

The Correlation of Online Health Information Seeking Experience with the Health Related Quality of Life: A Cross-sectional Study among Iranian Female Students

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Research

Keywords: Health-related quality of life; SF6; Information seeking behavior; Online health information; High School Students, Health Literacy

Posted Date: April 3rd, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-19224/v1>

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Version of Record: A version of this preprint was published at Journal of Medical Internet Research on March 1st, 2020. See the published version at <https://doi.org/10.2196/18498>.

Abstract

Background: Given the increasing availability of internet, it has become a common source of health information for all population including students. However, the actual effect of this increased access to information on the health status and its different aspects needs to be studied more. This study aimed to investigate the correlations between online health information seeking behavior and health related quality of life in a sample of high school students of Iran.

Methods: A survey was conducted among secondary school girl students of Yazd province, Iran in 2019. A total of 295 students participated in the study. The required data were gathered using two valid questionnaires including eHIQ (Kelly et al., 2015) to measure the online health information seeking experience and validated Persian version of SF-36 to measure the health related quality of life. The collected data were analyzed through descriptive statistics and Pearson correlation coefficient using SPSS version 23.

Results: The mean score of eHIQ was 2.71 ± 0.71 . Mean scores for physical component summary and mental component summary of SF-36 were 72.90 ± 16.20 and 63.19 ± 22.26 , respectively. eHIQ score showed no statistical correlations with physical component summary ($P=.46$) and mental component summary ($P=.53$).

Conclusion: The findings suggest that seeking online health information does not improve the health related quality of life. The possible causes are discussed but this finding should be studied more.

Background

Adolescence refers to the age range of 10 to 19 years [1]. It is generally supposed that this period is an appropriate time to maintain and promote health and prevent health-related adverse effects in the following decades of life [2]. Despite this potential, adolescents have special needs that are often not well met by health systems [3]. Evidence suggests that many high-risk behaviors that usually begin in adolescence cause an epidemic of non-communicable diseases in adulthood [4]; an 18-year prospective study has showed that physical activity in adolescence had a significant effect on one's health in adulthood [5]. Today, adolescents are facing multiple health-threatening factors, various questions on different aspects of health and more complicated health challenges and problems compared to their parents [6]. Studies on adolescent health status highlight the necessity of changing the assumption that adolescents are generally healthy and need less attention [7]. Therefore, the question is that where adolescents can get help or information when faced with such challenges?. Family, peers, teachers, health specialists and online resources are the common sources that adolescents seek information and advice on health challenges [8].

Health information is defined as any health-related information that can affect the quality of life. It includes a wide range of information that can be used in individual and social health decisions [9]. In general, people choose different ways to find health information. Health information seeking behavior refers to seeking and receiving information in order to reduce uncertainty and doubts and to ensure health status [10]. As Wilson has explained in his popular model, the onset of the health information seeking behavior is occurred as a secondary need to information subsequent to a primary health need which can be succeed or failed in meeting the need [11,12].

Like in most fields, health information seeking has changed from traditional practices such as referring to books and magazines and even direct expert advice to new methods such as the use of the Internet and social networks [13]. The rapid expanding of internet has changed the health information seeking behavior of societies. It has dramatically changed information behavior from passive information receiving from statistic sources such as books to active information seeking from dynamic and user-contributed sources such as online blogs and forums [14]. Internet provides an easy and cost-effective source of health information for peoples [15,16]. Using internet for health-related applications is so widespread that it said searching health information has become the most common use of this technology [1,3,17]. Online resources play an important role in providing health information and young people are increasingly using online information in various domains. In their systematic review, Eunhee Park et al. [2018] showed that adolescents use the Internet widely in different countries [13].

According to another systematic review, 80% of studies indicated that more than 50% of their samples use the Internet to obtain health information [13]. Studies show that adolescents use Internet to find answers for the wide range of health-related questions but on the other hand, they doubted about the comprehensibility and validity of online information [13,18].

Johnson et al. (2015) found out that the youth with lower mental quality of life used the Internet more to gain health information [19]. Besides, studies have showed that adolescents with more health risk factors and those with worse health status, higher health literacy, and a chronic disease are more likely to use the Internet to search health information [20]. In this regard, a question has been remained as a main concern which is that whether the adolescents have sufficient ability to effectively search, evaluate and use the online health information in a way that it promotes their health [21,22]. Thus, adolescents' ability to access health information online can be described as a double-edged sword that may have a positive or negative impact on their health. Also, in this regard health misinformation or fake news is another challenge. Health misinformation is false or incorrect health-related information that is deliberately or unintentionally distributed. Internet technology, beside its advantages, has also facilitated the dissemination of such misinformation which is considered as a health threatening challenge [23].

Since a high percentage of Iranian population is adolescents and youths, and due to the cultural and religious contexts of the country, some of the challenges that adolescents face are not posed to their parents or professionals. Therefore, the Internet seems to provide an opportunity through which they can seek answers to their health-related questions, especially given that Iran has one of the highest rates of internet access in its region [24]. Recent reports shows that internet penetration rate in Iran has increased to more than 90% of population and the majority of the students have access to internet. Hence, this study aimed to investigate the relationship between online health information seeking behavior and health related quality of life in a sample of high school girls in Iran.

Methods

This survey was aimed to examine the correlations between online health information seeking behavior and health related quality of life aspects in a sample of high school girl students of Iran during 2019. Inclusion criteria were to have the access to internet, having the experience of seeking health information in the 6 months prior to study and informed consent to participate in the study. Those students who have had a specific health condition in the 6 months period prior to the study were excluded from the study. A total of 295 high school students of Yazd province, Iran who had the access to internet and the experience of health information seeking participated in the study. All participants provided informed consent to be included in the study and were assured that their personal information would be kept confidential. The parents of the students were made aware of the participation of their children in the study and had the opportunity to refuse to let their children participate in the study. The school principal and students' teachers approved the study. All the study procedures were conducted in accordance with the ethical standards of the Declaration of Helsinki. Questionnaires were completed in class, and any students who were absent on the testing days had the opportunity to participate in the study the following days. All the required data were gathered using two valid questionnaires including:

1. eHIQ (e-Health Information Questionnaire part 1 and 2): eHIQ was used to measure the online health information seeking behavior of participants. The eHIQ, developed by Kelly et al. in 2015 [25] as the instrument to measure the potential consequences of using websites containing different types of material across a range of health conditions, is a 2-part instrument with 37 items. eHIQ-Part 1 includes 11 items relating to general views of using internet in relation to health. 11 items of eHIQ-Part 1 have been grouped into 2 sub-scales named Attitudes towards online health information (5 items) and Attitudes towards sharing health experiences online (6 items). eHIQ-Part 2 includes 26 items relating to the consequences of using specific health-related online sources. 26 items of eHIQ-Part 2 also have been grouped into 3 sub-scales including Confidence and identification (9 items); Information and presentation (8 items) and Understanding and motivation (9 items). In our study, the participants were asked to response the 26 items of eHIQ-Part 2 regarding to the online sources which they have sought during the 6 months prior to the study. Also, the participants were asked to score all items of both parts on a 5-point scale ranging from 'never' to 'always' scored 1–5. We used a standard 'forward–backward' procedure to translate the eHIQ from English into Persian. To demonstrate content validity, we used the content validity ratio to quantify the extent of experts' agreement. The validity of the scale was confirmed by 10 faculty members of healthcare management, health information management and health promotion and education. The reliability of the translated version of the eHIQ was confirmed using Cronbach's alpha using 20 completed questionnaires prior to the study. Cronbach's alpha coefficients were as 0.89 for the total scale and 0.81, 0.87, 0.94, 0.83 and 0.91 for Attitudes towards online health information, Attitudes towards sharing health experiences online, Confidence and identification, Information and presentation and Understanding and motivation , respectively.
2. SF-36: The 36-item short form health survey questionnaire (SF-36) is a popular instrument for assessing health-related quality of life. The SF-36 have 36 item which measure eight sub-scales i.e vitality, physical functioning, bodily pain, general health perceptions, physical role functioning, emotional role functioning, social role functioning and mental health. These 8 sub-scales of SF-36 are grouped into two distinct dimensions named physical dimension represented by the Physical Component Summary (PCS) which is the sum of physical functioning, bodily pain, general health perceptions and physical role functioning and a mental dimension represented by the Mental Component Summary (MCS) which is sum of vitality, emotional role functioning, social role functioning and mental health. After completing the questionnaire, each scale is directly transformed into a 0-100 score on the assumption that each question carries equal weight. The lower the score the more disability. The higher the score the less disability i.e., a score of zero is equivalent to maximum disability and a score of 100 is equivalent to no disability. In this study we used the Persian version of SF-36 which had been validated by Montazeri et al. (2010) [26]. Also, we used the original scoring system. The collected data were analyzed through descriptive statistics (including means and standard deviations) and Pearson correlation coefficient using SPSS version 23.

Results

The participated students were aged between 13–19 years. 16 students were married and the rest were single. All of them had the access to internet in their home and the experience of seeking health information through internet in the 6 months before the study.

The descriptive results of the studied students' information seeking behavior are presented in Table 1. Table 1. shows that the participants have moderate scores regarding all sub-scales of eHIQ-Part 1 and Part 2. In this study the mean scores between 1-2.33, 2.34–3.66 and higher than 3.66 were defined as low, moderate and high levels. The moderate scores obtained by participants in 2 sub-scales of eHIQ-Part 1 indicate that the participants moderately had used internet in their health-related decisions and they thought that internet could be moderately useful to help people in their health-related decision makings. Also, they thought that internet is a moderately good channel to share the health experiences and to seek some people with the same health problems. Also, the moderate score of participated students regarding confidence and identification presents that they had not a sense of solidarity with other internet users in their information seeking journey; internet did not give them a sense of confidence to explain their health issues with others and they thought that online search did not help them to better manage their health-related conditions. Therefore, they didn't highly value the online health information. The moderate scores of participants regarding the last two subscales of eHIQ-Part 2 including "information and presentation" and "understanding and motivation", shows that the information provided by health websites had been moderately understandable and reliable for the participants and moderately encouraged and motivated them to play an active role in their health promotion.

Table 1
Mean scores of online health information seeking behavior of the participants (n = 295)

Items	Mean (SD)
eHIQ-Part 1	
Attitudes towards online health information	2.46 (0.80)
Attitudes towards sharing health experiences online	2.77 (0.90)
eHIQ-Part 2	
Confidence and Identification	2.52 (0.77)
Information and Presentation	2.90 (0.79)
Understanding and Motivation	2.90 (0.88)
eHIQ [total]	2.71 (0.71)

Table 1: Mean scores of online health information seeking behavior of the participants (n = 295)

The descriptive results of the students' health status regarding SF-36 sub-scales are presented in Table 2. As shown in Table 2, the participants had moderate to good scores regarding to the SF-36 subscales. They obtained the highest and lowest scores in Physical Functioning and Emotional Role Functioning, respectively.

Table 2
SF-36 scores of the participants (n = 295)

Items	Mean (SD)
Physical Functioning	83.67 (15.00)
Physical Role Functioning	75.94 (26.65)
Bodily Pain	71.84 (23.27)
General Health Perception	63.31 (19.53)
Emotional Role Functioning	56.01 (38.58)
Vitality	75.94 (26.65)
Social Role Functioning	70.25 (25.34)
Mental Health	65.29 (22.54)
Physical Component Summary (PCS)	72.90 (16.20)
Mental Component Summary (MCS)	63.19 (22.26)

Table 2: SF-36 scores of the participants (n = 295)

The correlation coefficients of online health information seeking behavior and its subscales with the SF-36 main subscales are presented in Table 3. Based on the findings presented in this table, eHIQ and its subscales showed no statistical correlation with SF-36 sub-scales. These findings suggest that seeking health information through online sources does not improve the health-related quality of life. This finding can have some explanations. In discussion, these explanations are discussed and suggestions are provided.

Table 3
Correlations of online health information seeking subscales with health status

Variables	Physical Component Summary		Mental Component Summary	
	r	P value	r	P value
Attitudes towards online health information	0.04	.51	0.04	.55
Attitudes towards sharing health experiences online	0.05	.42	0.04	.50
Confidence and Identification	0.02	.69	0.02	.67
Information and Presentation	0.05	.38	0.05	.41
Understanding and Motivation	0.03	.65	0.01	.84
eHIQ (total)	0.04	.46	0.04	.53

Table 3: Correlations of online health information seeking subscales with health status

Discussion

This study was aimed to examine the correlation of online health information seeking behavior with the health-related quality of life in a sample of Iranian female students. Findings showed that online health information seeking experience have no statistical correlations with health-related quality of life components including physical component summary ($P = .46$) and mental component summary ($P = .53$).

Adolescence is a vital and effective period of life regarding health especially the health promoting behaviors. Statistics show that one fifth of the world's population is between the ages 10–19 with 85 percent living in developing countries. Promoting the adolescents' health is one of the national development goals and satisfying the health needs of this population are among the top priorities of health systems around the world. Changing adolescents' health-related behaviors and their lifestyle requires providing appropriate and complete health information for them [27]. Health information includes a range of information that can be used in personal and community health decisions [28]. Making health information accessible and considering the health information seeking behavior of adolescents can improve their health through the improvement of health literacy [29]. Girls play an important role in the health of today's and future society, and investing in improving their health is one of the most important strategies to achieve the global health goals [30].

Health information is obtained from various sources. The Internet is an attractive and common source of health information today [16,28,31]. The use of the internet to access health information has increased in recent years due to the reasons such as accessibility, high volume of information disseminated through that, confidentiality, low cost, multi-media capabilities and the ability to interact and to gain support [24,27,32]. Reports indicate that adolescents are increasingly spending their time for using internet. Using internet is part of young people's daily activities and they acquire and enhance many life skills, including health management, through online information [32].

A US national survey has found that 75 percent of online teens search health information [33]. A study in US also has reported that 98 percent of 12 years and older youth use online resources to search health information [34]. Another survey at two US educational institutes [35]; a study at three Ghanaian universities [32]; a study involving international students in East Asia [36] and a study at 6 colleges in Oman also have reported the similar results [37]. Therefore, although, Internet access is still limited in some countries [38,39] but it seems that internet is increasingly become a main information source in the majority of countries.

According to the Iran 2016 census, adolescents make up 8% of the country population that equals to 12 million people, half of whom are girls [30]. Iran has one of the highest rates of internet access in its region [24]. In Iran, as other countries, using the internet for health-related purposes has increased in recent years. A survey of adolescents in Shiraz, Iran, has showed that Internet is among the top sources of respondents' health information, with 88% using the internet to find a kind of health information [28]. Two other studies in Tehran high schools have reported the similar rates [40,41]. Another study on the students aged 15–18 years from different schools in Isfahan [27], a study involving 430 students from Gonabad University [42], two other studies at Gorgan and Kermanshah universities [29,43], Two other studies at Tabriz University and Tehran University of Medical Sciences have also have reported the similar results [24,44].

Overall, it seems that using internet as a source of health information is expanding; although, existing literature shows that searching online health information is correlated with some variables such as age, gender, education level, skills and experience of Internet use, health status and availability and reliability of sources [1,35,45].

Adolescents often seek health information with different objectives and motives [28,29,44] and they, typically seek information relating to the variety of health subjects such as healthy eating, physical activity, exercise, weight control, risks and complications of diseases treatments, sexual and reproductive health, sexual and physical abuse, alcohol consumption and other substances, tobacco use, mental health, accidents and injuries, health care providers and support groups [27,33,35,38,44].

Due to the increasing use of the Internet for health purposes, many studies have been conducted on the online health information seeking behavior in different demographic groups including students. Most of these studies have examined the sources of health information used by different groups, attitudes towards health information seeking, the aims and motivations, types of information sought and the factors related to health information seeking behavior [28]. But few studies have examined the actual effect of accessing online health information on the health status. In fact, the question that whether online health information seeking behavior significantly affects health status or no has largely remained unanswered. Therefore, this study was aimed to explore the online health experience of Iranian girl students and its correlation with their health related quality of life.

The findings showed that majority of participants have good or to somehow good general health status. Numerous studies have been conducted on the general health status of adolescents in Iran; most of them have reported approximately similar findings [30].

Also, the descriptive findings of study regarding online health information seeking behavior showed that the participants have moderate scores regarding all sub-scales of eHIQ.

Regarding the attitudes to online health information and sharing them, a similar study aimed at explaining health information behavior of adolescents in Shiraz, has reported that participants' general attitude toward health information retrieved from the Internet is positive. The majority of participants also had a good trust to the quality of information and was interested in retrieving health information from Internet twice [28]. Another study at Tabriz University has reported that Internet is one of the trusted sources of health information for participants [44]. At the same time; a study in Isfahan schools has shown that more than 47 percent of those who did not use the Internet to search health information reported the lack of trust in Internet information as the main cause of their decision to don't be online health information seeker [27]. Regarding sharing health information, a study in US has found that although 98% of

participants were online health information seekers, only 51.5% of them shared their health information and only 25% of them thought that social media could provide usable health information. This study also, has reported that women have shared their health information more than men and adolescents between the ages 12–14 years more than other age groups. People with poor self-reported health and those who thought online sources could help them in accessing health information were also more likely to share their health information [34]. In summary, based on the available literature, it seems that trust in online health information and interest in sharing it are different across different socio-economic contexts. The participants of our study, also thought that information provided by health websites are moderately understandable. In this regard, many studies have reported the poor understandability of internet information as a main challenge of online users.

Statistical tests also showed that different dimensions of online health information seeking behavior have no significant correlations with health related quality of life. In this regard, in a survey of 400 school-age adolescents in Shiraz, respondents stated that they believe the retrieved online health information affects health status positively [28]. In another study at Tabriz University, participants approved the effects of their online health information seeking on the some health-related behaviors [45]. A study among the Nigerian students has found that only 50% of participants consulted with a physician about their health after searching online health information [38]. A study at 3 Ghanaian universities also reported that 72.4 percent of respondents used retrieved online information as a basis for lifestyles modifications and more than 73 percent of students stated that access to online health information improved or partially improved their health status, while 1.2 percent said that using Internet has no effect on their overall health [32].

Overall it seems that although Internet technology has provided a good opportunity to access health information, its practical impact on health status is still being controversial. This can have many explanations. Challenges such as the lack of appropriate information and inadequate quality, poor health literacy of internet users, insufficient skills in searching information, lack of trust in online health information sources and concerns about the security and confidentiality reduce the potential of internet in serving the health of population [27,33,44]. The production and dissemination of health misinformation is also a serious concern. Today, a large amount of health misinformation is also produced and published online, which is potentially a threat to public health [23]. Low internet access is also an infrastructure challenge in some parts of the world [38]. Therefore, it is necessary to formulate and apply improvement strategies to maximize the health benefits of internet. These strategies can be formulated in two levels:

- Supply side strategies: expanding internet access; providing high-quality, appropriate and understandable information; monitoring online health contents; engaging health professionals in producing evidence-based information; ensuring safety, paying attention to legal issues and focusing on adolescent health priorities are among the strategies of supply side [27,28,32,38].
- Demand side strategies: Investigating the patterns of use, improving health literacy, training the search and information validation skills and enhancing the information behavior are also among the strategies of demand side [28,29,33,38].

It is notable that this study, despite its strengths, had some limitations. The study is a cross-sectional one; therefore generalization of the results should be done with caution. Also, we analyzed self-reported data and the study has the limitations of self-reported data in its nature.

Conclusion

In conclusion, students have a variety of health issues and are in high demand for health information [28]. In the online era, the landscape of health information has changed and internet is increasingly became the main source of health information [46]. As Smith et al have pointed out, the question is no longer that whether the Internet can be an important source of information or no, but the key question is how its potential can be maximized [33].

Although students' access to online sources has increased substantially, they can only gain the most benefit from this information sources by being able to effectively search, evaluate, and use online information [33]. This study suggests insights into the effect of using internet information on the health of adolescent. It has important implications for researchers and policy makers to build appropriate policies to maximize the benefit of internet access for the health. On the way forward, various stakeholders, including policymakers, information producers, health professionals, teachers, parents and students themselves, should play their role well.

Abbreviations

eHIQ
e-Health Information Questionnaire

Declarations

Acknowledgements: Not applicable

Funding: The work received no fund

Availability of data and materials: Available from the authors on the request

Authors' contribution: All authors contributed equally

Ethic approval and consent to participate: All participants provided informed consent to be included in the study and were assured that their personal information would be kept confidential. The parents of the students were made aware of the participation of their children in the study and had the opportunity to refuse to let their children participate in the study. The school principal and students' teachers approved the study. All the study procedures were conducted in accordance with the ethical standards of the Declaration of Helsinki.

Consent for publication: Not applicable

Competing interest: The authors declare that they have no competing interests.

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