

## Addressing the Changing Sources of Health Information in Iran

Amir Alishahi-Tabriz, Mohammad-Reza Sohrabi, Nazanin Kiapour, Nina Faramarzi

Social Determinants of Health Research Center  
and Community Medicine Department, Faculty of  
Medicine, Shahid Beheshti University of Medical  
Sciences, Tehran, Iran

### Correspondence to:

Dr. Mohammad-Reza Sohrabi,  
Social Determinants of Health Research  
Center and Department of Community  
Medicine, Faculty of Medicine,  
Shahid Beheshti University of Medical  
Sciences, P.O. Box 193954719,  
Evin, Tehran, Iran.  
E-mail: m.sohrabi@sbmu.ac.ir

**Date of Submission:** Oct 14, 2012

**Date of Acceptance:** Nov 13, 2012

**How to cite this article:** Alishahi-Tabriz A, Sohrabi MR, Kiapour N, Faramarzi N. Addressing the changing sources of health information in Iran. *Int J Prev Med* 2013;4:33-41.

### ABSTRACT

**Background:** Following the entrance of new technologies in health information era, this study aimed to assess changes in health information sources of Iranian people during past decade.

**Methods:** Totally 3000 people were asked about their main sources of health information. They were selected as two community-based samples of 1500 people of more than 18-years-old in two different periods of time in August 2002 and August 2010 from the same locations in Tehran, the capital of Iran. Data analyzed based on age group, sex, educational level and household income in two different periods of time using Chi-square. Odds ratios associated with each basic characteristic were calculated using logistic regression.

**Results:** Most common sources of health information in 2002 were radio and television (17.7%), caregivers (14.9%) and internet (14.2%) and in 2010 were radio and television (19.3%), internet (19.3%) and caregivers (15.8%) ( $P < 0.001$ ). In 2010, young adults female used television and radio and male used internet as the main source of health information ( $P = 0.003$ ). In moderate educational level women got their health information from radio and television and caregivers; while men used radio and television and internet as main source of health information ( $P = 0.005$ ). Highly educated women and men mainly got their health information from internet and radio and television ( $P > 0.05$ ).

**Conclusion:** Although during 8 years of study radio and television remained as main source of health information but there is an increasing tendency to use internet especially in men. Policymakers should revise their broadcasting strategies based on people demand.

**Keywords:** Consumer health information, health policy, internet

### INTRODUCTION

Using health information has been on rise considerably during the past decade.<sup>[1]</sup> Following advances in information-tailoring tools and telemedicine, medical information becomes increasingly available and individuals take a more active role in managing their personal health.<sup>[2,3]</sup> At the same time, the environment in which patients consume medical and health information has changed dramatically.

The internet access rate has continued to increase in all industrialized countries over the past 15 years and several international studies suggest that between 50 and 80% of adults in developed countries with internet access, use internet as the main tool for health care management.<sup>[4,5]</sup>

Because of importance of identifying the most effective delivery method for each target group for an intervention<sup>[6]</sup> and due to the small number of studies and their variable methodological quality, it is important that all avenues of primary health information be explored. After a decade of using internet in Iran, little is known about the effects of this new technology on health information-seeking behavior. Although there has been much conjectures, it is unclear exactly how using internet can affect the ways in which individuals acquire health or medical information and what demographic characteristics are associated with use of different information channels.<sup>[7,8]</sup>

We conducted this cross-sectional community-based study to provide representative estimates of health information sources and the changes that were occurring in the health information environment in Tehran. Here we report data from the baseline administration of this study during two periods: At the beginning and the end of the first decade of using internet in Iran to make precise population estimates for the public use of different sources of health information.

## METHODS

This community-based cross-sectional study was conducted in Tehran during two different periods of time- in August 2002 and in August 2010. Tehran, the capital of Iran, as a metropolitan has a population of more than 13.5 million in the area of 730 square km. The samples were selected by multistage cluster sampling from three different socioeconomic neighborhoods of Tehran that best represented the general population of Tehran. Tehran is divided into three parts of north, center and south. Squares of each part were coded based on municipal data and one neighborhood randomly selected from each part using random numbers. Each randomly selected neighborhood was the primary units (clusters) and squares within the neighborhood were the secondary units. Then squares in each neighborhood listed and one of them selected randomly. By this way, three squares were chosen

from three different socioeconomic parts of Tehran including Tajrish square in the north, Vali-asr square in the center and Shoush square in the south of the city. During these two periods of time participants were interviewed using convenient sampling in the same squares. Data collection was done from 10 am to 2 pm.

Sample size calculated as 1500 participants in each group. It was based on considering prevalence of internet users of 15% in 2002 (based on pilot study) and forecasting increase to 20% in 2010, error type 1 as 5%, error type 2 as 20% and cluster coefficient of 20%. Totally 3000 participants of 18-years-old or more were interviewed.

After providing detailed oral information to respondents and if they were ready to be a participant, a questionnaire in close-ended format was filled as data collecting tool. They were asked to choose the most likely tools, services and resources to access health or wellness-related information among the detailed list. If participants could not find their personal preferred source in the list, they could write it at the end of the questionnaire in an open-ended question. Participants also reported their gender, age, educational status and household income. In this study age categorized as young adult (18-39 years), older adult (40-59 years) and elders ( $\geq 60$  years); the respondents' education was defined as the total number of years of education and categorized into three groups of low (0-12 years), moderate (12-16 years) or high (more than 16 years) education. Considering GDP per capita (PPP) for Iran estimated as \$11300, annual minimum household income level defined in three levels of  $< \$11\ 000$ ,  $\$11\ 000$ - $\$22\ 999$ , and  $\geq \$22\ 000$ .<sup>[8]</sup>

The study was approved by the Medical Research Ethics Committee of Shahid Beheshti University of Medical Sciences and was carried out in accordance with the Declaration of Helsinki (1989) of the World Medical Association.

All data were extracted independently by two reviewers and cross-checked. Descriptive statistics were used to describe data summaries as percent of frequencies, mean and standard deviation. Different health information sources of participants with respect to demographic characteristics were examined using Chi-square, *t*-tests and analysis of variance, when appropriate. The result adjusted using population characteristics for sex, age and education from data publicly available

through the Current national population survey. Logistic regression analysis initially included patient age, sex, educational level and household income. Chi-square test was used for comparing the results of two periods of time. All statistical calculations were performed using SPSS software, version 19.0 (SPSS Inc., Chicago, IL, USA). Logistic regression analysis results were presented as the calculated odds ratio with 95% confidence intervals. Significance level was defined as 0.05.

## RESULTS

Totally 3000 participants, which adequately completed questionnaires, were collected and tabulated, 1500 participant during each period of study, included in study. In 2002, 878 participants (58.5%) were male and 622 (41.5%) were females; they had a mean age of 33.4 years (SD = 11.3). In 2010, 927 participants (61.9%) were males and 573 (38.1%) were females; they had a mean age of 33.8 years (SD = 11.2). Moderate educational

degree reported in near 58% of participants in both periods of time. In 2002, the mean household income was 13580\$ per year and in 2010 it grows to 14340\$. Two groups were homogenous in basic characteristics as presented in Table 1.

In 2002, radio and television used by 266 (17.7%), caregivers by 223 (14.9%) and internet by 213 (14.2%) and in 2010 were radio and television used by 290 (19.3%), internet by 289 (19.3%) and caregivers by 237 (15.8%) as the most common sources of health information. These sources have been shown based on sex in Table 2.

In 2002, among different sources of health information, the most common used source for seeking health information among low educated women was their family and friends; whereas in low educated men it was their family and caregivers ( $P < 0.001$ ). Women with moderate educational level got their health information from radio and television and caregivers. Men with moderate educational level use radio and television and internet as main source of health

**Table 1:** Basic characteristic of participants and sources of health information based on sex and year of study

	2002		2010		P value
	Female (%) (N=622)	Male (%) (N=878)	Female (%) (N=573)	Male (%) (N=927)	
Age					
18-39	409 (65.8)	726 (82.7)	380 (66.3)	712 (76.8)	0.19
40-59	192 (30.9)	127 (14.5)	171 (29.8)	188 (20.3)	
60 and More	21 (3.4)	25 (2.8)	22 (3.8)	27 (2.9)	
Education level					
Low	167 (26.84)	271 (30.86)	177 (30.89)	259 (27.93)	0.22
Moderate	372 (59.80)	490 (55.80)	347 (60.55)	525 (56.63)	
High	83 (13.34)	117 (13.32)	49 (8.55)	143 (15.42)	
Household income					
Low	211 (33.92)	289 (32.91)	207 (36.12)	293 (31.60)	0.37
Moderate	223 (35.85)	277 (31.54)	208 (36.30)	292 (31.49)	
High	188 (30.22)	312 (35.53)	158 (27.57)	342 (36.89)	
Sources of health information					
Book	53 (8.5)	66 (7.5)	33 (5.8)	64 (6.9)	
Care givers	90 (14.5)	133 (15.1)	97 (16.9)	140 (15.1)	
Family	88 (14.1)	116 (13.2)	81 (14.1)	121 (13.1)	
Friends	81 (13.0)	115 (13.1)	92 (16.1)	106 (11.4)	<0.001
Internet	72 (11.6)	141 (16.1)	84 (14.7)	205 (22.1)	
Public Area	52 (8.4)	45 (5.1)	30 (5.2)	49 (5.3)	
Newspapers and Journals	68 (10.9)	75 (8.5)	36 (6.3)	48 (5.2)	
Radio and TV	97 (15.6)	169 (19.2)	104 (18.2)	186 (20.1)	
Others	21 (3.4)	18 (2.1)	16 (2.8)	8 (.9)	

information ( $P > 0.05$ ). High educated women and men mainly got their health information from internet and radio and television ( $P > 0.05$ ).

In 2010, the most commonly used source for seeking health information among low educated women was their friends and family, whereas in low educated men it was their family and radio and television ( $P = 0.001$ ). In moderate educational level women got their health information from radio and television and caregivers; while men used radio and television and internet as main source of health information ( $P = 0.005$ ). Highly educated women and men mainly got their health information from internet and radio and television ( $P > 0.05$ ).

In 2002, among low-incomes, family and friends were the most common source of health information for both men and women ( $P = 0.009$ ). In moderate average of household income, women got their health information from radio and television and caregivers, while men used radio and television and friends as main source of health ( $P > 0.05$ ). High-income women and men got their health information from internet as the first source and men preferred caregivers and women used radio and television as the second choice of health information ( $P > 0.05$ ).

In 2010, among low-incomes, family and friends were the most common source of health information for both men and women ( $P < 0.001$ ). In moderate average of household income, women got their health information from radio and television and caregivers, while men used internet and radio and television as main source of health ( $P = 0.006$ ). High-income women and men got their health information from internet and radio and television ( $P > 0.05$ ) [Table 3].

Table 4 shows the sources of health information in different age categories. In 2002, young adults female used television and radio and male used internet as the main source of health information ( $P = 0.07$ ). Older adult females preferred television ( $P < 0.001$ ). Elderly women used book and men used television as the pattern for seeking health information ( $P = 0.055$ ).

In 2010, young adults female used television and radio and male used internet as the main source of health information ( $P = 0.003$ ). Older adult females preferred television ( $P = 0.001$ ). Elderly women used internet and men used

**Table 2:** Sources of health information among study population based on educational level, sex and year of study

Educational level	Male (%)						Female (%)					
	2002			2010			2002			2010		
	Low (N=271)	Moderate (N=490)	High (N=117)	Low (N=259)	Moderate (N=525)	High (N=143)	Low (N=167)	Moderate (N=372)	High (N=83)	Low (N=177)	Moderate (N=347)	High (N=49)
Book	16 (5.9)	36 (7.3)	14 (11.9)	20 (7.7)	35 (6.6)	12 (8.3)	12 (7.1)	31 (8.3)	10 (12.0)	4 (2.2)	22 (6.3)	7 (14.2)
TV	45 (16.6)	100 (20.4)	24 (20.5)	41 (15.8)	123 (23.4)	32 (22.3)	18 (10.1)	65 (17.4)	14 (16.8)	19 (10.7)	74 (21.3)	11 (22.4)
Internet	26 (9.6)	83 (16.9)	32 (27.3)	6 (2.3)	146 (27.8)	48 (33.5)	2 (1.2)	47 (12.6)	24 (28.9)	6 (3.3)	60 (17.2)	18 (36.7)
Family	49 (18.1)	58 (11.8)	9 (7.6)	72 (27.8)	30 (5.7)	11 (7.6)	37 (22.1)	44 (11.8)	7 (8.4)	31 (17.5)	47 (13.5)	3 (6.10)
Public Area	11 (4.6)	30 (6.1)	4 (3.4)	12 (4.6)	29 (5.5)	7 (4.8)	22 (13.1)	28 (7.5)	2 (2.4)	10 (5.6)	19 (5.4)	1 (2.0)
Newspapers and Journals	21 (7.7)	44 (8.9)	10 (8.5)	27 (10.4)	18 (3.4)	3 (2.0)	20 (11.9)	40 (10.7)	8 (9.6)	16 (9.0)	19 (5.4)	1 (2.0)
Friends	42 (15.5)	68 (13.8)	5 (4.2)	38 (14.6)	61 (11.6)	6 (4.1)	26 (15.5)	49 (13.2)	5 (6.0)	49 (27.6)	41 (11.8)	2 (4.0)
Care givers	47 (17.3)	67 (13.6)	19 (16.2)	38 (14.6)	78 (14.8)	24 (16.7)	18 (10.7)	59 (15.8)	13 (15.6)	30 (16.9)	61 (17.5)	6 (12.2)
Others	14 (5.1)	4 (0.1)	0 (0.0)	5 (1.9)	5 (0.9)	0 (0.0)	12 (7.2)	9 (2.4)	0 (0.0)	12 (6.7)	4 (1.1)	0 (0.0)
P value	<0.001			<0.001			<0.001			<0.001		<0.001

**Table 3:** Source of health information in study population based on household income, sex and year of study

Household income	Male (%)						Female (%)					
	2002			2010			2002			2010		
	Low (N=289)	Moderate (N=277)	High (N=312)	Low (N=293)	Moderate (N=292)	High (N=342)	Low (N=211)	Moderate (N=223)	High (N=188)	Low (N=207)	Moderate (N=208)	High (N=158)
Book	17 (5.8)	19 (6.8)	30 (9.6)	20 (6.8)	17 (6.8)	27 (7.8)	14 (6.6)	16 (7.1)	23 (12.2)	4 (2.4)	12 (5.7)	16 (10.1)
TV	47 (16.2)	59 (21.2)	62 (20.1)	44 (16.7)	67 (24.6)	75 (21.9)	21 (9.9)	43 (19.2)	33 (17.5)	20 (6.6)	50 (23.0)	34 (22.7)
Internet	20 (6.9)	37 (13.3)	84 (26.6)	5 (4.4)	79 (27.0)	112 (31.5)	3 (1.4)	25 (11.2)	44 (23.4)	6 (2.8)	32 (15.3)	46 (29.1)
Family	55 (19.0)	38 (13.7)	23 (7.3)	79 (24.2)	16 (5.4)	26 (8.4)	46 (21.8)	25 (11.2)	17 (9.0)	39 (18.8)	32 (14.4)	10 (7.5)
Public Area	20 (6.9)	15 (5.4)	10 (3.2)	16 (6.1)	17 (4.7)	16 (4.6)	28 (13.2)	16 (7.1)	8 (4.2)	12 (6.2)	12 (5.2)	6 (3.7)
Newspapers and Journals	23 (7.9)	28 (10.1)	24 (7.6)	29 (9.8)	10 (3.4)	9 (2.6)	23 (10.9)	26 (11.6)	19 (10.1)	18 (8.6)	12 (5.7)	6 (3.7)
Friends	53 (18.3)	43 (15.5)	16 (6.0)	46 (15.3)	37 (12.6)	23 (6.7)	38 (18.0)	28 (12.5)	15 (7.9)	57 (27.5)	24 (11.5)	11 (6.9)
Care givers	40 (13.8)	34 (12.2)	59 (18.9)	41 (13.9)	41 (14.0)	58 (16.9)	23 (10.9)	37 (16.5)	30 (15.9)	35 (16.9)	37 (17.7)	25 (15.8)
Other	14 (4.8)	4 (1.4)	0 (0.0)	5 (2.3)	3 (1.0)	0 (0.0)	15 (7.1)	6 (2.6)	0 (0.0)	14 (6.7)	2 (0.9)	0 (0.0)
P value	<0.001			<0.001			<0.001					<0.001

**Table 4:** Source of health information in the study population based on age, sex and year of study

Age group	Male (%)						Female (%)					
	2002			2010			2002			2010		
	18-39 (N=726)	40-59 (N=127)	>=60 (N=25)	18-39 (N=712)	40-59 (N=188)	>=60 (N=27)	18-39 (N=409)	40-59 (N=192)	>=60 (N=21)	18-39 (N=380)	40-59 (N=171)	>=60 (N=22)
Book	56 (7.7)	7 (5.5)	3 (1.2)	44 (6.2)	17 (9)	3 (11.1)	36 (8.8)	14 (7.3)	3 (14.3)	19 (5)	12 (7)	2 (9.1)
TV	109 (15)	54 (42.5)	6 (2.4)	126 (17.7)	49 (26.1)	11 (40.7)	65 (15.9)	30 (15.6)	2 (9.5)	81 (21.3)	21 (12.3)	2 (9.1)
Internet	122 (16.8)	14 (11)	5 (20)	158 (22.2)	43 (22.9)	4 (14.8)	53 (13)	19 (9.9)	0 (0.0)	49 (12.9)	32 (18.7)	3 (13.6)
Family	99 (13.6)	14 (11)	3 (12)	96 (13.5)	24 (12.8)	1 (3.7)	57 (13.9)	29 (15.1)	2 (9.5)	53 (13.9)	27 (15.8)	1 (4.5)
Public Area	42 (5.8)	1 (0.8)	2 (8)	46 (6.5)	0 (0)	3 (11.1)	36 (8.8)	15 (7.8)	1 (4.8)	26 (6.8)	4 (2.3)	0 (0)
Newspapers and Journals	73 (10.1)	1 (0.8)	1 (4)	36 (5.1)	11 (5.9)	1 (3.7)	58 (13.7)	10 (5.2)	2 (9.5)	29 (7.6)	6 (3.5)	1 (4.5)
Friends	101 (13.9)	14 (11)	2 (8)	90 (12.6)	15 (8)	1 (3.7)	54 (13.2)	27 (14.1)	0 (0.0)	65 (17.1)	24 (14)	3 (13.6)
Care givers	106 (14.6)	24 (18.9)	3 (12)	109 (15.3)	28 (14.9)	3 (11.1)	48 (11.7)	35 (18.2)	7 (33.3)	50 (13.2)	37 (21.6)	10 (45.5)
Other	18 (2.5)	0 (0.0)	0 (0.0)	7 (1)	1 (0.5)	0 (0.0)	4 (1)	13 (6.8)	4 (19.0)	8 (2.1)	8 (4.7)	0 (0.0)
P value	<0.001			0.004			<0.001					<0.001

television as the pattern for seeking health information ( $P = 0.052$ ).

Using Chi-square for comparing resources in 2002 and 2010 showed that there is a change in pattern of using resources generally ( $P = 0.005$  for men and  $P = 0.006$  for women) and also based on educational level, household income and age categories as showed in Tables 2-4.

## DISCUSSION

Source of health information in each country depends on many factors such as age, gender, cultural and educational level of people and accessibility, intelligibility and reliability of sources. Since, to the best of our knowledge, there is little evidence about the effect of new communication technologies in seeking health information in Iran, the purpose of this study was to get a better understanding of main patterns of seeking health information among Iranian people and tracking changes occur during first decade after implementing Internet in Iran. Our study reveals prominent differences between the sociodemographic determinants associated with health information seeking environments with past researches in developed countries, especially in variables such as age, gender, household income and educational level. This study showed that source of health information in Tehran was changing steadily during last decade. In addition, we observed a steady alteration in health information sources from traditional ones such as published media and books to internet.

More than 16% of our study respondents reported that they had used the internet as first tool to find information about their medical problems or other health-related concerns. This number is much lower than developed countries.<sup>[5,9]</sup> Conceivably, limited access to broadband connection as an important factor underlying health information seeking,<sup>[10,11]</sup> low speed of internet in Iran and lack of Persian language health related website, can describe this lower rate. One the other hand, our study depicted noteworthy increase in use of internet from 14% in 2002 to 19% in 2010. This finding has several critical implications for information providers. First, although during 8-year-period of study, radio and television as main source of health information did not change, a trend is observed is that, while few people have generally been informed through the

Internet in the past, if they had a specific question today, internet is the source they would use. This findings claim, health agencies can justify making health information available online because many people use this channel, often before talking to their clinicians. Second, based on importance of cultural beliefs in health care process such as the position of Iranian traditional medicine in public attitudes, Persian language health-related websites could play a key role in general public health matters.

This study also examined the prevalence of using health information sources among different socio-demographic groups. Internet users were more commonly found among, men, younger age, higher-level educational degree and richer groups than other counterparts. An examination of the basic characteristic of those surveyed shows that health information-seeking sources appear some resemblance between men and women. Both groups use radio and television as main source- in contrast, men use internet as second main source of health information whereas woman prefer to get their health information from their care givers. Our pattern were similar to last decade of 20<sup>th</sup> century in developed countries. Although in early 1990s internet users were predominantly men,<sup>[12,13]</sup> recent studies in other countries showed that women are more likely to use the internet for seeking health information.<sup>[14-16]</sup> In addition, our findings indicate many differences in health information-seeking behavior between older and younger ages. We found a significant correlation between participant's age and the use of Internet. As might be expected, dispute young people prefer use internet,<sup>[17]</sup> older people tend to seek health information from sources such as health care givers. Several important distinctions among age groups and between men and women are noted. Young men aged 20-39 are more likely to use internet, while young women in same ages are more likely to use radio and television as first choice to intake health information. Although radio and television still is the most common source of health information among men aged 40-59, our study elaborate a significant reduction of tendency on radio and television (from 42.5% in 2002 to 26.1% in 2010), and rapid grows on using of internet as an information source (from 11% in 2002 to 22.9% in 2010).<sup>[18-20]</sup> Among women of 40 to 59, caregivers had a main role in provide health information. Meanwhile radio and television are more apt to be cited as a source among men

aged 60 and above, Lower rate of using internet as general,<sup>[21]</sup> unfamiliarity with new technologies and lack of English language knowledge can be the underline reasons for this lower rate. Caregivers are more apt to be cited as main source among women in same ages.<sup>[22]</sup>

Overall our study showed, online information-seeking behaviors slightly more prevalent among individuals aged-45 years than other age groups. Based on these data policy makers can organize their delivery channels of health information to each target group more efficient and with ease. For instance, it is clear that some health topics such as sexually transmitted disease, in our culture are not suitable for exposing to discussion in public media like radio and television. Hence, based on our results that showed, younger people use internet more than older ages, it seems good opportunity for policy makers to use internet for their sexual health educational programs without concerning of cultural taboos. We also wish to argue that governments would not need to be the sole method for highlighting reputable health information sources. Instead, online health providers and private sector can play an active role in this process based on demographic data and trends of each group of society.

The data also show that internet users are more likely to have higher educational attainment, and have higher incomes than those who do not use the internet as main source, which is compatible with other studies.<sup>[10,17,22-24]</sup> An implication of this finding may be that people with limited education have not enough information or knowledge about usage of internet. Second, the relation between higher education and higher income in most cases can illustrate the higher rate of use of internet in wealthier people. However, this finding could also be the result of statistical error based on the low rate of participation in this study overall as well as the few number who did not report their income correctly.

Information technologies such as the internet are receiving great attention for their potential impact on public health and health care in health care reform policy discussions,<sup>[25]</sup> Our result indicates that Iranian pattern for seeking health information became similar to that observed in resource-rich countries, where consumers are using technology to expand and enhance rather than replace their existing sources of health information.<sup>[23]</sup> Prominent

dissimilarity between our results and other studies is about the role of published media as source of health information in Iran. This change might be reflective of developmental changes during past decade in urban area of Iran.

## CONCLUSION

In conclusion, this study found that, in the context of health, through in a recent decade in Iran the internet became most widely used as an information resource. Obviously, this is not an exhaustive study or analysis, but there is a noticeable point to consider here. The difference of 5% in tendency to using internet among different sources during 8 years is very important for policy makers. As our results show, it may be premature, however, to embrace the internet unilaterally as an effective asset for efforts that target broad segments of the public. The internet is a promising tool for public health and health care<sup>[24]</sup> and a potentially effective platform for health communication and education.<sup>[26]</sup> Accessible and reliable environment for entrance to health information cause empowerment, lower health care costs, patient-driven, healthcare self-management and more easily disease prevention. More or less internet has most of these criteria. There is growing preliminary evidence that shows Iranian urban citizens are increasingly relying on the internet to find health information. Like the rest of the world, Iran has experienced a wave of media technologies over the years. The internet has become a highly efficient tool for enhancing of health information. In the first half of the decade, the rate of increase of internet use in Iran was 100%, although the rate of penetration was only 8% (as a regional mean). In 2008-2009, the rate of increase was 100%, with a penetration level of 35%.<sup>[24]</sup> However, we have much to learn about the social reality of how diverse people communicate and change in the modern world.

While the findings of this study are meant to stimulate discussion about the role of the internet in changing source of health information among urban citizen of Iran, there are some limitations. Because the sample in this study was limited to adults from three major geographic part of Tehran, consequently the results may not be generalizable to broad populations of other cities, with less access to educational resources or more rural

settings especially those who lack access to the internet, more detailed information of the searching experience of people with different personal characteristics is needed. Additionally, although the data were produced using a rigorous methodology, they are from cross-sectional, self-report assessments and do not include medication conditions or past medical experience of subjects, as a result, may reflect certain confounder. Furthermore, the measurement of health information seeking is rather crude in the current investigation. It is possible that intensity and frequency of seeking behavior would indicate additional differences across age and sex, educational degree. This might be an important area of future inquiry. Finally, we did not evaluate the ability of participant to judge information quality, For example, this brief measure does not capture specifically what types of medical information respondents were seeking, or if they found the information that was desired. Clearly, these considerations must be acknowledged when interpreting the findings. Additional information about how information seeking is linked to other key health behaviors was not included in the current survey. Such information is an important next step in this area of survey research. Modifying and adding survey items would enable better measurement of internet participation, especially in online support and social media mechanisms that could not be determined in the current research.<sup>[27]</sup> Much work also remains to be done to evaluate the opportunities and pitfalls of electronic communication between patients and health professionals,<sup>[28]</sup> and to integrate these tools into clinical practice if they prove to be effective, without disadvantaging those who have different preferences or those who benefit from more traditional modes of communication. This kind of research has the potential to distinguish the role of employment status from having access to the internet at work.

## ACKNOWLEDGMENTS

We are extremely grateful to all the medical students for their cooperation in collecting data. We are extremely grateful to all the participants for their kind cooperation.

## REFERENCES

1. Pentland D, Forsyth K, Maciver D, Walsh M, Murray R, Irvine L, *et al.* Key characteristics of knowledge transfer

and exchange in healthcare: Integrative literature review. *J Adv Nurs* 2011;67:1408-25.

2. Krupinski EA, Patterson T, Norman CD, Roth Y, Elnasser Z, Abdeen Z, *et al.* Successful models for telehealth. *Otolaryngol Clin North Am* 2011;44:1275-88.
3. Rains SA. Perceptions of traditional information sources and use of the world wide web to seek health information: Findings from the health information national trends survey. *J Health Commun* 2007;12:667-80.
4. Renahy E, Parizot I, Chauvin P. Health information seeking on the Internet: A double divide? Results from a representative survey in the Paris metropolitan area, France, 2005-2006. *BMC Public Health* 2008;8:69.
5. Powell J, Clarke A. The WWW of the World Wide Web: Who, What, and Why? *J Med Internet Res* 2002;4:e4.
6. Younger P. Internet-based information-seeking behaviour amongst doctors and nurses: A short review of the literature. *Health Info Libr J* 2010;27:2-10.
7. Car J, Lang B, Colledge A, Ung C, Majeed A. Interventions for enhancing consumers' online health literacy. *Cochrane Database Syst Rev* 2011;15:CD007092.
8. Downing MA, Omar AH, Sabri E, McCarthy AE. Information on the internet for asplenic patients: A systematic review. *Can J Surg* 2011;54:232-6.
9. Jackson LA, Zhao Y, Kolenic A 3<sup>rd</sup>, Fitzgerald HE, Harold R, Von Eye A. Race, gender, and information technology use: The new digital divide. *Cyberpsychol Behav* 2008;11:437-42.
10. Rice RE. Influences, usage, and outcomes of Internet health information searching: Multivariate results from the Pew surveys. *Int J Med Inform* 2006;75:8-28.
11. Chang BL, Bakken S, Brown SS, Houston TK, Kreps GL, Kukafka R, *et al.* Bridging the digital divide: Reaching vulnerable populations. *J Am Med Inform Assoc* 2004;11:448-57.
12. Marcus BH, Lewis BA, Williams DM, Dunsiger S, Jakicic JM, Whiteley JA, *et al.* A comparison of Internet and print-based physical activity interventions. *Arch Intern Med* 2007;167:944-9.
13. Broos A. Gender and information and communication technologies (ICT) anxiety: Male self-assurance and female hesitation. *Cyberpsychol Behav* 2005;8:21-31.
14. Baker L, Wagner TH, Singer S, Bundorf MK. Use of the Internet and e-mail for health care information: Results from a national survey. *JAMA* 2003;289:2400-6.
15. Houston TK, Allison JJ. Users of Internet health information: Differences by health status. *J Med Internet Res* 2002;4:E7.
16. Smith-Barbaro PA, Licciardone JC, Clarke HF, Coleridge ST. Factors associated with intended use of a Web site among family practice patients. *J Med Internet Res* 2001;3:E17.



17. Gray NJ, Klein JD, Noyce PR, Sesselberg TS, Cantrill JA. Health information-seeking behaviour in adolescence: The place of the internet. *Soc Sci Med* 2005;60:1467-78.
18. Cutler SJ, Hendricks J, Guyer A. Age differences in home computer availability and use. *J Gerontol B Psychol Sci Soc Sci* 2003;58:S271-80.
19. Norum J, Grev A, Moen MA, Balteskard L, Holthe K. Information and communication technology (ICT) in oncology. Patients' and relatives' experiences and suggestions. *Support Care Cancer* 2003;11:286-93.
20. Iverson SA, Howard KB, Penney BK. Impact of internet use on health-related behaviors and the patient-physician relationship: A survey-based study and review. *J Am Osteopath Assoc* 2008;108:699-711.
21. Dolan PL. New vital sign: Degree of patient's online access. *Amednews.com*. (Online) 2011. Available from: <http://www.ama-assn.org/amednews/2011/02/21/bil20221.htm> [Last accessed on 2011 Feb 23].
22. Pandey SK, Hart JJ, Tiwary S. Women's health and the internet: understanding emerging trends and implications. *Soc Sci Med* 2003;56:179-91.
23. Kreps GL, Neuhauser L. New directions in eHealth communication: Opportunities and challenges. *Patient Educ Couns* 2010;78:329-36.
24. Lintonen TP, Konu AI, Seedhouse D. Information technology in health promotion. *Health Educ Res* 2008;23:560-6.
25. Diaz JA, Griffith RA, Ng JJ, Reinert SE, Friedmann PD, Moulton AW. Patients' use of the Internet for medical information. *J Gen Intern Med* 2002;17:180-5.
26. Berger M, Wagner TH, Baker LC. Internet use and stigmatized illness. *Soc Sci Med* 2005;61:1821-7.
27. France EF, Wyke S, Ziebland S, Entwistle VA, Hunt K. How personal experiences feature in women's accounts of use of information for decisions about antenatal diagnostic testing for foetal abnormality. *Soc Sci Med* 2011;72:755-62.
28. Dedding C, van Doorn R, Winkler L, Reis R. How will e-health affect patient participation in the clinic? A review of e-health studies and the current evidence for changes in the relationship between medical professionals and patients. *Soc Sci Med* 2011;72:49-53.

**Source of Support:** This study was supported by Shahid Beheshti University of Medical Sciences. **Conflict of Interest:** None declared.

### Staying in touch with the journal

#### 1) Table of Contents (TOC) email alert

Receive an email alert containing the TOC when a new complete issue of the journal is made available online. To register for TOC alerts go to [www.ijpm.ir/signup.asp](http://www.ijpm.ir/signup.asp).

#### 2) RSS feeds

Really Simple Syndication (RSS) helps you to get alerts on new publication right on your desktop without going to the journal's website. You need a software (e.g. RSSReader, Feed Demon, FeedReader, My Yahoo!, NewsGator and NewzCrawler) to get advantage of this tool. RSS feeds can also be read through FireFox or Microsoft Outlook 2007. Once any of these small (and mostly free) software is installed, add [www.ijpm.ir/rssfeed.asp](http://www.ijpm.ir/rssfeed.asp) as one of the feeds.