.

CaTheme	Quotes from participants	Search Experience Category
Q Query	• *'I think my experience will depend on my keywords. If I am able to use good keywords I will get good results'*	Sometimes good/sometimes bad
ReResults	• *'I only look for general information, I do not go in depth'* • *'If I search too much, I might find incorrect information'* • *'the more I look the more I get different opinions'* • *'sometimes there is too much information'*	Good and Generally Good
VeVerify	• *'I see a lot of information from amateurs, sharing their experience, but these are not information from experts or doctors'*	Good and Generally Good
Pr Prefer	• *'I want quick information, video or images. I do not like to read text'*	Good and Generally Good
SuSuccess	• *'I am able to understand and location information easily'*	Good and Generally Good

Table 3. Themes with illustrative quotes from participants along with search experience category

5   Discussion of Key Findings

Similar with previous research studies, this study found search engines are the most popular source used to perform an online health search (White et al., 2009; Chi et al., 2020). However, this study indicates many also used specialised health websites, government and educational institution websites, indicating a preference and awareness of new sources. Yet, the level of awareness of New Zealand based health websites is low, as only 3 participants specifically mentioned Healthline. No other New Zealand based websites were mentioned (Health Navigator, Age Well NZ, HealthEd). This is similar to results of a 2014 New Zealand study (Honey et al., 2014). New Zealand based health websites could have localised health information. Localised heath information could be beneficial to the community. Thus, there must be a push to advertise and inform consumers of the existence of these health websites. One method to do this is by advertising these health websites on mass media, at clinics and with doctors encouraging patients to use New Zealand based health websites. Citizens would then perform future searchers on these websites without having to concern themselves with issues in relation to credibility, reliability and trustworthiness. While, international health websites were mentioned, this is probably because these international websites have been around for a long time and are well known, for example the World Health Organisation. Whilst some participants were not able to specifically name websites used, they were able to check top-level domain indicators. These participants demonstrate high digital literacy levels, as they were able to use top-level domain indicators as a source verification technique.

It is noted that most participants do not check or do not know where Google is taking them when returned results is clicked. This means, we still do not know where information is being obtained and this is a concern. Based on participant's responses, we note that there is a difference between not knowing versus not checking. When you do not know, it could be due to ignorance; but when you do not check, this could indicate that the searcher is aware of but chooses not to verify information for credibility and reliability. The sheer amount of misinformation on the Internet (Swire-Thompson and Lazer et al., 2020) necessitates checking of sources. Thus, there is a need for awareness campaigns,

training and education programs to be in place to educate health consumers on best practices when searching for health information online. Being misinformed could potentially lead to severe consequences to consumer's quality of life and in some cases, risk of mortality (Swire-Thompson and Lazer et al., 2020). This study confirms the results of a previous study that indicated very low rates of New Zealand consumers checking for credibility of their online health sources (Gault and Williams, 2009).

Concerns raised about search experience include information overload, confusion, inability to decipher information and reliance on their querying ability; however, these were not severe enough to mar their search experience as most participants thought their search experience was generally good or good. These results are similar to those of a previous study conducted in New Zealand (Honey et al., 2014), but dissimilar to results of international research studies (Guo et al., 2021; Pourrazavi et al., 2022). There could be several reasons for the dissimilarities, one reason could be the issue of 'searcher and context subjective' which is elaborated below. Most participants in this study indicated they were able to comprehend and locate results easily and this contributed to a positive search experience. We argue that health searching is not only about locating and comprehending information. Depending on the search goal, there is a need to search widely and broadly. There is also a need to ensure information is trustworthy and current. For example for the query 'can cancer come back' a searcher may need to read lengthy pages, understand medical jargon, deal with conflicting information and may end the search without satisfying their search goal. Thus, possibly contributing to a negative search experience. We also argue that the search experience could be dependent on a searcher's digital literacy levels. For example, an online health consumer with a high digital literacy score may be able to easily issue precise queries, as this searcher understands how information is retrieved from a search engine. The issuances of precise queries would limit the number of returned results thus reducing issues with information and cognitive overload. Thus, we postulate that search experience is 'searcher and context subjective' and future work is needed in this area.

6   Limitations and Future Work

Preliminary results from this research in progress paper provides information on the online health information searching behaviour among a small population of New Zealanders. We acknowledge that there were only 40 participants however, results add to the domain knowledge of online health information searching. In addition, we did not include occupation details of participants nor did we specifically define the term health information. This information could potentially enrich our results. In future work, we intend to explore other aspects of online health information searching. For example, when was a search performed, what topics were searched for, who was it for and what was done with information obtained from the search. We would also like to analyse the interactive search sessions of consumers. This will provide us with broader picture of the end-to-end process of New Zealanders online health searching behaviour.

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