A Path Analysis Model of Ischemic Heart Disease Patient's Preferences in Obtaining Health Information and Factors Affecting Them

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Abstract: Although, numerous studies have been conducted in the field of cardiac illnesses, none of them have prioritized the preferences from the perspective of patients. Identifying the information needs of patients can help to change and improve patient's quality of life. The study was a cross-sectional study which was conducted on 200 patients with ischemic heart disease who referred to Kosar Hospital in Semnan in 2015. The data collection tool was a researcher made questionnaire. The findings showed that the patients more needed to mental health problems information. Sex (OR = 2.646, CI 95%), age (OR = 3.509, CI 95%), Job (OR = 2.876, CI 95%), education (OR = 5.187, CI 95%) and income (OR = 3.774, CI 95%) had positive and significant relationships with the patient's information needs (p<0.05). The results showed that patients with ischemic heart disease have different information needs. In other words, this study showed that people are concerned about different issues and their needs can vary based on their unique characteristics.

Key words: Questionnaire, patients, heart disease, mental health, unique characteristics

INTRODUCTION

Information is one of the most important needs of human as a complex living organism. Information needs are a group of human needs which emerge when people face questions and problem which they cannot solve by themselves; in such a case, people become eager to obtain more knowledge (Mozhgan *et al.*, 2012). Without access to information it is difficult for human to adapt to the environment, establish a comprehensive system and ensure the survival and continuity of his life in the face of constant changes. Knowledge makes it easier for humans to make their own choices; in addition, information as a human partner, plays a major role in the process of decision making (Turner and Fuller, 2011; Mehdi *et al.*, 2011).

High quality health information is essential for greater involvement of patient in health care procedures. Patients need some general information such information must be timely, relevant, reliable and easy to understand (Kahouei *et al.*, 2014a, b). This type of health information is an essential component of any strategy to promote self care, choice, shared decision making, management of chronic diseases and health literacy (Simon, 2011; Mahboobe *et al.*, 2012; Kahouei *et al.*, 2013 a-c). In fact, information need is a gap between what a person knows

and what he/she should know. The information gap can be caused by lack of knowledge, attitudes or skills (Kahouei *et al.*, 2014a, b).

The emergence of new technologies, changes in the patterns of life and changes in behaviors of people have provided a ground for many chronic diseases, including cardiovascular disease (Kahouei *et al.*, 2011). While half of the deaths in developed countries are due to cardiovascular disease, the World Bank and World Health Organization have predicted the rise of mortality rate due to cardiovascular diseases; it is expected that by 2020, more than half of all cases of death due to cardiovascular disease occur in developing countries (Harding *et al.*, 2008; Farzaneh *et al.*, 2011).

Thus, consistent with the patient-centered care approach, it is necessary to identify the real needs of cardiovascular patients and understand the concerns of these patients via an active process of information collection (Bergvik *et al.*, 2008; Mehdi *et al.*, 2012). The collection of information is important because cardiovascular patients need long term care in different states of daily life and different places including home, work and community. To obtain self-care ability, it is needed to obtain health related information (Lee *et al.*, 2012; Kahouei *et al.*, 2013a-c). These needs are a base for the search for information which can be used as a strategy

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to achieve some goals such as participation in decision-making, strengthening self-efficacy and regain a sense of control (Caiata-Zufferey *et al.*, 2010; Lesch *et al.*, 2014; Safavi *et al.*, 2012).

Aminda *et al.* (2005) conducted a study to evaluate the information needs of patients with acute myocardial infarction and their preferences about the post discharge follow ups. They reported that most of patients with a history of heart attack were seeking information about the methods of coping with the physical and mental consequences of illness, physical activity, preventive lifestyle changes and their ability to work in the future. These problems were characterized by a sense of mental and physical retreat.

Cha *et al.* (2012) conducted a study to assess the training needs of heart failure patients with and without underlying diabetes about self care. They reported that cardiac patients with underlying diseases had more needs and their needs were mainly related to health, diet and sodium control. Rostami *et al.* (2011) conducted a study to evaluate the training needs of patients with myocardial infarction. The results showed that training can be effective only when it is based on the needs assessment. In addition, they reported that the needs are constantly growing and changing.

Although, numerous studies have been conducted in the field of cardiac illnesses in Iran, none of them have prioritized the preferences from the perspective of patients. Identifying the information needs of patients can help to change and improve the trend of the disease and promote patient's quality of life (Assareh *et al.*, 2008; Kahouei *et al.*, 2013a-c). Thus, identifying the different information needs of these patients can help to provide appropriate services for them (Caldwell *et al.*, 2007). Hence, this study was aimed to identify the preferences of patients with ischemic heart disease when seeking health information; the study also evaluated the factors affecting information seeking behaviors and finally it tried to provide a conceptual model for this process.

MATERIALS AND METHODS

The study was a cross-sectional study which was conducted on 200 patients with ischemic heart disease who referred to Kosar hospital in Semnan in 2015. Sample size was calculated based on similar studies (Harding *et al.*, 2008) using the Cochran formula, the sample size was calculated as 200 patients. A total of 350 patients referred to the hospital during the six-month period of the study (from April to September 2015). Taking into account the confidence interval of 95% and using the formula for calculating the sample size, 189 subjects were

recruited and finally 200 patients were enrolled in the study. Sampling was carried out using convenience sampling method. In this study, based on the inclusion criterion, we only recruited patients who had a good general health status at the time of discharge from hospital; the patients who were still hospitalized were excluded from the study. Our data collection tool was a researcher made questionnaire which was designed based on Mc New's quality of life questionnaire, Goldberg's general health status questionnaire and Serajzadeh's religiosity scale questionnaire. The questionnaire had 28 questions and was composed of two parts. The first part was designed to collect demographic information such as age, sex, occupation, education, place of residence, income, length of illness, number of hospitalizations, use of the Internet, the frequency of internet use. The second part of the questionnaire was designed to measure patient's needs in three areas, including socio-economic factors (how to start an effective communication, desensitization techniques, relationship between thoughts and moods, stopping negative thoughts, aggression, smoking, insurance support to help paying for health care costs and impact of insurance coverage on re-hospitalization in the hospital), psychological-mental factors (awareness of the symptoms of anxiety, impact of anxiety, impact of stress, impact of depression and obsessions with death) and religious rituals (impact of religious belief, impact of daily prayers, impact of prayer, impact of Quran recitation and impact of attending religious ceremonies and rituals). In the second part of the questionnaire, we asked the participants to determine the priority of each of the item from one to three based on their importance; the participants were asked to determine how strong their need for each type of information is. The priorities were then scored; the first priority was scored 3, the second priority was scored 2 and the third priority was scored 1. To determine the validity, we used content validity method. Tthe questionnaire was first presented to experts and clinicians and their views on the relevance and accuracy of the questionnaire were collected. To determine reliability, the Cronbach's alpha test was used. The values obtained from the Cronbach's alpha testwere 0.751 for socio-economic factors, 0.723 for mental-psychological factors, 0.745 for religious rituals and 0.796 for all the questions. It should be noted that patients who participated in the pilot, were excluded from the total sample size. This study was approved by the ethics committee of Semnan University of Medical Science. We first provided the participants with some information about the aims of the study. Participants were allowed to quit the study whenever they wish and they

were assured that their personal information will remain confidential. Then, the questionnaires were distributed among the participants. To collect that, at the time of discharge of cardiac patients when they were in good condition, researcher visited them and collected the required data. After collecting the data, analyses were performed using statistical software SPSS V. 16 through descriptive statistics, chi-square test and logistic regression analysis.

RESULTS AND DISCUSSION

All of the patients (n = 200) participated in the study. The 57.5% needed to information. There were significant relationships among sex (p = 0.001), job (0.021), education (p<0.001) and income (0.001) with the patient's information needs (Table 1). The patients more needed to mental health problems information. (Fig. 1). Univariable analysis showed that sex (OR = 2.646, CI 95%); age (OR = 3.509, CI95%); job (OR = 2.876, CI95%); education (OR = 5.187, CI 95%) and income (OR = 3.774, CI 95%) had positive and significant relationships with the patient's information needs (p<0.05) (Table 2). Multi variables analysis showed that sex (OR = 2.756 CI95%) had a positive and significant relationship with the patient's information needs (p = 0.007) (Table 3).

The present study aimed to assess the factors affecting the preferences of patients with ischemic heart disease in terms of their information seeking behaviors. The findings showed that some patients preferred to obtain information about social and economic issues that could occur after the incidence of a disease. The results showed that income level could affect and increase the need for such information (CI = 630.1-741.8, p = 0.002, B = 1.328). The results indicated that patient's access to such information could help them to choose the best way to pay the cost of treatment and helped them to pay the hospital costs. The high costs of treatment, lack of household's ability to bear the costs and lack of adequate insurance coverage caused delays in treatment. In addition, such factors increased the concerns of patient's family members and forced them to choose the most economical way of treatment, not the best treatment protocol (Moghadam *et al.*, 2014).

The tendency of some patients to obtain information about the economic and social factors could be due to their job. The results showed that job was an important factor which influenced information seeking behaviors (CI = 6.840-1.135, p = 0.025, B = 1.025). Stressful job provide a ground for developing cardiac diseases because high hostility provides grounds for damage to vessels. In addition, there is a significant relationship between negative emotions (such as anger and aggression) and the risk of developing cardiovascular disease (Suls, 2013; Kahouei *et al.*, 2015a, b). Based on our findings, gender (CI = 4.743-1.476, p = 0.001, B = 0.973)

Table 1: Patient's demographic characteristics and their relationships with information need

| Characteristics | Groups | There is information need | | p-value |
		Yes, N (%) 115 (57.5)	No, N (%) 85 (42.5)	
Sex	Men	65 (56.5)	28 (32.9)	0.001
	Female	50 (43.5)	57 (67.1)	
Age (years)	40<	5 (4.3)	6 (7.1)	0.069
	40-49	25 (21.7)	9 (10.6)	
	50-59	30 (26.1)	16 (18.8)	
	60-69	36 (31.3)	30 (35.3)	
	70≥	19 (16.5)	24 (28.2)	
Location	City	97 (84.3)	71 (82.5)	0.876
	Village	18 (15.7)	14 (16.5)	
Job	Practitioner	92 (80.0)	78 (91.8)	0.021
	Unemployed	23 (20.0)	7 (8.2)	
Duration of illness (years)	1<	57 (49.6)	47 (55.3)	0.339
	1-2	19 (16.5)	8 (9.4)	
	2>	39 (33.9)	30 (34.3)	
History of admission	No history	51 (44.3)	39 (45.9)	0.41
	Once	18 (15.7)	16 (18.8)	
	More than once	46 (40.0)	30 (35.3)	
Education	Diploma	106 (92.2)	83 (97.6)	>0.001
	Bachelor degree	9 (7.8)	2 (2.4)	
Income	Up to a 10 million Rials	77 (71.3)	75 (90.4)	0.001
	>10 million Rials	31 (28.7)	8 (9.6)	
The use of internet	Yes	13 (11.3)	4 (4.8)	0.103
	No	102 (88.7)	8 (95.2)	
Frequency of using of the internet	Daily	8 (61.5)	3 (5)	0.877
	Weekly	2 (15.4)	1 (16.7)	
	Monthly	3 (23.1)	2 (33.3)	
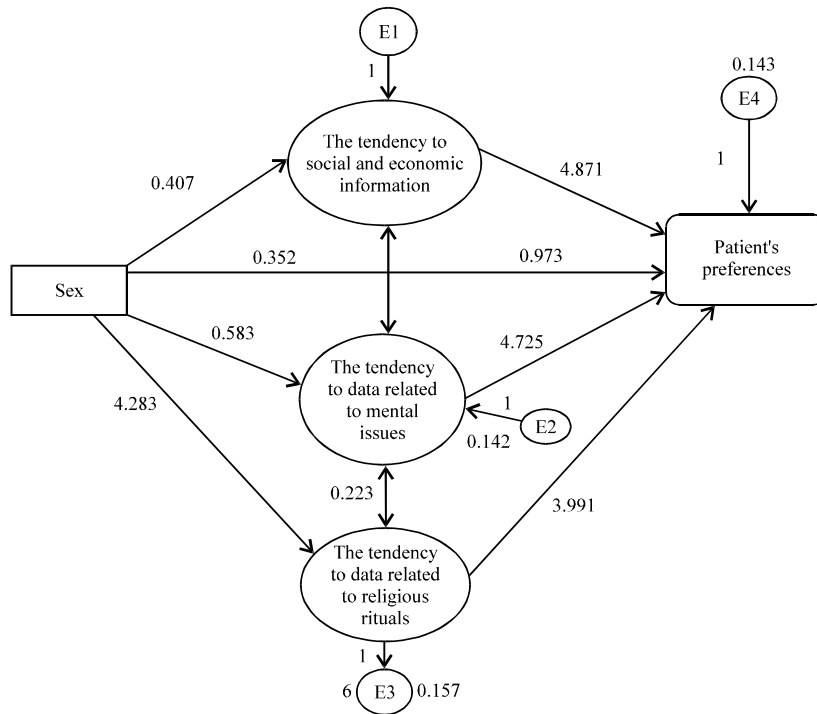
Fig. 1: Path analysis model

Table 2: Uni variable analysis

| | | | | | | 95% CI | |
| | | | | | | ------------------------- | |
Characteristics	Groups	B	Odd's ratio	df	p-value	Lower	Upper
Sex	-	0.973	2.646	1	0.001	1.476	4.743
Age (years)	-	-	-	4	0.077	-	-
	40-49	1.255	3.509	1	0.011	1.329	9.265
	50-59	0.862	2.365	1	0.048	1.008	5.567
Job	-	1.025	2.786	1	0.025	1.135	6.840
Education	-	-	-	2	0.119	-	-
	Bachelor	1.646	5.187	1	0.039	1.085	24.749
Income	-	1.328	3.774	1	0.002	1.630	8.741
Location	-	0.061	1.063	1	0.876	0.496	2.278
Duration of illness	-	0.262	1.827	1	0.215	0.704	4.740
History of admission	-	0.159	1.173	1	0.615	0.630	2.181
The use of the internet	-	0.936	2.549	1	0.113	0.800	8.117
Frequency of using of the internet	-	0.288	1.333	1	0.851	0.067	26.618

Table 3: Multi variables analysis

| | | | | | 95% CI | |
| | | | | | ----------------------- | |
Characteristics	B	Odd's ratio	df	p-value	Lower	Upper
sex	1.014	2.756	1	0.007	1.315	5.777

can affect the patient's desire to obtain information about aggression. The results showed that providing patients with information about the ways to control anger and aggressing and training them how to change their lifestyle habits can help them to improve their health status and increase their survival.

The results of this study showed that some of the patients tend to obtain information about the impact of a disease on their mental and psychological states which may occurs after the disease. Probably such patients have concerns about the negative impact of depression on their physical performance, life expectancy and their personal and social relations, because depression is the main obstacle to the treatment of heart failure. Depression leads to poor compliance by the patient, reduces the patient's motivation to continue treatment and has a negative impact on the prognosis of cardiovascular disease (Schaaf et al., 2013). According to the findings of this study, sex can affect patient's tendency to obtain this type of information. The prevalence of depression among women is twice as high as that among men which might be

due to biological factors and factors related to the reproductive system and hormones (Martin *et al.*, 2013; Kahouei *et al.*, 2015a, b). The results of this study showed that the majority of cardiac patients were over 60 years of age; age can be a contributing factor which affect patient's need for information about psychological and mental disorders (CI = 9.265, p = 0.011, B = 1.255). For several reasons, older people are particularly vulnerable to mental health problems; about 15-25% of the elderly are affected by mental health problems. With every decade of increase in age, anxiety and depression disorders increase too (Karel *et al.*, 2012). In a study, on 100 elderly people in Region 2 of Tehran, Alipour found that the levels of anxiety and depression were very high in this group of people. This study once again highlighted the importance of social supports as one of the social determinants of health which can affect and reduce stress and depression in this group of people. It seems that mindfulness-based stress reduction can be utilized as a way to deal with the effects of chronic diseases on patients. Hartmann *et al.* (2012) showed that mindfulness-based stress reduction had long-term positive treatment effects and reduced emotional distress (depression and anxiety) in a variety of chronic diseases. The results showed that these groups of patients needed psychological therapy programs within hospitals to improve their condition faster. Proper training provided by nurses and other health care team members is effective in reducing anxiety and depression among cardiac patients (Mousavi *et al.*, 2011; Kahouei *et al.*, 2016).

The results indicated that some of the patients with cardiac diseases believed that their health rituals had an important impact on their health recovery. Rezaei *et al.* (2008) conducted a study to determine the effect of prayer on spiritual health of cancer patients undergoing chemotherapy; the researchers concluded that prayer and its different dimensions had an impact on the spiritual health of patients with cancer. The gender factor can also affect patient's preferences and tendency to obtain this type of information. The results of a study by Mohammadi and Mehrabizadeh (2007) showed that the mean score of all religious factors were higher in female students than male students. In addition, a study by Najafi (2010) also showed that the obsession with death and religious bias were more common in women than men. The findings showed that, on the one hand, providing patients with this category of information helped them to make a connection with spiritual factors and it led to purification of the soul. On the other hand, the results indicated that culture was one of the factors which can help to improve mental health; hence, it is necessary to consider the cultural backgrounds of the people in our country. It can be concluded that attending spiritual
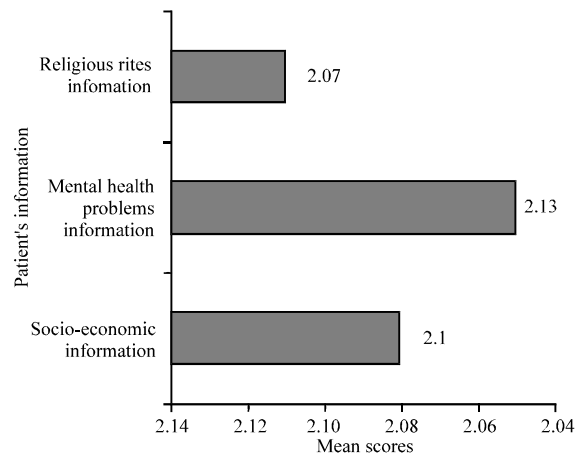

Fig. 2: Mean score of kinds of patient's information needs

ceremonies and rituals along with medical treatment can increase the positive effects of religious rites on psychological factors; they can particularly reduce stress and anxiety and eventually lead to the treatment of the disease.

The results showed that patients with ischemic heart disease have different information needs. In other words, this study showed that people are concerned about different issues and their needs can vary based on their unique characteristics. For instance, gender can directly or indirectly affect patient's preference to obtain information (Fig. 2).

Results indicated that our conceptual model was well consistent with the results obtained from the studied subjects. Moreover, this study showed that the majority of patients had high school diplomas or were less educated. Given the low educational level of this group of people, it is important to provide quality information for this category of patients. The information supports for these patients can help them to defeat the illness with fewer side effects; in addition, information support helps them to improve their quality of life. Furthermore, providing information for this category of the population helps them to feel that they are protected.

The results of this study can be useful for decision makers who design programs in the field of clinical information systems. It can help the designers of the content of the information system to have relevant and useful information about the patients. Providing useful information by health care providers and clinical information systems helps patients receive social support.

CONCLUSION

The results of this study revealed the type of information needs felt by patients with ischemic heart disease. In other words, our findings showed the patient's

unsatisfied learning needs and the perceived importance of this type of information to them. This study showed that patients need information about economic and social problems, mental and psychological issues and religious practices. According to the results, gender was the most effective demographic factor which influenced the preferences of the patients.

LIMITATIONS

This study had several limitations. First, this study was conducted using a researcher made questionnaire and it might have potential problems such as poor understanding of the questions by the patients and likely bias in the responses; such likely problems may threaten the results of the study. Given the validity and reliability of the questionnaire, this problem was resolved. Secondly, as another limitation of this study, the results could not be generalized because our study was conducted only in one city. However, the results of our study were in line with the other studies in this field. Thirdly, the capacity of the study was limited due to the nature of this research and we were not able to fully discover the information needs of the patients. Therefore, further studies should be conducted to determine if unsatisfied information needs increase stress and anxiety. Future studies most also explore the most effective ways to present information to patients with ischemic heart disease and they should find methods to support patients in terms of their information needs.

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