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Online Health Information Seeking Behavior in Hong Kong: An Exploratory Study

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## Online Health Information Seeking Behavior in Hong Kong: An Exploratory Study

**Abstract** This is an exploratory study that described the prevalence and patterns of internet health information seeking in Hong Kong. A convenient sample of 443 individuals completed the questionnaires. Only 44% (N=195) of the respondents were identified as health surfers. Health surfers tended to be younger females (age group 20-29) and have higher education. Digital divide was evident by age and education. Professional health sites (78.0%) were the majority sites visited. Health topics searched ranged from women's/men's health to chronic diseases such as heart diseases, cancer and diabetes. About 60% of health surfers spent less than 10% of time online seeking health information. Over 60% considered online health information useful, however, about 44% were uncertain about the reliability of this information. The results underline the need for bridging the digital divide and the potential for pro-active use of the internet for health promotion.

**Keywords** health information seeking, Hong Kong, internet, prevalence

### Introduction

Hong Kong is one of the cities with the highest personal computer (PC) and internet usage in the world. The use of PC and internet has penetrated into homes rapidly and has maintained at a high level. In 2007, 74.2% of all households had PC; and among these households, 94.5% had connection to the internet [1]. In addition, Hong Kong people enjoy high-speed broadband internet connection. The broadband penetration rate (77.3% of households) is among the highest in the world [2]. The internet has become a major information source, contending with traditional media, such as newspaper, radio and television.

The internet has changed the way people search for various types of information, entertainment and communication needs. Internet use to acquire health information is increasingly common. A summary of the Pew Internet and American Life Project datasets indicated an upward trend in online health information seeking [3]. About 80% of American internet users searched medical and health information online [4,5]. Recent studies reported that four in ten adults [6] and one in four adolescents [7] had searched online health information.

To meet the growing demand for online medical and health information, the internet has expanded swiftly. Individuals can access various mediums, including websites, chat rooms, support groups, listservs, newsgroups and emails. As the internet is flooded with a multitude of online health information that lacks regulations on its contents, concerns about the completeness, accuracy and credibility of this information emerge. In order to regulate the quality of websites offering health information, criteria and principles are thus developed by both commercial and academic organizations. The Code of Conduct for medical/health websites (HONcode) established by the Health on the Net Foundation[8] is considered as a competent standard. However, substantial variations in the accuracy and readability of this online information still exist [9]. Problems of online health

information, that included the over usage of technical language, inaccurate or misleading information, risk promoting messages and retrieval of disorganized collections of medical information, are identified [10].

Patterns and characteristics of online health information seeking has become a major scholarly research focus. There are studies examining the online health information seeking patterns and behavior in adolescents [11,12,13]; and they concluded that adolescents' growing use of the internet to obtain health information would inevitably continue. Hanauer et al. [14] found that adolescents did not consider the source of the website contents and that diet/nutrition was the most popular health topic young adults sought online.

There is research on online health information seeking and women's health. Bowen et al. [15] discovered that women's health-related internet use could be predicted by level of general health perception, older age and higher income. Pandey et al. [16] stated that women increasingly relied on the internet to acquire health information in addition to traditional sources. Studies also indicated that females were more likely to use the internet as a health information source than males [3,6,17].

A recent survey reported that only 21% of Americans aged 65 years or older had surfed the internet for health information [18]. As the internet has the potential to deliver health care information, it is necessary to ensure the elderly become proficient at using this new medium. Campbell and Nolfi [19] discovered that the elderly were willing to use the internet as a source of general health care information. Flynn et al. [20] noted that the psychological and health characteristics of the elderly affected the timing of online health information searches, and sick individuals sought online information after a doctor visit.

In addition to the research conducted in the US, there are studies on the prevalence and pattern of online health information seeking in Singapore [21], Croatia [22] and Greece [23]. However, there have been no studies to date that examine the online health information seeking patterns and behavior in Hong Kong. The objectives of this study are to explore the prevalence and patterns of online health information seeking by Hong Kong Chinese and to assess the degree of confidence the surfers have in this online information. Findings hold implications for formulating guidelines and recommendations to regulate the contents of the health websites and to help surfers use the internet sensibly; and providing important insights to how the internet is transforming health care system in Hong Kong.

## **Materials and methods**

### **Subjects**

The study was a cross-sectional survey. Survey responses were collected through a convenience sample in fall and winter 2006. A total of 1000 questionnaires were distributed in urban public areas including shopping locations (in Hong Kong Island and Kowloon) and subway stations (where interchanges took place) where flows of people were high. In the process of distributing and collecting questionnaires, the randomly selected interviewees were told about the survey's objective, methods and

confidentiality. The survey was interviewer-administrated. A total of 443 individuals (44.3%) agreed to participate in the study and completed the questionnaires.

### Survey instrument

The survey instrument was an anonymous questionnaire designed to ascertain the prevalence, practice and demographics of individuals who sought online health information. Identical to the studies of Fox and Rainie [24] and Siow et al. [21], the definition of health websites in this study was websites that provide information on the enhancement or maintenance of physical or mental health, or information on specific diseases or drugs.

In this survey, a health surfer was defined as a respondent who said “yes” to the question “Have you ever surfed websites that provide health information in the past 6 months?”. In addition to demographic information, non-health surfers were asked to state their reason for not searching for online health information. All respondents were also requested to identify their major sources of health information.

Questions in the survey were based on those developed by Fox and Rainie [24] and Siow et al. [21], and they were all close-ended. Health surfers were asked to state the reasons for surfing health information online, types of websites visited and health topics searched. They were requested to indicate their level of agreement or disagreement to statements related to the confidence level of online health information along a five-point scale, on which 1 indicated strong disagreement and 5 indicated strong agreement. They were also asked to state the importance of the significant criteria by which they judged the trustworthiness and credibility of health websites, from a list of criteria adopted by Siow et al. [21], Escoffery et al. [12] and the HONcode published by the Health on the Net Foundation [25]. Health surfers were also asked to identify action taken after obtaining online health information.

### Data analysis

Descriptive statistics were employed to describe the demographics of the respondents, the prevalence and patterns of online health information seeking. Chi Square ( $\chi^2$ ) tests with 95% confidence levels were used to uncover the differences among the demographic variables of health surfers in the prevalence of health information surfing. To determine whether there were differences in the confidence levels of the websites visited among health surfers, ANOVA was used.

## Results

### Demographics and Prevalence of health surfers

Of the 443 respondents, 195 (44.0%) indicated that they had looked for health information online (i.e. health surfers). The demographics of all respondents are presented in Table 1. Majority of non-health surfers had monthly income <\$10,000 (62.1% of all non-surfers). Not knowing how to use the computer and internet (31.9%) and no need to do so (27.8%) were the main reasons of not seeking online health information, followed by the lack of interest (24.6%) and awareness (12.9%). Not having time to surf online health information was the other reason (2.8%).

There were significant differences among the demographic variables of health surfers (Table 1). Females were more likely to surf online health information ( $\chi^2=6.282$ ,  $df=1$ ,  $p=0.012$ ). Majority was from age group 20-29 (57.4%;  $\chi^2=261.831$ ,  $df=5$ ,  $p=0.000$ ). Most health surfers had tertiary education (68.7%;  $\chi^2=134.860$ ,  $df=2$ ,  $p=0.000$ ); and a monthly income of \$10,001-\$20,000 (44.6%;  $\chi^2=213.338$ ,  $df=5$ ,  $p=0.000$ ).

#### Sources of health information

Traditional mass media (49.2%), such as radio newspaper and television, remained as the major source of health information, followed by doctors or health care providers (25.1%), the internet (12.8%) and books or pamphlets (10.8%). Relatives and friends were other sources of health information (2.1%).

#### Reasons for searching for online health information

Health surfers were asked to give more than one reason for searching for online health information and there were a total of 440 responses. A fair proportion of respondents surfed for disease-specific information (27.5%) and general information on healthy lifestyle (22.5%), followed by gathering medical news (13.9%), clarifying what a doctor said (12.0%), getting information on drugs/medication (10.9%) and medical/health services (10.9%). Other reasons are to visit support groups or newsgroups (2.3%).

#### Providers of health websites

Table 2 presents the providers of health websites visited by health surfers. The majority of the respondents visited mostly professional websites (78.0%), and these included government (28.8%), non-profit organization (22.3%) and hospital (16.2%) sites. Other websites visited were support groups (11.8%) and drug company (7.3%) sites. Other sites visited included newsgroups, chat rooms and other commercial sites.

#### Health topics searched

The health topics searched by health surfers were diverse (Table 3), ranging from women's/men's health and diet/nutrient to chronic diseases such as heart disease, cancer, diabetes and arthritis.

#### Confidence in online health information

Over 60% of the respondents found online health information useful. However, over 40% doubted the reliability and trustworthiness of health information from the internet (Table 4). Health surfers were also asked to rate their confidence in online health information on a scale of 1 to 5. The mean score of all online health surfers was 14.24 (SD=2.54). The ratings were discovered not being significantly different among the demographics.

#### Important criteria for health websites

The majority of health surfers considered the online health information from a professional (62.6%), ease of understanding (56.4%) and current information (50.7%) to be the most important criteria for health websites (Table 5).

#### Action taken after getting online health information

In response to the health information obtained online, improving one's lifestyle (42.1%) was the most popular action taken. Less than twenty percent (18.5%) of the health surfers would consult a doctor for more information, and 9.7% would make treatment related decisions. About 27.2% of the respondents would do nothing. Other actions taken (2.5%) included the purchase of over-counter drugs and improvement in medication compliance. Actions taken after obtaining online health information was found not significantly differed among the demographics of health surfers.

#### Discussion

The present study is exploratory in nature. Results suggest that females are more likely to seek online health information than males. Age and education level are other major factors that influence health information seeking. The highest proportion of health surfers occurred in the 20-29 years age group, who typically searched for diet/nutrient information. This higher prevalence may also be a reflection of greater health awareness of this age group.

Health surfers, who had lower education level and were at older age groups (age  $\geq 50$ ), were less likely to search for online health information. These findings are consistent with previous studies [10, 26,27,28] and reflect the issue of the "digital divide", that is the gap between the 'have' and 'have-nots' in information communication technology. The 'have-nots' are the socially disadvantaged groups, such as people with lower income, lower education attainment or disabilities and senior citizens [29]. A recent study further indicated that the gap between the old and young online health surfers appeared to have widened [30]. Nevertheless, despite the costs and lack of skills of technology that contribute to the digital divide, older adults were found to be willing to seek online health information if training and support were given [31,32]. The confidence of older Chinese in getting online health information in Hong Kong was discovered to be associated with their satisfaction with the web-navigating workshop [33]. Further, through an e-health program, the senior Chinese were able to master computer-operating skills and to access online health information [34]. Computer skill training and support to the elderly can also improve their psychological state of mind and self-efficacy [35,36]; and the provision of such training should be related to their physical and cognitive needs and be offered through their social networks [37].

Traditional mass media (49.2%) and doctors/health care providers (25.1%) continued to be the other main sources of health information among online health surfers. These findings are to be expected, as the former has become an accessible source of information over the years. The preference of doctors/health care providers is primarily due to their credibility. Siow et al. [21] revealed that about one quarter of Singaporean health surfers preferred doctors as their source of health information because of accessibility and credibility.

The internet is currently burgeoning with healthcare information, some of which are inaccurate or misleading, incomplete and in technical language. Over 40% of the health surfers were uncertain whether the information found online was reliable and trustworthy. Previous studies indicated that authority of source, currency and ease of use were the key criteria for health websites [12,38]. The findings of this study confirm that credibility of information is crucial. The majority of health surfers visited professional websites, including government and hospital sites. This further supports the notion that authoritative websites is an important factor. This also reflects the maturity of health surfers.

The findings, that acquiring information on specific disease and healthy lifestyle was the most common reason for seeking online health information, are consistent with previous studies [12,21,22]. Heart disease and cancer were found to be among the top 5 topics searched; and this findings was similar to previous studies by Flory [39] and Siow et al. [21]. Researchers have raised questions about whether access to online health information will enhance, replace or impede one's medical care [40,41]. It appears that many individuals arm themselves with information from various sources including the health care providers and the internet. Patients become active participants in their health care. This active participation of consumers highlights the importance of doctor's role in educating patients about reliable healthcare websites, as well as how to interpret and integrate information found online.

The internet has significant impact on health awareness of online health seekers. A substantial proportion of health surfers (42.1%) would improve lifestyle. About 20% would consult healthcare providers. These findings support the results of previous research that health surfers would contact doctors/health care providers for more information or improve their ways of taking care of their health [12,17,21]. It is apparent that health surfers use the internet to enhance their medical care and empower their knowledge in addition to other health information sources. Hence, it is crucial for the internet to be a tool to disseminate accurate medical and health information. Some already developed guidelines [41,42] have been adopted to help surfers gauge the quality of online health information. Usually the rating instruments employ logos (such as awards), that appear notably on health websites, to denote their quality. However, a recent study ascertained that many incomplete developed rating instruments continued to appear on health websites [43]. It is thus essential to develop alternative ways to help people find reliable and accurate online medical and health information.

The present study discovered that a fair proportion of health surfers (27.2%) would do nothing after getting online health information, and about half of them had a monthly income of <\$10,000 although no significant difference was found between the demographics and actions taken after the acquisition of online health information. The findings may indicate that they may be suspicious of the trustworthiness of this information or they lack financial resources to take any actions. To better comprehend health behaviors of health surfers, in-depth studies are required. Further, future research should focus on the health behaviors of both health surfers and non-surfers to better understand the awareness of health information resources of these groups, and then investigate whether increased awareness of different resources would lead to better health related decisions. Results of such studies would provide insights into the impact of online health information on health care system in Hong Kong.



It is important to keep in mind that a convenient sampling was used in the present study. In addition, the response rate was 44.3% that reflects the unwillingness in questionnaire survey participation. Since the public is wary about the omnipresent use of surveys, the sample may not be representative and may affect the accuracy; and thus the results may not be generalized to the community at large.

## Conclusion

The present study is an exploratory examination of the prevalence and patterns of online health information seeking by Hong Kong Chinese. About 44% of the respondents were online health surfers, who were primarily in the age group of 20-29 and more educated. It is discovered that digital divide is evident by age and education. Adults at age  $\geq 50$  and having primary education who sought health information online comprised only 3.6 % and 1.0% respectively of all online health information seekers.

The internet is transforming health care, and has the potential to combine all existing health information sources. The general public increasingly uses the internet as a complementary resource for health information. With the rapid development of the internet and broadband in Hong Kong, health information dissemination via the web will become another major means, and pro-active use of the internet for health promotion is possible. Health professionals need to be more responsive to the utilization of the internet to deliver better health care for consumers. Furthermore, bridging the digital divide is also essential with the aging population. Programs, such as the geragogy-based health web-navigating workshop in summer 2004 [33] and the e-health program [34], can help to gap the digital divide and empower older adults in dealing with health issues.

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**Table 1** Demographics of respondents

	<b>Have surfed internet for health information (health surfer) (%)</b>	<b>Have not surfed internet for health information (%)</b>	<b>Total number (N)</b>
<b>Gender</b>			
Male	40.0 (N=80)	60.0 (N=120)	200
Female	47.3 (N=115)	52.7 (N=128)	243
<b>Age</b>			
<20	33.3 (N=15)	66.7 (N=30)	45
20-29	60.2 (N=112)	39.8 (N=74)	186
30-39	53.3 (N=40)	46.7 (N=35)	75
40-49	30.4 (N=21)	69.6 (N=48)	69
50-59	12.0 (N=6)	88.0 (N=44)	50
≥60	5.6 (N=1)	94.4 (N=17)	18
<b>Education</b>			
Primary	2.8 (N=2)	97.2 (N=70)	72
Secondary	39.1 (N=59)	60.9 (N=92)	151
College or above	60.9 (N=134)	39.1 (N=86)	220
<b>Income (monthly in HK\$)</b>			
<\$10,000	31.9 (N=72)	68.1 (N=154)	226
\$10,001-\$20,000	54.4 (N=87)	45.6 (N=73)	160
\$20,001-\$30,000	61.8 (N=21)	38.2 (N=13)	34
\$30,001-\$40,000	50.0 (N=4)	50.0 (N=4)	8
\$40,001-\$50,000	62.5 (N=5)	37.5 (N=3)	8
>\$50,000	85.7 (N=6)	14.3 (N=1)	7

**Table 2** Providers of health websites visited

	<b>Number of responses</b>	<b>Percentage</b>
<b>Professional</b>	298	78.0
government	110	28.8
non-profit organisation	85	22.3
hospital	62	16.2
university website	38	9.9
others	3	0.8
<b>Support groups</b>	45	11.8
<b>Drug company</b>	28	7.3
<b>Others</b>	11	2.9

\* Each respondent was asked to give more than one response.  
Total number of responses was 382

**Table 3** Health topics searched

<b>Topics</b>	<b>Number of responses</b>	<b>Percentage</b>
Women's health	102	13.9
Nutrition/diet	87	11.8
Cancer	72	9.8
Men's health	70	9.5
Heart diseases	60	8.1
Drug/medication	60	8.1
Mental health	59	8.0
Skin diseases	49	6.6
Sexual health	46	6.2
Digestive disorder	36	4.9
Diabetes	33	4.5
Asthma	32	4.4
Arthritis	18	2.4
Others	13	1.8

\* Each respondent was asked to give more than one response.  
Total number of responses was 737

**Table 4** Confidence in health information obtained

	<b>Strongly disagree (%)</b>	<b>Disagree (%)</b>	<b>Uncertain (%)</b>	<b>Agree (%)</b>	<b>Strongly agree (%)</b>
Found useful information	0	8.2	22.6	56.4	12.8
Have found what was searching	0.5	8.7	26.2	54.9	9.7
Found health information reliable	0.3	9.1	44.2	40.7	5.7

**Table 5** Important criteria for health websites

	<b>Not important</b>	<b>Somewhat important</b>	<b>Very important</b>
Information is from a professional	0	37.4	62.6
Currency of information	2.1	47.2	50.7
Ease of understanding	1.5	42.1	56.4
Information agrees with doctors	8.7	44.1	47.2
Site has links and source of information	6.7	49.7	43.6
Site is accredited to reputable organization	4.6	52.3	43.1