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Health information sources: trust and satisfaction

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ABSTRACT

During the past two decades, the environment in which consumers seek health information has faced dramatic changes, especially due to the technological advancement and the vast increase of internet usage, as well as due to the diversity of the dissemination of health information. The purpose of this study was to investigate the health information sources mostly used in Greece and the level of satisfaction and trust towards specific health information sources. Data was collected in Greece in September 2013, by conduct a telephone survey with the use of a structured questionnaire. A representative national sample of 1,227 adults (687 males and 540 females) was reached. Data analysis was performed on the results using descriptive and logistic regression. The results demonstrated that the Internet (90%) and health professionals (79%) were the two sources that most respondents used in seeking health information, and that most of them found these sources to be both satisfactory and trustworthy. A significant difference exists in the sourcing of health information, influenced by various demographic variables. Furthermore, as more and more people use the Internet as a source of health information, the issue of source credibility and trust in websites gains significance and, hence, future research is needed to provide insight into the particularities of Internet-based health-related information.

Key Words: Health information, Health professionals, Mass media, Internet, Satisfaction, Trust, Greece

1. INTRODUCTION

During the past two decades, the environment in which consumers seek health information has faced dramatic changes, especially due to the technological advancement and the vast increase of internet usage, as well as due to the diversity of the dissemination of health information to the public.[1] The current interest to research the so-called "health information seeking", has been triggered by the outburst of healthcare consumerism and the unlimited availability of health information provided to consumers via the internet.[2] Health communication has been identified as an approach which can be used to convey information with the aim to improve health outcomes through social and behavioural changes, with the use of mass media and social networks serving as the channel of change regarding health beliefs and/or behaviours.[3] Usually, health information is sought out by individuals through interpersonal sources, such as family and friends, and through the mass media, such as newspapers, magazines, TV, and the internet.[4]

It has been argued that in the field of health communication more empirical research is needed regarding the sources that individuals use in order to seek health information.[2] Relevantly, it has been proved that infrequent health information seeking, regardless of the source, is associated with poor self-rated health.[5] In addition, according to various studies,[6,7] health information seeking strengthens health knowledge, self-efficacy and awareness.[5]

The provision of health information has traditionally been a task largely undertaken by physicians. Nowadays, however, with the provision of free health information to the public via the internet, along with the added opportunity of online purchasing medical goods on prescription, this kind of one-way physician-to-patient provision of health information

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seems to be transforming into a two-way exchange of health information between them both.[1] In fact, more recent research has confirmed that the internet does indeed influence the physician-patient relationship, the latter being nowadays more informed than in the past about health issues and taking further control over his/her own health in an active way.[8]

Nevertheless, physicians are still regarded as the most trusted source of health information compared to the rest popular choices (*i.e.* internet, TV, family or friends, magazines, newspapers or radio). The choice of physicians was particularly supported by young, educated female respondents, who were also the most frequent internet users.[9, 10] Despite the rapid and extensive spread of Internet usage as a health information source, the fact that physicians remain one of the core sources of health information and services,[8] is strengthened by the argument that online health information seeking is mainly used in a supplementary fashion and not as a substitute for consultations provided by primary healthcare providers.[11]

In the context of health communication, trust is an important aspect for someone receiving a health-related message and actually taking action based upon that information. In a recent study,[12] it was reported that older adults trusted actual people more than non-living sources when seeking out health information; their highest level of trust reportedly placed in healthcare providers and their lowest in radio, respectively. According to the majority of the participants in another study,[13] health providers were also considered as their main source of health information. In addition, the level of satisfaction with the sources of health information is another relevant topic explored by previous research, such as the study of Tustin,[14] who found a significant difference between the extent of Internet usage and the degree of reliance upon it for seeking health information, based on whether the users were or were not satisfied by the received care. Hence, the "satisfied" participants relied more on their physician as a source of health information than they did on online data.[14]

So far, to our knowledge, no comprehensive study has been conducted among the Greek population to examine the sources of health information - especially during these past few years that the rapid increase of Internet usage has replaced other traditional health information sources. Therefore, the purpose of this study was to investigate differences in the use, trust and satisfaction in the sources of health information by various socio-demographic factors.

2. METHODS

Data was collected in Greece in September 2013, via a telephone survey. The telephone survey was conducted using a structured ("fixed-choice") 51-item questionnaire. The survey was designed to capture the national trends related to health risks perception and health knowledge. Some of the items presented in this paper related to health information seeking. The development of the questionnaire survey was based on the literature review and the available instruments (Health Information National Trends Survey [HINTS]). A representative national sample of 1,227 persons (687 males and 540 females) was used. Participants were recruited from a list-assisted, Random Digit Dialing (RDD) population of all landline telephone numbers in Greece. Additional adjustments were conducted to account for the variables of non-response and non-coverage. All participants were adults (*i.e.* above the age of 18) and living in one of the 13 administrative regions of Greece – according to the Demographic Census of the Hellenic Statistical Authority (EL.STAT.). The highest standard error was 2.8%, with a respective confidence interval of 95%. For more information on the socio-demographic characteristics of the sample, see header rows in Tables 1 and 2.

2.1 Study variables

The first question assessed the participants' self-reported level of feeling informed about health issues by asking them: "How informed would you say you are regarding health issues?" Responses to this question were recoded into: "a lot/quite" and "a little/not at all". Dependent variables included source, trust and satisfaction in sources of health information. For more information on the sources (see Tables 1 and 2).

The frequency of health information searches via the usage of these particular sources was assessed with the question: "Within the past year, how often have you searched for health information using the following sources?" The responses for each of the listed sources were recoded into: "a lot/quite often" and "not that often/never".

Satisfaction with the adequacy of health information received was assessed by asking: "How satisfied are you from the adequacy of the information you received regarding health issues by using the following sources?" The responses for each of the listed sources for this question were recoded into: "a lot/quite satisfied" and "not that much/not at all satisfied".

Trust in specific health information sources was assessed using the question: "Would you say that you trust the information you have received regarding health issues by using the following sources?" The responses for each of the sources for this question were recoded into: "yes/probably yes" and "probably no/no". The option "I don't know/I don't want to say" was available as a response for all submitted questions. Independent variables included demographics identified in

the literature including age education, gender, marital status, health insurance, and perceived household welfare. For more information on the socio-demographic characteristics of the sample, see header rows in Table 1 and Table 2.

Table 1. Distribution (%) of search, satisfaction and trust levels from health information through the Internet, purchase of medication and use of the Internet for diagnosis and self-diagnosis by socio-economic indicators (*i.e.* gender, age, occupation)

		Gender			Age (years old)					Occupation						
	Total (n=1227)	Male (n=687)	Female (n=540)	Sig.	18-34 (n=147)	35-44 (n=426)	45-54 (n=393)	55+ (n=258)	Sig.	Public sector worker (n=225)	Private sector worker (n=408)	Freelancer/ Agricultural worker/ Company owner (n=246)	Retired (n=144)	Unemployed (n=123)	Student/ Housewife/ Other (n=63)	Sig.
search																
Websites	89.0	86.8	91.7	**0.007**	93.9	91.5	83.8	89.5	**0.001**	88.0	86.8	88.9	95.8	92.7	85.7	**0.040**
Blogs	54.7	53.7	55.9	0.453	57.1	63.1	47.3	51.2	**<0.001**	58.1	50.7	48.8	64.6	68.3	42.9	**<0.001**
Social networking sites	25.7	24.2	27.5	0.191	34.7	25.7	21.7	26.7	**0.022**	20.3	24.6	22.2	41.7	31.7	23.8	**<0.001**
satisfied																
Websites	85.4	81.3	90.5	**<0.001**	83.3	90.1	84.5	81.0	**0.006**	82.7	88.7	85.4	87.0	78.0	90.5	**0.036**
Blogs	61.2	57.6	66.0	**0.006**	62.2	71.7	53.6	52.9	**<0.001**	59.4	62.3	59.2	63.4	59.0	72.2	0.540
Social networking sites	34.2	30.3	40.0	**0.003**	36.4	39.8	27.0	36.4	**0.009**	27.8	36.4	28.6	46.2	30.3	47.1	**0.003**
trust																
Websites	82.0	79.7	84.8	**0.022**	80.9	88.7	78.6	76.5	**<0.001**	78.7	82.8	80.2	87.2	82.9	81.0	0.402
Blogs	56.8	54.9	59.4	0.128	48.9	67.7	48.0	57.9	**<0.001**	49.3	55.6	52.6	71.4	66.7	61.1	**<0.001**
Social networking sites	30.9	26.7	36.4	**0.001**	26.3	32.8	25.8	38.7	**0.006**	22.1	28.4	25.0	58.5	34.2	35.3	**<0.001**
Bought medication through internet	11.1	12.3	9.5	**0.117**	10.2	11.3	7.0	17.4	**0.001**	10.7	10.4	9.9	22.9	7.3	0.0	**<0.001**
Self-diagnosis via internet	62.1	61.5	62.8	**0.649**	66.7	66.7	58.0	58.8	**0.030**	66.7	57.5	61.0	76.6	58.5	57.1	**0.001**
Trust methods of diagnosis in internet	34.8	34.5	35.2	0.796	37.5	31.2	32.3	42.4	**0.016**	28.8	34.6	35.4	54.2	25.6	28.6	**<0.001**

2.2 Statistical analysis

A chi-square analysis was performed in order to examine the differences in the use and trust of various sources of health information by various demographic populations. Furthermore, Pearson's chi-square was also performed for the association between the information sources and the level of feeling informed. Consequently, the variable on the search for health information in government and public health organisations' sources (*i.e.* "Within the past year, how often have you searched for health information using the following sources: Government/Public health organisations?") was further analysed by conducting a logistic regression model. Socio-demographic factors significantly associated with the examined variables were also included in each model. Only significantly associated factors with the dependent variable remained in the final model. Statistical significance was set at $p < .05$. The coefficients for this model are expressed as odds ratios (OR); 95% confidence intervals (CIs) are reported to indicate the precision of these estimates. All analyses were performed using the SPSS version 19.0. No ethical approval was required for this study since it involved a telephone survey on a sample of adult population only.

Table 2. Distribution (%) of search, satisfaction and trust levels for health information over the Internet, online purchase of medication and use of the internet for diagnosis and self-diagnosis by socio-economic indicators (*i.e.* geographical area, marital status, health insurance, perceived household welfare)

		Geographical area				Marital status			Health Insurance				Perceived household welfare		
	Total (*n* = 1227)	Attica (*n* = 723)	Central Macedonia (*n* = 171)	Other (*n* = 333)	Sig.	Married (*n* = 885)	Unmarried/Divorced (*n* = 324)	Sig.	EOPYY[a] only (*n* = 738)	Private (*n* = 369)	None (*n* = 99)	Sig.	No/Few difficulties (*n* = 534)	Many difficulties (*n* = 690)	Sig.
Search															
Websites	89.0	88.8	89.5	89.2	0.953	88.8	88.9	0.956	90.2	87.7	81.8	**0.033**	86.4	90.9	**0.014**
Blogs	54.7	52.7	64.3	54.1	**0.024**	54.4	54.6	0.949	57.6	43.9	63.6	**<0.001**	48.9	59.0	**<0.001**
Social networking sites	25.7	23.8	30.9	27.0	0.139	24.4	28.7	0.129	26.6	21.5	27.3	0.158	23.7	26.9	0.213
Satisfied															
Websites	85.4	84.8	93.0	82.7	**0.007**	84.2	88.8	**0.046**	84.0	87.6	84.4	0.284	87.4	83.8	0.075
Blogs	61.2	61.3	67.3	57.7	0.140	61.3	59.3	0.563	60.9	58.2	64.3	0.544	59.9	62.0	0.493
Social networking sites	34.2	37.3	38.9	26.9	**0.007**	34.0	34.2	0.950	34.6	30.9	29.6	0.461	32.3	35.3	0.351
Trust															
Websites	82.0	84.9	80.4	76.6	**0.004**	80.3	85.7	**0.032**	82.6	81.3	75.8	0.246	81.8	82.0	0.929
Blogs	56.8	58.8	50.0	56.2	0.122	56.3	55.7	0.848	57.5	55.3	51.6	0.509	54.6	58.3	0.209
Social networking sites	30.9	29.5	31.8	33.3	0.467	30.2	33.7	0.286	32.4	27.3	26.7	0.193	28.0	33.3	0.063
Bought medication over the internet	11.1	10.0	14.3	11.8	0.248	11.6	9.3	0.268	9.4	15.6	9.1	**0.007**	8.0	13.5	**0.003**
Self-diagnosis via internet	62.1	60.5	71.9	60.4	**0.016**	60.4	66.4	0.060	65.3	57.9	51.5	**0.005**	61.7	62.2	0.870
Trusts methods of diagnosis on the internet	34.8	35.3	38.6	31.8	0.292	32.1	42.5	**0.001**	31.7	38.3	43.8	**0.014**	37.2	33.2	0.148

3. Results

3.1 Source, trust and satisfaction

Research analysis demonstrated that 90.0% of the participants use the Internet to search for health information and 79.0% to obtain health information from health professionals. Additionally, 9.1% of the participants reported to have accessed health information through radio and 5.7% through industry.

The health information sources largely reported by the participants as offering the most satisfaction to interviewees were health professionals (88.8%) and the Internet (88.7%), whereas industry (12%) and radio (19.7%) scored the lowest rates on satisfaction. The vast majority of the respondents stated their trust in health information received from health professionals (95.6%) and the Internet (85.5%), while the respective lowest percentages regarding trust in health information were found in industry (23.2%) and radio (37.8%).

3.2 Comparison by demographic factors

The majority of the variables were found to be statistically significant ($p < .05$) in relation to socio-demographic characteristics, with occupation being statistically significant for almost every variable examined.

Men searched for health information stemming from industries, NGOs, government/public health organisations and radio in higher percentage than women, while women used magazines, the Internet and health professionals in higher percentage as their health information sources.

Younger participants (18-34) used the Internet (93.9%) –more often than any other age group– and family/social networks (75.5%) as their principal health information sources, while participants aged > 55 searched for information via the TV (29.1%) and NGOs (16.3%) in higher percentage than younger interviewees. Married respondents searched for health information through industries (6.2%) and government/public health organisations (22.1%) in higher percentage than unmarried/divorced respondents, who used magazines in higher percentage than their married counterparts (31.5%).

Participants with only public health insurance (EOPYY) used the TV (24.5%) and family/social networks (66.9%) as health information sources more than the uninsured, entrusting industries the least of all (3.3%). The ones with private health insurance, on the other hand, searched for health information via newspapers in higher percentage (28.5%) than the rest. Lastly, participants living in households with low perceived welfare, searched for health information through almost all sources in higher percentage than those in households with few or no difficulties.

Overall satisfaction levels, in terms of the adequacy of health information the respondents received across sources, proved that women more than men and unmarried/divorced participants more than married ones were greatly satisfied with the information source of their choice.

Bivariable analyses, regarding the self-assessment of the level of being informed in relation to each one of the socio-demographic variables, demonstrated that respondents above the age of 55, on retirement, unmarried or divorced, and having private health insurance, were those who reported being more informed about health issues.

Figure 1 shows that the participants who used government and public health organisations as their health information sources, reported to be well-informed in a higher percentage than those who did not use such sources ($p < .001$). This also stands for those who searched for health information via NGOs, health professionals or the Internet ($p < .001$).

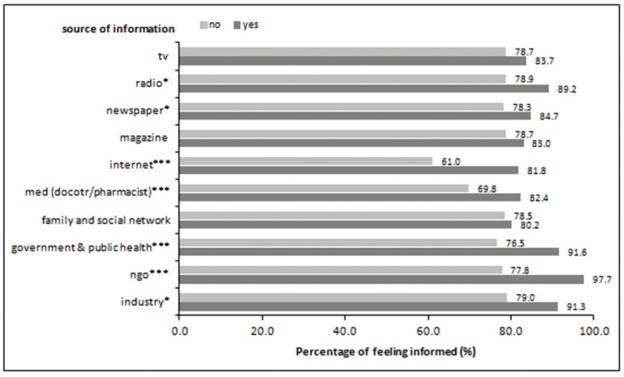

Figure 1. Percentage of feeling informed among those who use and do not use each source of information

3.3 Results of logistic regression analysis

Furthermore, although it was found that only 20.6% of all respondents had searched for health information via sources related to government or public health organisations, the satisfaction and trust levels towards the said sources appears to be three times higher (61.2% and 68.4%, respectively). In order to investigate the socio-demographic profile of those using government and public health organisations as health information sources, a logistic regression analysis was conducted using this variable as dependent. Results showed that men (OR = 1.4, $p = .039$), between the ages of 45-54 (OR = 2.4, $p = .004$), living in the first largest metropolitan region of Greece (*i.e.* Attica) (OR = 2.2, $p = .001$) and civil servants (OR = 2.4, $p < .001$) or students (OR = 3.3, $p < .001$) were more likely to search for health information in government and public health organisations more frequently (see Table 3).

Table 3. Logistic regression analysis for often searching for health information through government/public health organisations* (N = 1,182)

	OR#	95% CI&		Sig.
		Lower	Upper	
Gender				
Male	1.4	1.0	1.9	.039
Female	1.0			
Age (years old)				
35-44	1.8	1.0	3.3	.051
45-54	2.4	1.3	4.4	.004
55+	2.1	1.1	4.1	.033
18-34	1.0			
Occupation				
Civil servant	2.4	1.6	3.6	.000
Free lancer/Agriculturist/Company owner	1.4	0.9	2.1	.172
Retired	1.5	0.8	2.7	.172
Unemployed	1.6	0.9	2.8	.113
Student/Household/other	3.3	1.8	6.1	.000
Private employee	1.0			
Geographical region				
Central Macedonia	1.5	1.0	2.1	.043
Attica	2.2	1.4	3.5	.001
Other	1.0			

Note. *ref. cat. = Not that often/Never; #OR = Odds ratio; &CI = Confidence interval

4. Discussion

The findings of this study demonstrate that the Internet and health professionals were the two sources that most respondents used in seeking health information and that most of them found these sources to be both satisfactory and trustworthy. The fact that health professionals and the Internet were used and trusted as health information sources by most of the respondents, is consistent with previous studies.[9–13] In fact, the Internet has also been listed elsewhere as one of the major contemporary health information sources.[15] Furthermore, it has been argued that the reason that the Internet is preferred over other traditional sources (*i.e.* the TV, radio or print media), does not necessarily pertain to the accuracy of the online information, but rather to its speed, variety, and easier access compared to more traditional sources.[16] Despite the vast increase of Internet usage, however, it appears that doctors and pharmacists remain a trusted source of health information for most of the respondents – a fact also consistent with previous findings.[17] Regarding age, young respondents (18-34 years-old) reported the highest rates of satisfaction and trust in the health information received from their sources of choice, whereas slightly older respondents (45-54) were those who searched for health information the most; this fact is consistent with previous studies, also proving that older respondents sought out for health information more than younger ones.[13]

One of the limitations of the current study is that given the large volume of data that derived from the respective variables examined, it was difficult to build logistic regression models for all the variables examined. Therefore, a descriptive analysis has been mainly presented in this article, as well as a logistic regression analysis for one of the variables examined. More in-depth analysis, with the use of qualitative research methods, could enrich knowledge of the reasons why participants do not trust information sources equally and adequately, particularly with regard to traditional mass media. Therefore, the interplay of all the demographic factors among the individuals of the study must be considered in addition to evaluated trust and satisfaction level.

5. Conclusion

The study presented here is innovative for Greece, since no other similar study has been previously conducted in such an extensive manner regarding the issue of health information seeking. The results indicate that health professionals and the Internet constitute the two main sources of health information seeking that most Greeks trust and are satisfied with. The increase in use of online health information bears implications involving the accuracy of information provided to those who retrieve it. Despite the disadvantages that have been noticed regarding the pool of health information from traditional and newly-developed sources, using online health information in a more critical manner, can help individuals increase their health literacy and empower them to take control over their own health.[16] Appropriate access to new technology can help enhance the literacy of the public and, in turn, health literacy can help the individuals to more comprehensively understand the health risks and also develop their knowledge and skills in accessing credible and accurate data.[18] Future research on the subject could shed more light

on health inequalities and accessibility with respect to health information sources. This is especially important due to the continued and increased use of the Internet as a source of information. Given the current economic crisis, additional research could assist in locating the relationship between various economic indicators and health behaviours of the surveyed populations.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that they have no competing interests.

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