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Challenges and Facilitators of Health Literacy in Patients with Acute Coronary Syndrome: a Qualitative Study

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Key words: Acute Coronary Syndrome, Health Literacy, Qualitative Study
Parole chiave: Sindrome coronarica acuta, alfabetizzazione sanitaria, studio qualitativo

Abstract

Background. *Low health literacy is associated with high prevalence of cardiovascular diseases. Therefore, this study was carried out to identify challenges of health literacy and strategies for its promotion in patients with acute coronary syndrome, using the patients' and nurses' experiences.*
Methodology. *Data gathering was done through applying semi-structured interviews with participation of 29 patients and nurses. The informants were selected using purposive sampling method with the maximum variation. Data analysis was done through conventional content analysis and using MAXQDA software.*
Results. *Obstacles and challenges of health literacy in participants were categorized in four themes including irresponsibility, social apathy, perceptual and cognitive problems, and inappropriate distribution of the resources. In addition, possible strategies to promote health literacy were presented in the form of 68 strategies.*
Conclusions. *Given that successful management of many acute or chronic diseases is influenced by patients' perceptions of health information, providing strategies to people who have difficulty in understanding this information can have a positive effect on health outcomes. Increasing health literacy abilities of patients should be a priority of health system.*

Introduction

Coronary artery diseases (CAD) are the most important health burden underlying mortality and disability around the world (1). One of the most important CADs is acute coronary syndrome (ACS), the range of which can vary from unstable pattern of angina to severe condition, indicating acute myocardial infarction and irreversible myocardial necrosis (2). According to prediction made by the World Health Organization (WHO), if no specific attempt is taken, in case of this trend, one death out of three deaths in 2030 will be due to heart diseases (3).

Also in Iran, cardiovascular diseases have accounted for 33-38% of deaths and 23% of

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disabilities. Besides, the cost of such diseases in 2025 will be doubled compared to 2005 (4). CADs are the most common life-threatening heart diseases. Progression of the disease in Iran has increased, due to reasons, such as inappropriate eating patterns and sedentary lifestyle (5). In addition, these diseases lead to considerable disabilities and decline in utility and are in priority of increase in costs of health therapeutic cares (6).

Despite considerable advances in reduction of mortality rate and comorbidity in the recent years, patients with ACSs are prone to high risk of trauma and mortality (7). The previous results have shown that low health literacy is associated with high prevalence of cardiovascular diseases. Considering the significant burden of heart diseases, individuals can have determining role in prevention and treatment of these diseases and decreasing of costs by promoting level of their own health (8). Health literacy is known as a personal characteristic, knowledge, motivation, and potency of individuals for access, perception, assessment, and use of health information to decide effectively and attempt properly for health and health care (9).

Insufficient health literacy is an invisible obstacle to receive health care, which has high costs for health of individuals and society (10). In general, health specialists classify achieving health literacy into three major groups: (a) the ability of reading consent forms, pharmaceutical labels and brochures, and other written information related to health fields, (b) the ability of perceiving written and verbal information from physician, nurse, pharmacist, and insurer and, finally, (c) the ability of acting based on pharmaceutical guidelines and medical care (11).

Low level of health literacy causes unnecessary frequent referral to physician, increases the medication use and also leads to long hospital stay of patients in hospital, which in turn increases costs and wastes a part of them (12, 13). De Melo Ghisi et al. showed that health literacy information in patients with cardiovascular disease is very limited, that causes recurrent admission in hospital, low life quality, higher anxiety, and lower social support (14). Chan et al. also showed that inappropriate health literacy in patients varies from 18% with insufficient skills of reading to 52% regarding the problem in perceiving and using written information (11). Magnani et al., stated challenges of individuals with low level of health literacy as below: (a) problem in access to health care services, (b) lack of use of educational brochures and guidelines in the field of health, (c) the inability in understanding medical phrases in relation to physician and patient, (d) problem in spontaneous use of verbal and written communications and combining them with quantitative skills and calculations; and, finally, (e) interruption in establishment of health cares with language and cultural obstacles (10). In total, individuals with heart diseases were found to have no proper health literacy and therefore, there is a need for programs regarding promoting health literacy for these individuals (15).

Access to valid information resources is one of the most important factors effective in preventing development of diseases and strength of coping with it in specific conditions and, finally, decreasing therapeutic costs. One of therapeutic and supportive processes is helping individuals in order to apply independence in decision-making and health literacy is necessary to assess and decide properly (16). Despite the importance of health literacy in promoting health of patients, health care providers have no sufficient health literacy. Correct information and sufficient attitude on this index and its various dimensions help healthcare providers in selecting correct therapeutic, educational, and supportive strategies to serve patients (11). Access to educational attempts effective

in enhancing health literacy levels of the society and decreasing development of heart diseases requires recognition of the major challenges in this regard and its promoting strategies to improve health status of society and, finally, to reduce considerable economic burden of this disease. The overall purpose of this study was exploring and explaining challenges of health literacy in patients with ACS and providing strategies for its promotion and improvement by specialists and experts.

Materials and Methods

In this study, firstly, challenges of health literacy in patients with ACS were explained using a qualitative approach, then, in the second step, stragies for improving health literacy were identified using nominal group method.

First Step-Qualitative Study

Study Design

This phase was performed using conventional content analysis as a qualitative approach, in order to recognize challenges of health literacy in patients with ACS from the viewpoint of 20 patients and 9 nurses in heart ward and intensive care units using semi-structured interview.

Setting and Participants

In the first step, patients with ACS and nurses working at heart wards and intensive care units of the Imam Hospital in Ardabil City (Ardabil Province, northwestern Iran) participated. The informants were selected using purposive sampling technique based on the maximum variation in variables, such as age, educational level, habitat, and gender. Sample size was identified with respect to sufficiency of data produced and data analysis, and sampling continued until data saturation was achieved. Therefore, 29 informants (20 patients and 9 nurses) participated in the study.

Inclusion Criteria: The nurses employed in the coronary care units (CCU) and the patients with ACS - but lacking cognitive disorders and severe disabilities - were included in the study.

Exclusion Criteria: Illiterate individuals and those who were not regular residents of the study region were excluded from the study.

Procedure

At this stage, semi-structured individual interviews were held. The interviewer was a 40-year-old emergency department's nursing student with 15 years of clinical experience, who interviewed patients hospitalized in emergency department, and who had learned basics of interviewing during a specialized training course prior to the interview. Researcher began the interview by stating guiding and general questions and then conducted the interviews based on the expressed content and experiences. Probing questions (such as, those beginning with why, how, and what time) were used for obtaining a deep understanding of information. In addition, the interviews were recorded (after approval of participants) and, then, were transcribed verbatim. The interviews were done individually and in a silent environment and at the best time. Examples of questions were as follows: "Could you explain your perception on ACS? What problems do you have regarding obtaining information related to your disease?" All the individual interviews were done in the hospital and in a proper situation according to agreement of the interviewer and participant. The interviews lasted between 30 and 60 minutes; and average duration for an interview was approximately 45 minutes.

Data Analysis

The collected information was analyzed using conventional content analysis. After

ending each session, data analysis was done using a process of six thematic stages of analysis. The content of each of the recorded interviews was transcribed word by word, and the interviews were read line by line several times to obtain a general perception of the text, then encoding was done. Management of analysis of the data was done using MAXQDA software.

Data Trustworthiness

For determining accuracy of data in qualitative studies, the four criteria of credibility, confirmability, transferability, and dependability were used. In the current study, revision of participants was used to assure accuracy of data.

Validity of data was increased by providing findings of the study to some participants and revising them to assure about coordination of findings. In addition, long involvement with regular phenomenon and assessment were among other attempts done to increase dependability of data.

The researcher gave the data to other qualitative researchers to achieve credibility of the data in order to see whether they obtain similar results and classes and think in the same way, then the data were compared with their work.

Recording statements of participants, writing statements, and revising by the participants and specialized supervisors are the activities, which help in meeting confirmability of the findings.

The researcher assessed transferability and generalization of the data by providing the study findings to some readers and receiving their confirmation, and also covering a wide spectrum of participants regarding age, occupation, marital status, and various levels of education.

Second Step-Nominal Group

In this phase of the study, participants were faculty members of university, educators, and nurses with more than 15 years of professional experience in heart disease, intensive care, emergency, and clinical work. Number of participants in sessions was equal to 8 people.

For better performing the technique of nominal group, attempts were done prior to holding sessions as follows: A) Providing room to hold the meeting: one room with sufficient space for each group of 8 people with separate tables. The tables were located in U shape and with a sufficient distance from each other. B) Provisions: along each table, there was a flipchart and a box containing 5 index cards with dimensions of 5*3 cm, one marker to write on the flipchart and also a pen and a paper. C) Initiation of the meeting: The lecturer stated the role of each individual, objectives of group, importance of duties and participating in all activities, and the way of using the results at opening session along with kind welcoming.

For providing and prioritizing appropriate strategies to overcome each obstacle, stages of technique of nominal group were done in the following pattern: The **First step**: Producing and writing ideas (strategies) individually in silence. At this stage, one of the obstacles identified was read in written form by the group leader, and the group members were individually asked to independently to write their idea in silence in the form of a short phrase. At this stage, there was no limitation for the ideas.

Second step: Registry of group ideas: At the second stage, members of the group wrote their ideas on flipchart to be seen by the public. So that, leader of the group wrote the idea of one of members of the group on the flipchart, and then wrote the idea of another one and continued that until reaching the last member. Then, the leader recorded the ideas by allocation of a registry number. The words stated by the individuals were written; at this stage, the ideas were listed and no discussion was done on it, and also similar ideas were recorded only once.

Third step: Discussion and clarification: This stage was accomplished aimed at discussing and clarifying each of the ideas in turn, so that misinterpretations were relieved on the ideas and hidden logic was clarified behind each idea. Thus, at this stage, in addition to the idea owner, other members also could present explanations to clarify the idea.

Fourth step: Election: This stage was done aimed at integrating judgments of members of the group and showing importance of the idea. At this stage, the group members were asked to select five present important ideas and write each of them by mentioning relevant number on the index card. Then, the individuals arranged their indexing card with respect to their viewpoint, and among five cases, the most important was selected and number 5 was written on its right side, then this process was repeated among the four other cards, and number of four was given to it, and this procedure continued until the last card, then the leader gathered all cards of the members and numbers related to each idea were summed in relation to each other, and this work continued until identifying the idea with the most score and priority. Data analysis was scored for each of the ideas or strategies from the viewpoint of experts. Each idea with the highest score was placed at the highest priority.

Ethical Considerations

For participating in the study voluntarily, an informed written consent form was obtained from all the participants. These forms were signed after presenting explanations on the study objective, research progress, recording interviews, and confidentiality of the participants' information. The participants had the right to quit the study, whenever they wanted.

Results

Twenty-nine individuals participated in the study consisting of 20 patients and 9 nurses, and among the participating 20 patients, 14 (70%) were males, with mean age of 56.85 years and 65% of them had an

Table 1 - Demographic characteristics of the participants

Variables		Number (percent)	Mean
Age		patients	56.85±8.7
		nurses	32.22±3.6
Gender	Male	14 (70)	
	Female	6 (30)	
Education	Primary	13 (65)	
	Intermediate	3 (15)	
	Diploma and above	4 (20)	
Residence	Urban	17 (85)	
	Rural	3 (15)	
Employment status	Housekeeper	6 (30)	
	Retired	2 (10)	
	Farmer	2 (10)	
	Employee	2(10)	
	Freelance	8 (40)	

Table 2 - Sources of information obtained by patients with acute coronary syndrome

Health literacy resources	Number	Percent
Healthcare workers	18	90
Media	14	70
Family and relatives	11	55
Other	6	30
Other patients	5	25
Training classes	3	15

elementary school degree and 2% of them had university degree, and they were all self-employed (Table 1).

The greatest resource for obtaining information about the participants was the health care team of the hospital, other resources included family and relatives, other patients, media (radio, TV, etc.) and educational classes (Table 2).

Obstacles and challenges of health literacy of the participants were classified into four themes, including "irresponsibility", "social indifference", "cognitive and perceptual problems", and "inappropriate distribution of the resources". In addition, the recommended strategies were presented in the main themes (Table 3).

Challenges of Health Literacy

First Theme - Irresponsibility

This theme consists of two sub-themes, including lack of up-to-date health care workers information about the disease and insufficient provided education.

Sub -Theme 1- Lack of Up-to-Date Health Care Workers' Information about the Disease

Some participants claimed that health staff does not have sufficient information on the disease, and sometimes they provide wrong information. In this regard, one patient stated:

"I used to take blood pressure-related medication until my blood pressure was measured by the health centers' staff and they said my pressure is good and it is not necessary to continue taking it, hence I discontinued taking it until re-assessment of my blood pressure" (Participant No.1).

Another complaint of the patients was low level of literacy of health experts, and one of the patients stated on this as follows:

"They did not provide information on heart disease, health center has its own duty, and does not provide such educations, neither physician nor other health care team members, none of them provided information in this regard" (Participant No. 5).

Providing wrong information on the disease by health staff and low literacy of the health experts were among the codes determined in this sub-theme.

Sub- Theme 2- Insufficient Training Provided by Healthcare and Medical Staff

Most of the patients with heart diseases, especially those who had developed this disease for the first time, did not have much information on this disease and they expected that the nurses must inform them in health centers. Lack of providing education from health care team was one of the challenges presented during the interviews to the patients.

In addition, lack of proper education from the nurses to the patients was one of the challenges also addressed by the nurses. One of the nurses said that:

"We use less face–to-face approach, and tend to use educational pamphlets more; the individuals who are literate do not have enough patience to read the pamphlet" (Participant No. 8).

Indifference to education by the physician was one of challenges during the interview; sometimes the participants stated that the physician is not responsive to the patient. One of the patients said that:

Table 3- Challenge related to health literacy in patients with Acute Coronary Syndrome

Theme	Subthemes	Example Statements and Views
Irresponsibility	Lack of up-to-date health care worker information about the disease	Providing wrong information on disease by health staff, low literacy of the health experts
	Insufficient training provided by health-care and medical staff	Lack of verbal education by the nurses, lack of presenting information regarding the disease by the nurses, indifference of the physician about education
Social apathy	Lack of effective communication	poor social relation of the patient, poor and inappropriate relation of the physician with the patients, lack of relation and recognition of other patients
	Insufficient motivation to learn and teach	low motivation to learn due inability in performing orders, unwillingness to present education on this disease
	Indifference of the patient about education	Incorrect awareness on their disease, lack of sufficient opportunity to receive information, indifference of the patient to their health
	Insufficient social support	Indifference of the patient surroundings to the patient's disease and lack of support from family
Cognitive and perceptual problems	Different language of the instructor	Lack of receiving information presented by TV due to unfamiliarity to Persian language, use of specialized medical phrases by the physicians
	Insufficient literacy of the clients	Insufficient literacy to perceive topics of cyber space and illiteracy of patient to study topics related to their disease
	Perceiving problems of the patient	problems of understanding topics by the patients, problem in reminding educations presented by the patient
	Victim blaming	Not asking the patient form the physician due to not being comfortable with the physician, not asking form the health care team
Disproportionate distribution of resources	Instability of information resources	lack of fixed information resource, invalidity of informative resources (such as shrines), irregularity of educations to the patients
	Insufficient access to facilities	lack of familiarity to correct information on the disease, insufficient providing of brochures and pamphlet regarding disease to the patients

"Unfortunately, the physician does not have sufficient time to give us information and explain for us on what should we do and what should we eat and they do not say it" (Participant No.2).

Lack of verbal education by the nurses, lack of presenting information regarding the disease by the nurses, indifference of the physician on education, and lack of presenting education by the health experts were among the codes of this sub-theme.

Second Theme- Social Apathy

This theme consists of four sub-themes, including lack of effective communication, insufficient motivation to learn and teach, indifference of the patient about education, and insufficient social support.

Sub-Theme 1- Lack of Effective Communication

Some of participants had problems in communicating, they could not

communicate properly to obtain information. They addressed it so that, one of the participants said:

"I am not really interested in talking to anybody and asking him/her (Participant No.12).

Poor and inappropriate communication of the physician with patients was one of challenges observed during the interviews. In this regard, one patient said:

"When you refer to some doctors, you see that they talk to you so that, you may think if I know my problem I would not come here, most of the doctors speak too rapid that nobody can understand which she/he has said (Participant No.4)."

In addition, some of participants had communication problems, and could not establish proper relation to achieve information. One of participants stated that:

"I am not very interested in taking to the others, I do not talk so much in get-togethers, children talk to physician who is examining them, and I do not ask many questions from him/her." (Participant No.12)

The codes identified under this sub-theme were as follows: Poor social relation of the patient, poor and inappropriate relation of the physician with the patients, lack of relation and recognition of the other patients, lack of allocation time to communicate with the patient by the physicians, offeringì educations in a commanding tone, lack of response to questions of the patient by the physician, and poor and inappropriate relation with relatives of the patients.

Sub-Theme 2- Insufficient Motivation to Learn and Teach

Lack of motivation to learn and teach was one of the concerns in these patients. One patient stated that:

"She/he has really no motivation, for example, when I advise the patient on his/her dietary intake, this is not only the case, but having motivation to adhere to it is important" (Participant No. 9). One interviewer stated that: "Since, I did not expect to develop heart disease, so I have no interest in obtaining information" (Participant No.13).

Codes of this sub-theme included low motivation to learn, due to the inability in performing orders, unwillingness to present education on this disease, lack of receiving information, and underestimating their disease.

Sub-Theme 3- Indifference of the patient about education

Educating on diseases is an issue, which is less considered and was one of challenges observed repeatedly during interviews: For example, one patient said that: "Since, I did not expect to develop heart disease, therefore, I am not interested in obtaining the information" (Participant No.13).

Another patient attributed lack of obtaining information to lack of enough time and stated that: "I want to achieve the information but I have no leisure time and I am always working (Participant No.18)."

Codes of this sub-theme included incorrect awareness on their disease, lack of sufficient opportunity to receive information, indifference of the patients to their health, and indifference to the presented information due to a wrong perception of risk factors of the disease.

Sub-Theme 4 - Insufficient Social Support

Insufficient social support and lack of support were among challenges of these patients.

In this regard, one patient said that: "When I watch TV, the physician speaks Persian, and I do not understand his/her talking, I ask the children to explain for me, sometimes they explain, but sometimes they ignore my request" (Participant No.12). One nurse stated that: "In my opinion, individuals who are at low-income level and

have poor economic and social status and are not supported by the family, usually face with the problem and have many challenges and are involved in more important issues than the disease and do not have the time and patience for these issues" (Participant No. 6).

Among other codes of this sub-theme, indifference of the people surrounding the patient to the patient's disease and lack of support from family, could be addressed.

Third Theme - Perceptual and Cognitive Problems

This theme consists of four sub-themes, including difference in language of the instructor, insufficient literacy of the clients, perceiving problems of the patient, and victim blaming.

Sub-Theme 1 - Different Language of the Instructor

Difference in educating language, especially in illiterate and old individuals, was one of important challenges observed repeatedly during interviews. So that, one of the patients said that:

"Unfortunately, in Iran, there are two major problems; first, when we ask the physician to explain for us on our problem, he/she starts to explain with scientific phrases for example, your C-reactive protein (CRP) level is high, I do not understand, maybe I know what it is but the other could not, if they explain the patient's situation in slang, it would be good for them (Participant No.11)."

Lack of receiving information presented by TV due to unfamiliarity with Persian language, the use of specialized medical phrases by the physicians, using jargons in preparing educational brochures, difference in language of trainer and patient, and simplicity of the presented topics in brochures were the other codes of this sub-theme.

Sub-Theme 2 - Insufficient Literacy of the Clients

Low awareness is one of the concerns observed in the patients with the disease. In this regard, one nurse stated that: "Of course, patients with heart disease are mostly those aged more than 50 years old and are illiterate; they cannot use cyber space (Participant No.5)."

Another code was insufficient literacy to perceive topics of cyber space and illiteracy of patients to study topics related to their disease.

Sub-Theme 3 - Perceiving Problems of the Patient

Perceptive problems were among challenges faced by the interviewers during interviews. A nurse stated that: "Totally, most of them do not understand the concept and meaning, we should first explain orally, since we provide the pamphlet to them as an overview, while our educations are oral" (Participant No.3).

Codes of this sub-theme included problems of understanding topics by the patients, problems in reminding educations presented by the patient, problem in reminding and memory of the patient, lack of sufficient concentration of the patient to receive information, not receiving information regarding the disease due to preventing stress, forgetting information on the disease due to life challenges and being unknown of the pain area (for example, confusing with stomach ache).

Sub-Theme 4 - Victim Blaming

Shyness and low self-esteem were challenges determined by the interviewers. So that, one patient stated that: "I want to ask my question but I also feel ashamed" (Participant No.9). One nurse said that: "They say if necessary, the doctor has no patience to read for us, if I was able to read, this did not occur for me, and they have

low self-esteem, since they are illiterate" (Participant No.9).

Codes of this sub-theme included not asking the physician by the patient due to not being comfortable with the physician, not asking the healthcare team due to shyness of the patient and low self-esteem in patients.

Fourth Theme - Disproportionate Distribution of Resources

Sub-Theme 1 - Instability of Information Resources

Lack of stable resources was one of challenges presented during the interviews by the patients. One of the nurses stated so: "They usually ask us or obtain information from TV, there is no specific resource to which they could refer exactly, if there are any relatives in healthcare team, they should obtain information from them, or ask the physician who is connected to" (Participant No.7).

The written form of the presented educations, lack of fixed information resources, invalidity of informative resources (such as shrines), irregularity of educations to the patients, ceasing education along with the disease duration, providing controversial information by the physicians, the use of wrong resources, the presence of some old information based on findings of previous research, and lack of providing information in mass media regarding the disease, were among the other codes related to this sub-theme.

Sub-Theme 2 - Insufficient Access to Facilities

According to findings of the current study, lack of access to resources and facilities, such as the Internet and mobile phone was one of challenges faced by some of the participants. In this regard, one of the patients said that: "I have nothing at home, even any TV or radio to listen to" (Participant No.1). Another patient stated that: "My phone is not very advanced to use the Internet, and we have no instruments in the village, also we do not have any laptop and computer" (Participant No.3).

Some of codes of this sub-theme were as follows: Limitation in access to cyber space due to living in the village, lack of familiarity with correct information on the disease, insufficient to the patients regarding the disease, lack of access to sufficient informative resources, problem in access to internet due to financial problem, and lack of sufficient financial facilities to participate in classes.

B) Promoting Strategies of Health Literacy

In total, 150 strategies were obtained through nominal group, after eliminating repetitive and irrelevant items, and those with similar concepts, 68 strategies remained. Strategies recommended and their weights are presented in Table 3. As observed for the first, second, third, and forth themes, these strategies had the highest scores, respectively for example, education of staff based on educational needs, resolving communicative obstacles in education, education based on assessment of educational needs (nursery process), and introducing a valid resource to the patients (such as educational group of heart clinic of hospital, in which correct information can be presented both face-to-face and in the unattended form through web site and/or virtual groups) (Table 4).

Discussion

This study was done to explore and explain challenges of health literacy in patients with ACS and to provide strategies for its promotion and improvement by specialists and experts. The results revealed the major challenges of health literacy of the patients with ACS in four themes, including "irresponsibility", "social apathy",

Table 4 - Possible Strategies Related to health literacy in patients with Acute Coronary Syndrome

Promoting strategies	Sub theme
Staff training based on training needs Evaluate the quality of the training provided and receive feedback from patients Use of specialized staff in the field of health (nursing) Creating specialized fields in nursing Low shifts for the health care staff and the opportunity to study Periodic competitions to present the latest cases of the disease Create a virtual group for colleagues and provide them with the latest information	Lack of up-to-date health care workers' information about the disease
Systematic design of a method for evaluating patients' problems from admission to discharge and providing education based on evaluation results Motivate staff training Increase the number of staff and reduce the workload of staff Adequate control and supervision for training by staff Informing clients to receive training Justify personnel about training and its impact on the quality of care Virtual and in-service training for staff in relation to new scientific content in the department Set a specific time to provide training Designate a nursing staff to provide education to the patient	Insufficient training provided by healthcare and medical staff
Eliminate communication barriers in education Teaching effective communication techniques Motivation by the system for personnel who have the best communication with the patient Changing the structure of the patient visit based on the patient's needs and hierarchy; Nurse, general practitioner, specialist physician and subspecialist physician Reduce the volume of written reports and record and pay attention to the face-to-face communication of staff with patients Obtain feedback and monitor that the nurse knows patients and communicates with the patient	Lack of effective communication
Institutionalize the nursing process systematically and problem solving in care Reducing the workload of nurses in order to educate and communicate effectively with the patient Consider motivational incentives Holding training courses for nurses about the complications of diseases, care and appropriate methods of effective education 5. Use of teaching aids or appropriate training environments in inpatient wards such as a rehabilitation room, film, or appropriate diet during hospitalization.	Insufficient motivation to learn and teach
Improving patients' attitudes regarding the interference of some personal needs with the treatment process Use peer learning Use new teaching methods with a suitable environment Coordination between different members of the health care workers and coordination of different patient educational needs and integration of education can keep the patient away from repetitive and contradictory information and increase trust in the educator	Indifference of the patient about education

Promoting strategies	Sub theme
Family participation in educational programs and highlighting their supportive role Investigate the reasons for the lack of family support and guidance in using government and non-government support resources Identify the main supporter of the patient's health in the family and encourage patient support Encourage positive joint activities	Insufficient social support
Training based on educational needs assessment (nursing process) Introduce the resources of the training unit to prevent receiving incorrect information Teach self-care methods in simple and clear language using teaching aids such as photos, educational videos Considering individual differences in education and delegating education to the patient's direct nurse and non-intervention of other groups Use of group and patient-centered group education Take time to ask questions and help reinforce and clarify information for the patient and family members.	Different language of the instructor
Education about the disease and self-care methods at the level of patient literacy and understanding Use teaching aids such as shapes and videos Involve literate family members in the education process Encourage the patient to ask questions in ambiguous cases and take sufficient time to resolve ambiguous points and patient questions. Provide educational materials for this range of patients in person	Insufficient literacy of the clients
Communicating with the patient and family members and gaining their trust to provide care training When talking to the patient, stand in front of her and listen carefully to the patient's words and use clear and short sentences and repeat key and important words for the patient if necessary. Audio and video training tailored to the patient's physical and mental condition Counseling and treatment of perceptual disorders	Patient perceptual problems
Establish a complete professional relationship between the nurse and the patient Take action to increase the patient's self-confidence, such as limiting negative self-perceptions, encouraging positive self-interpretations, and giving positive feedback about the patient's actions. Use specific health care providers for these patients Use closed questions at the beginning of the relationship and then use open questions Systematic education for all patients If the patient is shy, give the patient a chance to ask questions and understand the information given. Using a family member as a third person to start communicating	Victim blaming

Promoting strategies	Sub theme
Introducing a credible source to patients, such as the training department of the hospital's heart clinic, who can provide accurate information to patients both in person and in person through the website or virtual groups. Nurse education should be based on the nursing process and a systematic and comprehensive examination of the patient's physical, psychological, social and spiritual problems. Providing new and up-to-date information to the patient by physicians and health care providers Continued care and training after discharge should be done continuously by health care providers of comprehensive health centers 5. Preparing educational clips and videos by teaching the University of Medical Sciences and presenting them to the provincial radio and television centers for educating and using the people. 6. Group classes should be given to patients over time to ask questions about what they have heard and learned. And be updated using the most valid information	Instability of information sources
Preparation of educational pamphlets in simple language and using pictures and requiring health care providers to present to patients and clients Identifying weak places in terms of poor access to health and taking the necessary measures (construction of health centers, identification of eligible patients, providing special education) Proposal to the provincial radio and television to broadcast educational programs in the local language with the presence of experts Ability to communicate by phone or in person for people who cannot connect to the Internet. Establishing tourism programs for health workers and door-to-door visits and educating patients by rural health centers	Insufficient access to facilities

"perceiving and cognitive problems", and "inappropriate distribution of the resources", and also its promoting strategies in the format of 68 strategies.

A - Resources of Obtaining Information

Results obtained from this study showed that, despite access to internet and speed of access to information by this system, fewer patients use that to obtain information and they use healthcare teams information mostly. This finding is similar to findings of the study by Saberi et al., who addressed the physician as the most important resource of achieving information by the patients, followed by the Internet as the second resource and friend and relatives in the subsequent rank (17). In studies by Saatchi et al. (18), Kimiafar et al. (19), and Kahooei et al. (20), healthcare team was pointed out as the greatest resource used by patients. This is while, Sadoughi et al., showed that most of the patients tended to achieve information through the Internet, compact discs and/or their family regarding their disease (21), indicating that patients considerably rely on knowledge and awareness of healthcare team on their diseases. They can communicate face-to-face with healthcare team and achieve reliable information related to their disease, therefore, they prefer using healthcare team as the first resource for obtaining information.

B - Challenges of Health Literacy

Responsibility of society's individuals is one of the positive characteristics of that society. Responsibility is not inherited, but

also is a contractile, ethical, and educational concept and meaning, which can be learned at any time. Results of the current study showed that the healthcare team has low responsibility in presenting sufficient information on diseases. Schillinger and Sudore concluded that the healthcare team is not responsible in providing sufficient information to the patients, which is consistent with the current study (22). In contrast to our study, results of the study by Chang represented high level of responsibility in healthcare team (23). Adib-Hajbaghery *et al.* demonstrated that the physicians and nurses lack proper education and communicative skills to communicate and educate their patients and do not sufficiently attempt in this regard (24). This is while; healthcare team must be responsible for needs of clients and, consequently, caring of patients.

Our results showed that individuals are indifferent, without support and unwillingness. Miller believes that patients need family support in treatment and caring and adhering to therapeutic diet is difficult and sometimes impossible without their support (25). Poon et al., stated the interaction among patient and healthcare team in healthcare programming as motivating factor in self-care (26). There should be a comprehensive program in order to enhance information of the individuals regarding health, and a coherent program should be implemented to achieve this goal. In addition, motivation should be enhanced and required support must be given.

The participants addressed perceiving and cognitive problems in the current study, which are considered as a fundamental challenge to achieve information. Learning disabilities are referred to heterogeneous group of disorders, which have characteristics, including difficulty in learning and function of listening, speaking, reading, writing and calculating (27). While facing with a disease, individuals make a general image and specific belief on the disease and its treatment in their mind, this perception on disease is effective in the way of individual's behavior, adaptation to the disease and its management and consequently, its treatment (28). Abdou et al. showed that cognitive disorder, such as forgetfulness, ceases medication use inadvertently (29). Cognitive disorder might directly decrease the ability of critical thinking and also the ability of individuals in management of their treatment, which has hazardous effects on general health (30). In addition, the ability of reminding of reasons underlying medication use, pharmaceutical regimens and other aspects of self-care might also change (31). Cognitive disorder makes problem for individuals in obtaining information and awareness.

Findings of the study showed that the resources of access to information are inappropriately distributed and are not accessible for the public. Providing health, preserving and improving it, requires access of the public to necessary information on health and hygiene (32). Making the science related to health and hygiene accessible for the society is a necessary and required issue, which causes development of health system of societies and countries (33). Lewis and Newell indicated that lack of receiving sufficient information is usual in developing countries as an obstacle to preserve health (34). Our study is in line with the study by Afshari, who stated lack of access to informative resources as a main challenge to achieve correct and reliable information (35). Therefore, for improving information and health literacy of the patients, access to informative resources through fair distribution of teaching resources and providing educational substructures should be facilitated.

C- Presented Strategies

Education is one of approaches, which must be considered to empower staff for better services. One of essential duties of each organization is teaching the staff, the first step for teaching the staff is explaining teaching needs, which should be considered in educational programming (36). Need assessment of the educational staff helps the organization to assess levels of knowledge and skills of their staff, and use it to present an educational program aimed at increasing skill and knowledge (37). In our country, organizations related to health should train and empower their staff according to their educational demands.

Communication is a need of each human, and each interaction is an opportunity to achieve an effective relation and participation in understanding an issue, leading to achievement of counteract objectives, therefore any factor, which causes obstacle for communication, should be removed. In the current study, resolving communicative obstacles was presented as an approach. Effective communication increases health of patients, and besides, lack of effective communication causes disruption in diagnosis, lack of participation of the patient in treatment, and reduction of presenting awareness to the patients (38). Fakhr-Movahedi et al. showed that lack of education by the nurses to the patient is one of obstacles for nurse-patient communication (39). Major obstacles in transferring information from the physician to the patient include time limitation and impatience of the physician, poor communicative skills of the physician and patient, inattention to feeling of the need for information by the patient, and difference in lingual concepts between the patient and physician (the physician uses jargons, which are not understandable for the patient) (40). Therefore, since communicating with the patient can be one of preventive factors and/or facilitating factor for educating the patient, development and presenting educational programs of communicative skills to improve health care teams knowledge as the main element of health system in educating the patient is necessary. This study was only performed in therapeutic centers; therefore, there is not the possibility for generalizing the results to other centers. Lack of participation of some patients was due to undesirable mental and physical status.

Conclusions

In the current world, with expansion of novel relations and technologies, although awareness of individuals has increased, and access to the resources has been facilitated, the individuals face with challenges on awareness of their health. Therefore, explaining health literacy challenges of patients with ACS can help policy-makers to improve quality of healthcare delivery. Education and holding toolbox meetings for health care team regarding improving communication skills and responsibility can be useful in enhancing quality of health and therapeutic services. Also, given the problems and strategies raised, it seems that the interactions between health system and society should be increased. The Ministry of Health and Medical Education is suggested to strengthen public participation in health programs through active, informed oversight and structural change.

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Disclosure statement
The authors of study declared no conflict of interest in this study.

Riassunto

Sfide e facilitatori dell'alfabetizzazione sanitaria nei pazienti con sindrome coronarica: uno studio qualitativo

Premessa. Una scarsa alfabetizzazione sanitaria è associata ad un'elevata prevalenza di malattie cardiovascolari. Pertanto, questo studio è stato condotto per identificare le sfide dell'alfabetizzazione sanitaria e le strategie per la sua promozione nei pazienti con sindrome coronarica acuta, utilizzando le esperienze di pazienti e dxi operatori sanitari.

Metodologia. La raccolta dei dati è stata effettuata attraverso l'applicazione di interviste semi-strutturate con la partecipazione di 29 tra pazienti ed infermieri. Costoro sono stati selezionati utilizzando il metodo di campionamento intenzionale con la massima variabilità. L'analisi dei dati è stata effettuata attraverso l'analisi convenzionale del contenuto ed utilizzando il software MAXQDA.

Risultati. Gli ostacoli e le sfide dell'alfabetizzazione sanitaria nei partecipanti sono stati classificati in quattro temi, e cioè l'irresponsabilità, l'indifferenza sociale, i problemi percettivi e cognitivi e la distribuzione inappropriata delle risorse. Inoltre, sono state presentate possibili soluzioni per promuovere l'alfabetizzazione sanitaria sotto forma di 68 strategie.

Conclusioni. Dato che la gestione efficace di molte malattie acute o croniche è influenzata dalla percezione che i pazienti hanno delle informazioni sanitarie, fornire soluzioni alle persone che hanno difficoltà a comprendere queste informazioni può avere un effetto positivo sugli esiti sanitari. Aumentare le capacità di alfabetizzazione sanitaria dei pazienti dovrebbe essere una priorità del sistema sanitario.

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