

# Iranian patient's expectations about coronary angiography: A qualitative study

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## ABSTRACT

**Background:** Coronary angiography is recognized as the gold test for diagnosis of coronary artery diseases. Based on the literature review, little is known about patients' expectations about this procedure. Understanding the patient's expectations is an important way to achieve patient-centered care. The purpose of this study was to explore the expectations of Iranian patients undergoing coronary angiography.

**Materials and Methods:** This descriptive exploratory qualitative study was carried out between 2011 and 2012 in three hospitals in Shiraz, Iran, with a purposive sample of 15 patients (7 men and 8 women, about 28-70 years of age). Data were collected using semi-structured interviews to explore the patients' expectations. Interview data were analyzed using conventional qualitative content analysis approach.

**Results:** The interviews revealed that the participants had four main categories of expectations about coronary angiography. The patient's expectations were those from angiography, from the treatment team, and the need for preparation of angiography, education, and training.

**Conclusions:** In general, the results of this study revealed a new insight into the expectations of patients undergoing coronary angiography. Patient education and preparation should include information addressing the expectations. Moreover, an appropriate care program based on the patients' expectations can promote the quality of care and satisfaction of patients.

**Key words:** Coronary angiography, expectations, Iran, patient education, qualitative study

## INTRODUCTION

Cardiovascular diseases (CVDs) are currently the major cause of mortality and morbidity around the world.<sup>[1-3]</sup> Among the CVDs, coronary artery disease (CAD) is the most common cause of deaths related to CVDs.<sup>[3-5]</sup> Coronary angiography (CAG) is the best tool and gold standard for diagnosis of CAD.<sup>[1,4,6]</sup> CAG is an invasive procedure which is routinely used for the assessment and diagnosis of CAD.<sup>[1,4,7]</sup> CAG is the insertion of a catheter to the heart by puncturing the groin site via the femoral artery.<sup>[2,7]</sup> In this procedure, dye is injected and

the extent and severity of stenosis of the coronary arteries are assessed.<sup>[1,2,7]</sup>

CAG can be a stressful experience for many patients because of its nature.<sup>[4,8]</sup> Review of literature and 5 years of clinical and research experience of the first author on working with these patients showed that most of those candidates for CAG are unaware of this procedure.<sup>[4,5]</sup> Lack of patient's knowledge related to CAG may cause many problems for them.<sup>[1,4,7-9]</sup> The nurses and physicians have an important role in providing information to patients.<sup>[1,4,10,11]</sup>

Identifying the expectations of CAG patients could help the patients to have a better encounter with this procedure, as well as more satisfaction and lesser hospital stay.<sup>[1,4,8,10,11]</sup> However, there is no published research on patients' expectations about CAG in Iran. With such understanding of patients' expectations related to CAG, nurses and physicians can use many available strategies in caring of these patients. Furthermore, identifying the patients' expectations will help nurses and physicians to provide information for patients based on their needs.

The review of literature showed that some research has been conducted quantitatively, measuring the effectiveness

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of interventions on the CAG patients' outcomes. The most common studies have attempted to find out the effectiveness of video information<sup>[4]</sup> and changing patients' position<sup>[6]</sup> on patients' outcomes such as anxiety, stress, back pain, fatigue, satisfaction, and recall.

Several studies conducted qualitatively in this area are limited to fear and perspectives of patients regarding CAG. Caldwell *et al.* (2007) found that the fear of patients arouse from lack of control on physical and psychosocial aspects of CAG, as well as unknown prognosis and possible medical complications.<sup>[2]</sup> A qualitative study carried out by Beckerman *et al.* (1995) also showed that patients undergoing CAG have feelings of loss of control of physical and personal self.<sup>[8]</sup> Review of literature indicated that the previous studies have focused on only one aspect of CAG and there is no holistic study on patients' expectations about CAG. Regarding the lack of research on this topic, particularly with qualitative approach in Iran, this study aimed at identifying and exploring patients' expectations about CAG.

## MATERIALS AND METHODS

This qualitative study was a part of a larger study which aimed to explore the patients' expectations about CAG. We conducted a descriptive exploratory qualitative study to explore the patients' expectations about CAG. This approach was conducted to reach a deep understanding of the patients' expectations related to CAG. The patients aged > 25 years were recruited from three hospitals (Nemazi, Faghihi, and Kowsar) affiliated to Shiraz University of Medical Sciences, Shiraz, southwestern Iran. We recruited patients using purposive sampling according to maximum variation approach from a wide age range (25-75 years), different genders, different cultures and socioeconomic status. All patients who were candidate for CAG were at first eligible to participate. In total, 15 patients (7 men and 8 women) participated in the study.

For data collection, semi-structured interviews were conducted in a private room in the ward. All the interviews were conducted by the first author between August 2011 and April 2012, 1 day before and 1 day after CAG. The interviews lasted approximately 50 min.

Data collection and analysis were performed simultaneously. All the interviews were audio-recorded with the patients' permission and transcribed verbatim. The sampling of patients continued until the researcher reached saturation.<sup>[12]</sup> After the interview with 12 patients, the researchers reached saturation. To complete and refine the coding framework, three more interviews with patients

were conducted. In sum, final saturation occurred with interviewing 15 patients. All the themes were saturated by interviewing 15 patients.

Data were analyzed using conventional qualitative content analysis. In this procedure, each transcribed interview was read sentence by sentence and the text was broken up in units of meaning; then, the phrases with the same meaning and content were labeled and categorized together. This was refined and analysis continued until a coding framework was developed. In the next step, based on similarity and content, the subcategories were used to make the main categories. The categories were then formulated into four themes.

To ensure trustworthiness of data, several approaches were addressed.<sup>[13]</sup> After coding of data by the researcher, member checking was done by some patients to compare the findings with their expectations. Three experts in qualitative research conducted the accuracy of analysis. Furthermore, field notes were taken by the researcher to have a deep understanding of the patients' expectations.

The ethics committee of the Shiraz University of Medical Sciences authorized this approved study. The aim of the study was explained to the patients and their written informed consent was obtained according to the Declaration of Helsinki. Furthermore, it was explained that the patients could withdraw from the study at any time.

## RESULTS

In this study, 15 patients (7 men and 8 women) with a mean age of  $49.8 \pm 11.6$  (28-70 years) participated. The characteristics of patients are given in Table 1. Based on the results obtained from analysis of the interviews with patients undergoing angiography of coronary arteries regarding their expectations, four main categories were formed including expectations from angiography, expectations from the treatment team, and need for preparation for angiography, education, and training.

### Expectations from angiography

We found that most participants expected full recovery after angiography. All participants stated that they had agreed to undergo angiography to improve their cardiac condition and reduce their pain. For instance, some of the statements of the participants are as follows:

"At nights, my heart aches a little. I said to myself maybe it would get better after angiography... because the doctor said you have stenosis inside your cardiac vessels. I thought it would be cured after angiography..." (47 years old, male).

**Table 1: Participants' characteristics**

ID code	Age (years)	Sex	Marital status	No. of children	Education	Employment status
1	50	M	Married	4	Diploma	Free
2	34	M	Married	2	Associate degree	Employee
3	47	M	Married	3	Illiterate	Worker
4	49	F	Married	5	Guidance school	Housewife
5	59	F	Married	7	Illiterate	Housewife
6	51	M	Married	5	Diploma	Employee
7	32	F	Married	2	Bachelor	Employee
8	70	F	Married	0	Primary school	Housewife
9	53	F	Married	9	Primary school	Housewife
10	56	F	Married	5	Illiterate	Housewife
11	28	F	Single	0	Diploma	Housewife
12	47	M	Married	3	Bachelor	Employee
13	59	M	Married	4	Diploma	Retired
14	64	M	Married	6	Illiterate	Business
15	49	F	Married	2	Diploma	Employee

"Not only the doctor, but anybody who knew I had this pain said you have to do an angiography, so we did it... I said let's give it a try and God's willing, it might completely be treated..." (49 years old, female).

"At first, the doctor said go and get an EKG, so I got it... then he said get an echo, so I got that too... then he said I'll give you some medication, if you get better then you're fine, if not come for an angiography... So, I used the medication and in fact got better somehow... then it was back all day long, but now I only have a little pain at night... I said let's do an angiography, the pain might go away altogether." (50 years old, male).

Most of the patients believed that CAG is a therapeutic procedure. They talked about full recovery and the therapeutic nature of this procedure.

### Expectations from the treatment team

The next classification obtained through interviewing the patients is their expectations from the treatment team (physicians and nurses). This category consists of subcategories such as mental support, comprehensive care, and skillfulness. All the participants in this study expected sympathy and mental support from nurses and physicians because of the invasive and stressful nature of angiography. In this regard, one of the patients stated that:

"Now that it's over, we still expect the doctors and nurses to explain and sympathize with us and assure us that its nothing and our condition will get better and we'll soon be discharged. We want them to say we'll get better in no time and it's just a matter of 24 hours. I guess it would be better if they sympathized with patients..." (50 years old, male).

The patients' expectations from the treatment team consisted

of two dimensions. Their most important expectations from health professionals were mental support before and during the procedure. Then, they would like to be cared physically especially after the procedure.

Besides mental support, the participants expected the treatment team, especially the nurses, to take care of them physically after angiography. The participants perceived the presence of their clinical nurse as a factor for feeling safe and reassured. They believed that their stress reduced in the presence of their nurse. In this regard, one of the patients stated that:

"It's good that the patient feels secure and important. When you feel that there is someone who supports you and consistently takes care of you, you're not scared anymore. But if you feel that the person is passive and visits you once an hour, you feel stressed out..." (34 years old, male).

Here, the patients stated that they need to be reassured and supported by health professionals, especially nurses. They believed that the presence of nurses can relieve their stress.

Another concept in this category raised by the participants was the physician's skillfulness during the procedure of angiography. The patients stated that they expect their doctor to be experienced and skillful. Consequently, their anxiety would reduce and they would accept to undergo angiography. In this regard, some of the statements of the participants are as follows:

"... I say, first God then the doctors and nurses... to do whatever they can... I expect the doctor to be good at... the patient is in the hands of God and then the doctors..." (53 years old, female).

"... I say if the doctor is more experienced, he's more exact.... Some patients go to, for example, hospital X and say the doctors are young, they are students... or they are inexperienced.... Although I don't believe in them, they say so..." (49 years old, female).

### Need for preparation for angiography

Another main category regarding the patients' expectations is the need for preparation for angiography. Some of the participants believed that preparing the patient by the treatment team and giving simple explanations to the patient leads to his/her higher comfort and acceptance. In this regard, some of the statements of the participants are as follows:

"... If they had told me beforehand, I would have studied about it somehow... I would've asked people about it and I would have been more prepared... As a patient who is unaware, I expect the doctors to explain about the procedure beforehand so I would be more relaxed..." (59 years old, male).

"I think it would be more effective if they gave us a brochure or something, or for example talk about the pain and say it doesn't hurt... its like getting a shot... they should say what they want to do is really simple..." (47 years old, male).

Accordingly, it can be concluded that the patients expect to be prepared for CAG by educational programs and they need to be made fully aware of the procedure by health professionals.

### Need for training

One of the main and most emphasized categories in the patients' statements was the need for training which consists of various aspects such as training regarding the angiography technique and training about its possible side effects. All the participants emphasized the need for training and believed that training regarding the method of angiography and its related side effects can lead to better acceptance and decision making in the patient. Moreover, the patient's stress and anxiety (because of unawareness) is reduced. In this regard, some of the statements of the participants are as follows:

"... As the patient is undergoing angiography, they should explain how it is, and that there's no problem, say it's really good. This helps calm the patient..." (50 years old, male).

"... If they say how it is from the start... I mean completely clarify and say angiography is like this and that... there would be no fear. They explain thoroughly that there is nothing to be afraid of because fear leads to more pain and worry... It's this stress and worry that is important for the heart, right" (28 years old,

female).

"... I think if someone explains step by step to the patient 5 minutes before angiography and say what they want to do, how long it lasts, what will happen afterwards, to the end, then explain it to the patient, the fear would be less..." (32 years old, female).

Patients also need to be trained and made aware of the stages of CAG as well as recovery period and the possible complications. Patients believed that training by nurses and physicians can cause better toleration and low fear related to this procedure.

### DISCUSSION

The results obtained from this study present a new insight into the expectations of patients undergoing CAG. The identification and understanding of these expectations is highly important for all the members of the treatment team in order to present better and more effective care to patients. One of the important results obtained was the patients' expectation about CAG. The participants expected this technique to treat their blocked arteries completely. Moreover, many patients stated that they had accepted to undergo angiography in hope of complete recovery and treatment. Caldwell *et al.* (2007), in a study on patients undergoing coronary catheterization, found that most of the patients believed that catheterization would cure their condition.<sup>[2]</sup> Most of the patients in their study were not completely aware of the nature of CAG until the time of referral to the hospital.<sup>[2]</sup> Beckerman *et al.* (1995) also showed that the candidates for this procedure had wrong beliefs about the function of CAG.<sup>[8]</sup> Moreover, Şatiroğlu *et al.* (2011) found that most patients did not have sufficient information about CAG, and this issue resulted in having wrong beliefs about the procedure.<sup>[1]</sup> In a clinical trial, Astley *et al.* (2008) also found that patients undergoing CAG have little information about the procedure, which in turn increased their anxiety and reduced their satisfaction.<sup>[14]</sup> Astin *et al.* (2009) found an inconsistency between the patients' expectations and the reality of angioplasty and stated that the main reason for this inconsistency was lack of appropriate training by the medical staff.<sup>[15]</sup> Our results were consistent with those of the previously mentioned studies<sup>[1,2,8,14,15]</sup> which confirmed that these patients do not have adequate and correct knowledge about CAG. Incorrect understanding and lack of consistency between the patients' expectation and the reality ultimately leads to the patients' psychological problems.<sup>[15]</sup>

We also evaluated the patients' expectations from the treatment team. The participants in our study expected the nurses, as members of the treatment team, to support

them mentally and physically. This finding is consistent with study of Beckerman *et al.* (1995) on patients undergoing coronary catheterization.<sup>[8]</sup> Radcliff *et al.* (2009) also found that the nurses' consistent physical and mental care leads to feelings of calmness and security in patients.<sup>[10]</sup> Mental support and physical care can lead to tranquility and better adaptability in patients, especially those who undergo invasive procedures.<sup>[3,4,15]</sup> Moreover, besides mental and physical care, the patients in our study stated that the active presence of nurses was an important factor in reducing their stress and anxiety. Joolei *et al.* (2010) stated that one of the most important aspects of care was a caring presence.<sup>[16]</sup> Fakhr-Movahedi *et al.* (2011) showed that the physical presence of nurses for performing routine tasks alone cannot be adequate for responding to the patients' needs; the nurses should pay attention to the patients' psycho-emotional needs as well.<sup>[17]</sup> Molazem *et al.* (2011) also claim that the presence of nurses next to patients leads to feelings of assurance and security.<sup>[18]</sup> Evidence shows that this presence has many positive effects on patients, such as mental peace, fear and stress reduction, assurance, and security.<sup>[16,18]</sup>

Besides expectations from nurses, the patients in our study also expected their physicians to have sufficient experience and skill for performing angiography. Caldwell *et al.* (2007) stated that the physician's skill was one of the most important aspects of the patients' expectations in coronary catheterization.<sup>[2]</sup> Consistently, Beckerman *et al.* (1995) found that the patients' belief in the physician's skill and experience in performing catheterization facilitated their acceptance and reduced the physiological problems.<sup>[8]</sup> Coronas *et al.* (2009) also found that patients expect physicians to be experienced and skillful in performing invasive procedures.<sup>[19]</sup>

Our findings confirm the need for preparing patients for angiography and sufficient training about this technique and its consequences as one of the patients' most important expectations. All the participants in our study confirmed the need for sufficient training about the technique and procedure of angiography. Beckerman *et al.* (1995) also stated that those patients who undergo coronary catheterization need to be trained about the technique before, during, and after the procedure.<sup>[8]</sup> Furthermore, Radcliff *et al.* (2009) confirmed that patients need sufficient training by the medical team before coronary angioplasty in order to be more prepared and aware.<sup>[10]</sup> In a study by Astin *et al.* (2009), the patients stated that the need for preparation and training about the technique and its side effects was one of their most important informational needs.<sup>[3]</sup> Higgins *et al.* (2001) found that gaining information and knowledge about invasive procedures leads to better adaptation to and confrontation with such procedures.<sup>[20]</sup> Consistently,

Coronas *et al.* (2009) found that informational needs before the procedure are highly important expectations of patients.<sup>[19]</sup>

The new and probably different findings of this study were compared with those of other studies on expectation of recovery and treatment by CAG. It was revealed that there is a mismatch between reality and expectations of these patients, leading to many problems for them. To alleviate such problems, there is a need for identifying patients' expectations and then instructing them and providing them with some information about diagnostic CAG.

In brief, our findings highlighted many aspects of patient's expectations related to CAG and gave a new insight for nurses and physicians to help these patients have better experience related to this procedure. Our study reflects the viewpoints of a limited number of patients. Therefore, we cannot generalize the findings to other qualitative studies and to all the patients undergoing CAG. Furthermore, as all of the patients in this study were Muslims, there is a need to conduct a study on what are the expectations of other patients with different religious and cultural backgrounds about CAG.

## CONCLUSION

We aimed to evaluate the expectations of patients undergoing CAG. Considering the increasing prevalence of CAD and, in turn, CAG, for its diagnosis, it is important for nurses and the medical team to pay attention to the patients' expectations in order to provide better care. We found that patients undergoing CAG have diverse expectations from the angiography itself and the treatment team. Nurses, as the key members of medical teams, should include these expectations in their routine care program and assist the patients to have better adaptability. Sensitivity to the patients' expectations and assisting them result in higher awareness and less psychological problems in patients.

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