Original Article

# Information-seeking behavior of cardiovascular disease patients in Isfahan University of Medical Sciences hospitals

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## ABSTRACT

**Background:** Patients, as one of the most prominent groups requiring health-based information, encounter numerous problems in order to obtain these pieces of information and apply them. The aim of this study was to determine the information-seeking behavior of cardiovascular patients who were hospitalized in Isfahan University of Medical Sciences hospitals. **Materials and Methods:** This is a survey research. The population consisted of all patients with cardiovascular disease who were hospitalized in the hospitals of Isfahan University of Medical Sciences during 2012. According to the statistics, the number of patients was 6000. The sample size was determined based on the formula of Cochran; 400 patients were randomly selected. Data were collected by researcher-made questionnaire. Two-level descriptive statistics and inferential statistics were used for analysis. **Results:** The data showed that the awareness of the probability to recover and finding appropriate medical care centers were the most significant informational needs. The practitioners, television, and radio were used more than the other informational resources. Lack of familiarity to medical terminologies and unaccountability of medical staff were the major obstacles faced by the patients to obtain information. The results also showed that there was no significant relationship between the patients' gender and information-seeking behavior, whereas there was a significant relationship between the demographic features (age, education, place of residence) and information-seeking behavior. **Conclusion:** Giving information about health to the patients can help them to control their disease. Appropriate methods and ways should be used based on patients' willingness. Despite the variety of information resources, patients expressed medical staff as the best source for getting health information. Information-seeking behavior of the patients was found to be influenced by different demographic and environmental factors.

**Key words:** Cardiovascular disease, educational hospitals, information-seeking behavior, Isfahan University of Medical Sciences

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## INTRODUCTION

Information is the most important tool to perform any kind of activity. In fact, relevant and required information should be correctly identified, and then the process begins. Rapid increase in information and specialization of sciences has made the accessibility to appropriate information difficult.

It is essential to identify the information needs of each individual or society correctly and to plan for fulfilling them in a society where everything is based on the information and everyone searches for fast and easy access to information.

Besides, one of the priorities of information system designers is to identify the method of searching and applying information (information-seeking behavior) of users.[1]

Information seeking is a process by which a person purposefully tries to change the status of the knowledge. It is vital for human beings. People are seeking to meet their information needs. As we know, people use information to solve problems, to do work, or to increase knowledge. Therefore, identifying their seeking behavior as a part of social behavior helps us to design better information systems.[2]

Patients are among the groups of people who need to have information about their disease because this way, they would be able to control their diseases, reduce the risks of their illness, recognize the side effects of medicines, find appropriate medical centers, and be informed about their treatment.

Despite the strong need of patients to learn about their disease and the importance of their information-seeking behavior, very few studies have been conducted in this area, especially in Iran. These few ones are about the information-seeking behavior in medical team such as physicians and nurses.

Ghasemi found that doctors use medical journals in the first place, followed by books and monographs for keeping up with new advances in medicine in Masjed Soleyman. Also, 77.1% of the respondents said that their main impersonal problem for keeping up with the new developments in medicine had been lack of network and databases; 74.2% mentioned lack of time as the personal problem. Findings showed that 68.2% of doctors were familiar with MEDLINE.[3]

Afshar *et al.* found that reference books were the main source for orthopedic specialists to get information. Seminars and congresses reports and orthopedic journals came next. Forty-five percent of the respondents had used internet to get up-to-date information.[4]

The results of the paper written by Davarpanah and Azami showed that consulting with colleagues and doctors and studying patients' documents have been the most important information sources for nurses. Evidence-based nursing pattern has been a common pattern among nurses. The most important obstacles among nurses have been shortage of time, having no access, lack of information-seeking skills, and not being familiar with information resources.[5]

Leydon found in his research while all patients wanted basic information on diagnosis and treatment, not all of them wanted further information at different stages of their illness. Cancer patients' attitudes to cancer and their strategies for coping with their illness can constrain their wish for information and their efforts to obtain it.[6]

The results of a study by Talosig-Garciaa and Davis showed that the top sources for cancer information were books, brochures, and pamphlets and doctors or other health professionals; only 17% of the study respondents had ever used the internet.[7]

Mistry *et al.* studied 187 participants. The patients tended to want more information, particularly related to prognosis. Educational attainment, age, treatment status, gender, and ethnicity were all significant predictors of scores in various domains.[8]

Milewski and Chen found in their research that the most important barriers for patients to search information are lack of motivation, passiveness, inconsistency of information, generality of information, and loss of information.[9]

Güleser *et al.* showed that majority of the patients receiving information identified doctors as the primary source. The patients' prioritized needs for information were all the aspects of their diagnosis and treatment and the side effects of radiotherapy. Overall, the results indicate that most patients required information about their treatment and also experienced a variety of symptoms.[10]

The majority of patients obtained information from their physician, and they believed that their physician was a "very" or "extremely" important source of information. Fewer patients obtained information from family and friends and the media. Internet had the least usage.[11]

Ellis *et al.* concluded that participants with low health literacy were less likely to be engaged with health information-seeking behavior. Participants with intermediate health literacy were more likely to source arthritis-focused health information from newspapers, television, and within their informal social network. Those with high health literacy sourced information from the internet and specialist health sources, and were providers of information within their informal social network.[12]

Mufunda *et al.* studied diabetic patients and showed the majority of the respondents scored average knowledge on all three sub-scales: General knowledge, insulin use, and total knowledge. Low diabetes knowledge was associated with female gender and could be a risk factor for development of diabetes-related complications.[13]

The results of the study by Naidoo indicated that patients' current needs influenced their need to seek out information. The study concluded that the patients relied heavily on the information provided by the doctor, the dietician, and the hand-outs and pamphlets that were available at the clinic.[14]

Healthcare-seeking behavior in patients with diabetes mellitus has been investigated by Hjelm and Atwine. They found that healthcare was mainly sought among doctors and nurses in the professional sector. Living conditions, including healthcare organization and gender, seemed to influence healthcare seeking.[15]

Hicks showed in a study that the doctor was the only source of information for 27% of participants. Also, 44.4% of the respondents reported obtaining information from the media and a total of 72.9% of the respondents cited family and friends as a source of information.[16]

The results of Yang *et al*.'s study indicate that the most important information needs for the majority of the respondents are symptoms of disease, etiology and course of disease, specific diagnosis information, treatment plan, treatment description, and advice on symptom management.[17]

Yan described in his study that to seek information, professional health sites 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. Over 60% considered online health information useful; however, about 44% were uncertain about the reliability of this information.[18]

As it can be seen, studies from Iran are about information-seeking behavior in the medical team and none of them have dealt with patients seeking health information.

Therefore, the aim of this study was to identify the information-seeking behavior of cardiovascular patients hospitalized in Isfahan University of Medical Sciences hospitals.

## MATERIALS AND METHODS

This is an applied research and a survey study. The study population consisted of all cardiovascular patients hospitalized in Isfahan University of Medical Sciences hospitals (Shahid Chamran, Alzahra, Feiz, and Noor-Ali asghar) during the winter of 2013.

According to statistics obtained from the hospitals, the number of patients was approximately 6000. The sample size was determined based on the formula of Cochran and 400 patients were randomly selected.

The questionnaire consisted of two parts: Demographic characteristics and main questions.

The second part consisted of 43 five-choice questions which had been planned in Likert Scale. Four dimensions of information-seeking behavior were measured this way: Attitude on health information-seeking behavior (questions 1–6), information needs (questions 7-20), information sources (questions 21-35), and barriers to access health information (questions 1-6).

Validity of the questionnaire was confirmed by medical information specialists and reliability of the questionnaire was obtained as 0.723 using Cronbach's alpha test. Researcher went to the hospitals to visit the patients directly for data gathering, so that the questions could be clarified for illiterate

patients or patients of lower education level. Data were analyzed by descriptive statistics and inferential statistics.

In descriptive statistics, frequency distribution, mean, and standard deviation were used, and in inferential statistics, one-sample *t*-test, independent *t*-test statistics, analysis of variance (ANOVA), and Pearson and Spearman correlation tests were used.

## RESULTS

The demographic data showed that 41.5% of the respondents were females and 58.5% were males. Considering the age of respondents, 6% were below 30 years old, 19.8% were 31-40 years old, 36% were 41-50 years old, 31% were 51-60 years old, and 7.3% were above 60 years of age.

Regarding the level of education, 47% had not finished high school, 29.8% had high school diploma, 10.3% had associate degree, 11.3% had bachelor's degree, and 1.3% had master's degree and higher.

In terms of job, 24.8% of patients were workers, 5.3% were employees, 21% had nongovernmental jobs, 18.5% were retired, 1.3% was students, 7.5% had no job, and 21% had other jobs.

In terms of place of residence, 61.4% lived in Esfahan city and 28.9% in the subsidiary cities of Esfahan and 9.6% in villages.

### Patients' attitude to health information
To study the patients' attitude about their disease, one-sample *t*-test was used. The mean score of patients' attitude was more than average. The results of this test are shown in Table 1.This means that a positive attitude exists toward the usefulness of this type of information. They found information about their disease not only useful, but also as a tool for disease control, and knew the best ways of treating.

### Patients' information needs
As patients have their own specific information needs like other groups, one-sample *t*-test was used to determine their most important information needs. Table 2 shows the results of this test. As it can be seen, being aware of the chances of recovery, finding the right medical centers, and awareness of the appropriate methods of treatment are the most significant needs of patients.

### Patients' information sources
To determine the amount of various information sources to get health information by patients and to identify which of these sources of information had been used more, the one-sample *t*-test was used. As it is obvious in Table 3, usage of different information sources is either average or more than average, except the internet, librarian, telephone counseling service, healthcare organizations, and medical books. The results showed that physicians, television, and radio were the

**Table 1: The results of one-sample *t* test for patients' attitude toward health information**

| Attitude to health information (Test value=3) | Number | Degrees of freedom | Mean | *t* | *P* value |
|---|---|---|---|---|---|
| Knowing useful health information about disease | 400 | 399 | 3.65 | 11.942 | <0.001 |
| Positive effects of health information to control the disease | 400 | 399 | 3.54 | 10.485 | <0.001 |
| Positive effects of health information to find the best way for treatment | 400 | 399 | 3.45 | 9.006 | <0.001 |
| Positive effects of health information to control the complications of medicines | 400 | 399 | 3.4 | 8.127 | <0.001 |
| Positive effects of health information on increasing hopefulness | 400 | 399 | 3.3 | 5.632 | <0.001 |
| Increase of anxiety caused by the lack of health information | 400 | 399 | 3.23 | 4.461 | <0.001 |

**Table 2: The results of one-sample *t* test for patients' information needs**

| Information needs (Test value=3) | Number | Degrees of freedom | Average | *t* | *P* value |
|---|---|---|---|---|---|
| Chance of recovery | 400 | 399 | 3.68 | 12.57 | <0.001 |
| Finding the right medical centers | 400 | 399 | 3.62 | 10.238 | <0.001 |
| Finding appropriate treatment methods | 400 | 399 | 3.61 | 10.983 | <0.001 |
| Finding reliable physicians | 400 | 399 | 3.6 | 9.816 | <0.001 |
| Drug information | 400 | 399 | 3.45 | 7.73 | <0.001 |
| Awareness of disease prevention | 400 | 399 | 3.43 | 7.378 | <0.0001 |
| Awareness of symptoms | 400 | 399 | 3.4 | 6.97 | 0.005 |
| Information about treatment costs | 400 | 399 | 3.36 | 5.353 | <0.001 |
| Find information on disease control methods | 400 | 399 | 3.22 | 3.894 | <0.001 |
| Increased awareness of risk factors of disease | 400 | 399 | 3.21 | 3.712 | <0.001 |
| Awareness of the adverse effects of treatment | 400 | 399 | 3.15 | 2.841 | <0.001 |
| Awareness of the factors of developing disease | 400 | 399 | 3.1 | 1.861 | 0.063 |
| Awareness of the nature of the disease | 400 | 399 | 3 | 1.677 | 0.094 |
| Information about the stage of disease | 400 | 399 | 2.9 | −1.175 | 0.241 |

most important sources of health information but. Internet and librarian had the lowest usage.

### Barriers to access health information

One-sample *t*-test was used to investigate and evaluate the problems and barriers that patients faced in obtaining information about their disease. Table 4 shows the results. As can be seen, in all cases, the mean score is average or above average. Results also show that lack of familiarity with medical terminology and the lack of staff's accountability were the most important problems in obtaining information related to their disease.

### The relationship between patients' demographic characteristics and their information needs

As gender was measured in Nominal Scale (two values) and information-seeking behavior in interval scale, independent-samples *t*-test was used to determine the relationship between these two items.

The obtained significance level ($P > 0.001$) shows that there was no significant difference in the information-seeking behavior between women and men in any of the four dimensions.

To determine the relationship between age and the patients' information-seeking behavior, Pearson correlation coefficient was used because both the variables were quantitative.

Except the barriers to access information, there was an indirect relationship between age and information-seeking behavior of patients in other dimensions, considering the level of significance ($P < 0.001$).

As education was measured in ordinal scale and information-seeking behavior in interval scale, Spearman correlation was used to determine the relationship between these two items.

There was a direct significant positive correlation between level of education and information-seeking behavior of patients according to the calculated level of significance ($P < 0.001$) in all four dimensions.

As occupation was measured in Nominal Scale (multiple values) and information-seeking behavior in quantitative scale, to determine the relationship between them, ANOVA was used.

There was a significant difference between the information-seeking behaviors of different occupations in all dimensions except for the dimension of barriers to access health information. Tukey's test was used to determine between which groups this difference existed.

The test results indicate that there were differences between the groups of employees and workers, employees and self-employed, retired and employees, and the employees and other jobs.

As place of residence was measured in Nominal Scale (multiple values) and information-seeking behavior in quantitative scale, to determine the relationship between them, ANOVA was used.

## Table 3: The results of one-sample *t* test for patients' usage of information sources

| Sources of information (Test value=3) | Number | Degrees of freedom | Average | *t* | *P* value |
|---|---|---|---|---|---|
| Physician | 400 | 399 | 3.94 | 18.263 | <0.001 |
| TV | 400 | 399 | 3.49 | 7.179 | <0.001 |
| Radio | 400 | 399 | 3.1 | 1.164 | 0.245 |
| Newspaper | 400 | 399 | 3.1 | 0.697 | 0.416 |
| Other cardiovascular patients | 400 | 399 | 3 | 0.646 | 0.518 |
| Nurse | 400 | 399 | 2.98 | −0.348 | 0.728 |
| Family | 400 | 399 | 2.87 | 2.053 | 0.041 |
| Magazine | 400 | 399 | 2.82 | −2.443 | 0.015 |
| Friend and colleague | 400 | 399 | 2.62 | −6.514 | <0.001 |
| Leaflet | 400 | 399 | 2.53 | −6.767 | <0.001 |
| Medical books | 400 | 399 | 2.43 | −8.894 | <0.001 |
| Healthcare organizations | 400 | 399 | 2.34 | −10.956 | <0.001 |
| Telephone counseling services | 400 | 399 | 2.15 | −14.654 | <0.001 |
| Librarian | 400 | 399 | 2.11 | −19.639 | <0.001 |
| Internet | 400 | 399 | 2 | −14.799 | <0.001 |

## Table 4: The results of one-sample *t* test for patients' barriers to access health information

| Barriers to access health information (Test value=3) | Number | Degrees of freedom | Average | *t* | *P* value |
|---|---|---|---|---|---|
| Lack of familiarity with medical terminology | 400 | 399 | 3.44 | 9.775 | 0.001 |
| Lack of staff's accountability | 400 | 399 | 3.4 | 7.015 | 0.001 |
| Lack of access to authoritative information resources | 400 | 399 | 3.3 | 6.782 | 0.001 |
| Uncertainty about received information | 400 | 399 | 3.26 | 5.864 | 0.001 |
| Lack of knowledge about reliable information sources | 400 | 399 | 3.23 | 5.13 | 0.001 |
| Information overload | 400 | 399 | 3.22 | 4.506 | 0.001 |
| Lack of skills to use information resources | 400 | 399 | 3 | 1.278 | 0.202 |
| Not healthy enough to seek information | 400 | 399 | 3 | 0.363 | 0.717 |

According to the obtained significance level, there was a significant difference between information-seeking behavior and different places of residence in the dimension of attitudes toward health information and in the dimension of information needs. But no significant difference was seen in the other two dimensions (information sources usage and barriers to access information).

## DISCUSSION

The results showed patients' positive attitudes toward using health information as most of them found it useful. They believe that having health information can play an important role in controlling the disease and side effects of drugs. These findings are in accordance with the findings of Mufunda *et al.*[13] and Yan.[18]

Our findings showed that the awareness of the probability to recover, finding appropriate medical care centers, and knowing the methods of treatment were the most significant information needs of patients.

This finding is consistent with the previous findings of Leydon,[6] Mistry *et al.*,[8] Güleser *et al.*,[10] and Yang *et al.*[17] The range of information sources' usage is more than average based on the results of this study. Also, doctor, television, and radio were the most important sources of health information. This result is consistent with the results of Davarpanah and Azami,[5] Lin,[11] Naidoo,[14] and Hjelm and Atwine,[15] and does not agree with the results of the studies of Ghasemi,[3] Afshar *et al.*,[4] Talosig-Garcia and Davis,[7] and Yan.[18]

It seems that the main reason for this inconsistency is the different characteristics of the statistical population and the research place and facilities.

The results showed that patients face various obstacles in obtaining health information. Lack of familiarity with medical terminology and inadequate information by healthcare staff, particularly physicians, had been the most important problems in obtaining information by the patients.

These results are not the same as reported by Davarpanah and Azami[5]. The kind of research population might have caused the difference.

The results showed no significant relationship between gender and patients' information-seeking behavior.

Mistry[8] and Mafunda *et al.*[13] obtained different results. This can be due to the characteristics of the research population and their information needs and environmental facilities. However, there was a significant relationship between some of the demographic characteristics (e.g. age, education, and place of residence) and patients' information-seeking behavior. These results agreed with the findings of Mistry.[8]

## CONCLUSION

The research findings show that although some patients may prefer to be unaware of their disease, the patients who had been studied in this research believed that knowing the details of the disease could help them to control it and prevent aggravation. In total, they had a positive attitude toward health information and found it useful to know the details of their condition.

The information they needed the most was about the chance of healing and finding appropriate treatment centers. This information may be received by different ways such as

through health staff, media channels, and informal channels. The results, despite the mentioned obstacles, showed that doctors and television were the most important sources of information for the patients to get health information.

Since most of our patients were elderly and had a low educational level, these results could be predictable.

There was no significant difference between the information-seeking behavior of men and women, while it was different based on some of the characteristics such as age, education, and place of living.

Younger patients who normally have higher education levels had different information-seeking behavior in terms of information needs, information sources used, and also the mentioned obstacles.

These differences were observed in the patients living in the center of the province with better educational and healthcare facilities than in the patients living in towns and villages.

Considering the findings of this research, it is suggested that medical staff inform the patients according to their level of education and some effective factors mentioned above. Also, since media such as television play a considerable role in providing health information to the public, they can be helpful in distributing health information.

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