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Communication and disease management: a qualitative study on coronary disease

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This study investigated doctor–patient communication and its role in the management of coronary disease. The aim was to identify patients' information needs and related issues and to compare these findings with doctors' perceptions of patients' needs and communication barriers. Two focus groups were conducted with eight patients who suffered from coronary disease and six cardiologists. Recorded sessions were coded thematically and analyzed with interpretative phenomenological analysis. The results showed a “frustration of understanding” in both groups. Patients reported difficulty in understanding experts' language, and physicians found it difficult to translate the medical terminology into simple words. However, they accused each other of creating these difficulties. Patients described physicians as an “elite” group with excessive technical language, and physicians reported that patients' age and education (respectively, high and low) are real obstacles to good communication. Patients evaluated an autonomous search for health information as a way to better manage fear and anxiety related to the illness, but physicians considered it as a lack of trust and, thus, judged it negatively. Patients reported multiple unfilled needs, which were mainly related to information about how other people experienced the same illness and to specific information for their relatives, especially their spouses. Physicians stressed the need to transmit information about drug therapy and the need for adherence to manage chronic conditions. The analysis of patients' information preferences and the awareness of patients' information needs might strongly improve the overall quality of chronic disease management by suggesting new communication strategies.

Keywords: chronic disease management; coronary disease; health communication; health psychology; patients' information needs

1. Introduction

Cardiovascular diseases (CVDs) are currently the largest single contributor to global disability and death (Nichols et al., 2012), and they contribute substantially to the escalation of health-related costs.

Most of the risks that are associated with CVDs can be optimally controlled through effective self-care behaviors, including adhering to therapy and adopting healthy lifestyles (Anand et al., 2008; Clarke et al., 2009; Lopez-Jaramillo et al., 2008; Mozaffarian et al., 2012; Yusuf et al., 2004); however, these two behaviors remain suboptimal among patients (Stromberg, 2005). Several studies have shown that patients with coronary heart disease benefit from increased

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specific knowledge about risk factors, lifestyle changes and prescribed medication after a cardiac event (Alm-Roijer, Fridlund, Stagmo, & Erhardt, 2006; Alm-Roijer, Stagmo, Uden, & Erhardt, 2004; Booth, Beaver, Kitchener, O'Neill, & Farrell, 2005; Clark et al., 2005; Osterberg & Blaschke, 2005; Prinjha, Chapple, Herxheimer, & McPherson, 2005). By contrast, a reduced understanding of the disease leads to patients' non-compliance with medical advice, emotional distress, and unhealthy behaviors (Broadbent, Ellis, Thomas, Gamble, & Petrie, 2009; Dullaghan et al., 2013; Sui, Gheorghide, Zannad, Young, & Ahmed, 2008). These results show the fundamental role of information and education in improving patients' health outcomes.

Good education involves assessing patients' information needs and is predicated on effective, systematic and interactive relationships between the patients and the healthcare providers (Roter, Stashefsky-Margalit, & Rudd, 2001; Scott & Thompson, 2003). In recent decades, several studies have been conducted to identify the information needs that are most important for patients with different CVDs (Ashton, 1997; Astin, Closs, McLenachan, Hunter, & Priestley, 2008; Brezynskie, Pendon, Lindsay, & Adam, 1998; Czar & Engler, 1997; Decker et al., 2007; Goodman, 1997; Hafsteinsdottir, Vergunst, Lindeman, & Schuurmans, 2011; Lile, Buhmann, & Roders, 1999; Nakano, Mainz, & Lomborg, 2008; Smith & Liles, 2007; Timmins, 2008; Wehby & Brenner, 1999). These studies have found that patients regard all types of information as important (with a preference for medical information about drugs, risk factors, cardiac anatomy and physiology) but report dissatisfaction with the information that is received and various unfulfilled needs in multiple areas related to disease management (Ford, Schofield, & Hope, 2003; Forster et al., 2012; Schinkel, Schouten, & van Weert, 2013; Wachters-Kaufmann, Schuling, The, & Meyboom-de Jong, 2005). These studies have also shown that patients' information priorities are not always perceived correctly or well met by healthcare providers (Casey, O'Connell, & Price, 1984; Moser, Dracup, & Marsden, 1993; Moynihan, 1984), who consider information on medication to be a greater need than do patients.

A number of studies have considered patients' and physicians' perceptions of information needs separately, but fewer studies have compared both points of view simultaneously (Durack-Bown et al., 2003; Nair et al., 2002; Turton, 1998). Therefore, more information about the agreements and discrepancies between the two main actors involved in disease management is needed to develop communication and education programs that are effective and useful for patients.

In this work, we investigated patients' and physicians' perceptions of information needs and communication barriers that could undermine the doctor-patient relationship. We first investigated these issues with patients with coronary disease and then investigated physicians who specialized in CVDs.

Following some general considerations about the results, we examined our data to understand whether there were special information needs related to this particular pathology and whether experts and patients shared a common vision of the issues that were analyzed.

Our research questions were as follows:

- What perceptions do patients who suffer from coronary disease have about information needs, preferences and communication barriers?
- How do physicians perceive these issues?
- What are the main points of contact and divergence between the two main actors of the therapeutic process?

We used focus groups as our technique of investigation. A qualitative methodology was selected because qualitative research methods are valuable contributors to the development and evaluation

of effective health services, especially in cardiology (Young & Jillings, 2000), and because they allow a deeper level of analysis of the study topics during the group discussions.

The identification of the information that patients possess about their disease is the first step toward understanding what happens during the treatment of coronary disease. Then, the simultaneous comparison of patients' and physicians' perceptions might be the key to identifying the elements that can be used to facilitate the clinical dialogue and improve the management of the disease.

2. Methods

2.1. Study design and participants

Patients who were eligible to participate in the study were selected from the total group of patients who were enrolled in rehabilitation programs in two hospitals in Northern Italy. The inclusion criteria were a diagnosis of acute myocardial infarction or acute coronary syndrome (even if treated with coronary angioplasty and stenting) and sufficient Italian language skills. Patients with cognitive deficits or other major pathologies (such as cancers) were excluded to focus the discussion on topics related to CVDs and to avoid the emergence of perceptions and needs related to other illnesses. In our opinion, it would be very difficult for a patient with a medical case characterized by multiple acute illnesses to circumscribe his/her perceptions and needs to a single disease (in this case, the coronary disease).

Physicians were recruited from six hospitals in Milan. To be eligible to participate in the study, they had to be specialized in treating heart disorders and to have worked for at least 10 years' in cardiac rehabilitation.

Two focus groups were held in Milan, one with eight patients who suffered from coronary disease and one with six cardiologists. Focus groups were preferred to individual interviews for two main reasons. First, focus groups allowed us to collect multiple data at one sitting and, thus, draw a larger sample into a smaller number of data collection events. Second, focus groups allowed us to elicit more reflections than a one-to-one interview because group interaction can help people to better explore and clarify their views and needs concerning the topics of discussion.

The patients were men and had a mean age of 56.68 years (range = 50–66 years). No women were included in the group because only male patients attended the selected rehabilitation programs at the time of enrollment. The physicians were 5 men and 1 woman and had a mean age of 48.4 (range = 37–57 years).

The focus groups were audiotaped and transcribed verbatim. Each focus group lasted approximately 90 minutes. The participants were assured that all comments would be non-attributable to them as individuals and that total anonymity regarding their participation in the group was guaranteed. A researcher moderated the groups, and two researchers/observers observed the interactions behind a one-way mirror. Two discussion guidelines were used to lead the groups through key issues: one was specifically designed for patients, and the other was designed for physicians. These guidelines were drawn following a review of the literature (Attfield, Adams, & Blandford, 2006; Boyde et al., 2009; Whitty et al., 2012) and discussions within the research group. The following areas were identified as keys issues for both groups:

- the type of information provided during a medical examination;
- the patients' understanding and perceived usefulness of health information;
- the patients' information needs;
- the patients' autonomous searches for health information.

To investigate the physicians' perceptions of the patients' needs, we asked them open questions and provided them with the information that was gathered in the patients' focus group.

The study was approved by the Ethical Committee of the University of Milan-Bicocca and the ethical committees of the hospitals from which the patients were recruited; all participants provided written informed consent. The research questions from the two discussion guidelines are presented in the appendix.

2.2. Data analysis

The recorded sessions were coded thematically and analyzed with interpretative phenomenological analysis (IPA). There were multiple reasons why IPA was preferred to other approaches, such as content analysis. First, IPA views individuals as experts on their own experiences and considers that individuals can offer researchers a deep understanding of their thoughts, needs and feelings. For instance, this approach can facilitate the description and understanding of the processes by which a patient makes sense of the illness experience (Brocki & Wearden, 2006; Reid, Flowers & Larkin, 2005). This feature allowed us to analyze information needs relevant to coronary disease by listening to the actors in disease management (patients and physicians) rather than solely considering pre-existing theories or knowledge (Shaw, 2001). In addition, IPA is one of the most used approaches in health psychology (Brocki & Wearden, 2006), which is the present authors' field of expertise. Finally, given that the sample size of the focus groups was relatively small (8 participants), IPA was chosen because its procedures stress the advantages of using small samples (i.e. samples with a maximum of 10 participants) (Smith, Jarman, & Osborn, 1999).

Three researchers independently conducted an in-depth analysis of the transcripts of the recorded sessions following the procedures suggested by Smith (1996; Smith et al., 1999) and Palmer, Larkin, de Visser, and Fadden (2010). The researchers listened to the recordings and read the transcripts repeatedly. The main aim was to identify the participants' experiential claims and concerns (which involved everything that the patients and physicians considered important about communication and coronary disease), paying attention to the participants' own language. The claims and concerns were tracked systematically throughout the transcript and organized into tables. This process was first completed for each focus group. Then, comparisons were made between the two groups.

In the following section, we report evidence from the focus groups with patients and physicians separately. Then, we attempt to combine the findings and summarize the main results by comparing the patients' and physicians' perceptions.

3. Results

3.1. Focus group with patients

Most of the discussion with patients focused on their information needs and the difficulties that they encountered in terms of the information and communication exchanged with physicians and other health professionals during the visits.

3.1.1. Managing information: coherence of information

A problem that nearly all of the patients encountered concerned the management and integration of information from different sources, especially when the information was contradictory. In addition, because the multiple treatment phases for coronary disease (i.e. surgery, rehabilitation,

and subsequent medical examinations) are often managed by different hospitals, patients have to interact with several healthcare providers, including specialists, nurses, and general practitioners. This situation causes uncertainty and can lead to a lack of reference points, becoming an obstacle to the optimal self-management of the disease. An example of how patients underlined this problem is presented below:

Three doctors gave me three different drugs; it is necessary to coordinate the decisions of who follow the same patient. A synchronization between the specialists is necessary.

My general practitioner prescribes me a medicine and a diet plan, but when I read a magazine or watch a TV show, I often find the opposite information ... Who is right?

Sometimes patients manage this situation through autonomous searches for additional information.

3.1.2. *Search for additional information*

The patients reported to suffer from the knowledge gap between themselves and physicians: they recognized to have little prior knowledge on coronaropathy and they thought that this condition placed them in a state of inferiority in relation to physicians. In this situation, the search for additional health information was described by participants as the only way to learn more on the disease in order to have the opportunity to communicate with physicians at the same level of knowledge. The patients sought: (a) information about the disease and the surgery; (b) advice about treatment alternatives that may facilitate the reduction of drug intake, which all of the patients reported as one of their main concerns.

The search for health information was mainly conducted on the web, and online information was considered to be generally trustworthy. However, this search method led to several problems, which the patients summarized in the following questions:

- How can additional information be used effectively?
- How can this information be integrated with that provided by the physicians?
- How should this information be evaluated?
- How can the reliability of a source of information be determined?

During the discussion, the patients did not find answers to all of these questions. Not all patients agreed on the usefulness of an autonomous search for additional information. Some of them appeared skeptical about what can be found without the active support of physicians.

The information found on the Internet is non-specific and does not take into account the overall characteristics of a patient. A non-professional does not have clinical data and medical history references.

Physicians are professionals who have studied for a long time; we must rely on them to manage the disease.

However, for some participants, the active search for information seemed to be very important for managing the fear that arose from the disease.

I don't believe to any information found on the Internet, but with more information, I can have a broader view of my health.

I'm ill and when I'm particularly worried about something, it is right to search for additional information about my health.

3.1.3. *Unsatisfied needs: experience of people with the same disease*

As mentioned above, the additional information that the participants' autonomously sought concerned the disease, the surgery and the treatment of coronary disease. Our participants reported the desire to have more "data" related to the experience of other people with similar health problems who optimally faced the disease and recovered lifestyles similar to those preceding the diagnosis of illness. The patients reported that this type of information was not provided during medical consultations but would be very helpful in managing their anxiety and fear and boosting their confidence about the future. The need for patients to learn how to better manage negative emotions and worries also emerged as a discussion topic.

3.1.4. *Family involvement*

An additional unsatisfied need was related to the involvement of the patients' families in the communication process with healthcare providers. In daily practice, the patients' caregiver (usually the spouse) does not participate in the doctor-patient relationship. Therefore, he/she does not have access to the same information that the patients receive. This situation creates a climate of unease and strain in the family, particularly after hospitalization. Patients may feel relatively reassured by the words of the doctor and continue their normal activities, whereas their spouses remain deeply concerned about the disease.

Sometimes I feel "oppressed" by the fears of my wife.

3.1.5. *Information received and comprehension*

During medical examinations, the patients received information on the disease, the therapy and the behavioral changes necessary for optimal disease management. However, they complained that the amount of information that they received about therapy (which type of drugs, how and when to take them and the possible side effects) was more than they needed, whereas the information related to self-management was scarce.

When I go to my cardiologist, there is sufficient time just to talk about drugs! There is not time for everything else that is important too.

3.1.6. *Barriers to comprehension*

When we directly asked the patients to judge the quality of information that their physicians provided, nearly all participants claimed to receive clear and understandable information. However, some difficulties arose indirectly, in particular regarding the experts' language.

Doctors often use too many technical terms, and they miss the real reason why the patient came to the visit.

Doctors belong to an "elite" with their own specific language that is full of technical terminology that is not so comprehensible to me.

This result is paradoxical and shows the complexity of the relationship between patients and doctors. On the one hand, the patients reported no significant communication problems. On the

other hand, they complained about the difficulty of understanding the experts' language, which was often beyond their comprehension abilities.

3.2. Focus group with physicians

3.2.1. Information provided

The cardiologists reported that, during a medical examination, the greatest emphasis was placed on information regarding the drug therapy needed for effective disease management. They reported the need to foster a cultural change in patients' perceptions about the use and the efficacy of drugs to treat chronic diseases. A drug is typically considered to be a substance that should be taken only in the presence of a particular symptom (e.g. fever, headache, etc.). However, in the case of a chronic disease, the patient must take medication for a long period of time (often for the remainder of the patient's life after the diagnosis), even if there are no signs or symptoms of the disease. In the physicians' opinion, patients have difficulties in understanding this aspect of the treatment of the disease and tend to suspend the therapy without medical advice, placing themselves at risk of worsening and relapses.

It is necessary to transmit a message that doesn't belong to the collective imagination ... For the patient, the therapy is often ineffective ... They think, I take the medicine if I feel bad, so if I feel good, I don't need any medicine.

In addition to the information related to drugs, patients have to be informed of the characteristics of the disease and the importance of secondary prevention to reduce worsening and relapses. The physicians provided information on secondary prevention not only in terms of lifestyle modifications but also in terms of suggestions about how to manage the fears and anxiety related to the illness. In addition, the cardiologists reported the need to explain the type of surgery that the patients underwent during hospitalization.

3.2.2. Information medium

Information was typically communicated verbally. However, at times, patients were provided with support materials, such as brochures or CDs. The physicians ascribed a low value of utility to these materials because they require patients to have strong motivation, including the willpower to read and use the materials. Moreover, the majority of the physicians declared that they have no control over the creation of these materials, which may partially explain why the doctors judged them negatively.

Brochures are beautiful, important, modern, but the patient often puts it aside without even looking at it.

Much of the information contained in the brochure is transmitted by other channels, such as television, which are more easily usable by people and therefore are more effective.

3.2.3. Barriers to comprehension

The cardiologists reported that, regardless of the efforts made to communicate in an understandable manner, patients typically forget much of what they were told immediately after leaving the room. The language that is used to talk with patients should be simple and plain, and it should be tailored for each specific patient. However, there are some difficulties in translating this theory

into practice. On the one hand, the physicians complained about insufficient time for an accurate evaluation of each person. On the other hand, they underlined the difficulties that arise from communication barriers due to patients' older age and low level of education. In particular, the physicians reported difficulty in translating the medical terminology into a language that is simple and easily understandable for the patient. All of these problems can lead to a lack of comprehension, which is typically detected in the following ways:

- patients' continuous requests for explanations of previously addressed topics;
- patients' non-verbal behaviors, such as facial expressions;
- poor adherence, worsening and relapses.

The physicians talked about "frustration of understanding" to emphasize this problem and proposed, as a possible solution, a significant reduction in the information that is provided to patients. They suggested that information should focus only on the characteristics of the disease, specifying that "chronic" means "for life", and on how to successfully manage this aspect.

3.2.4. *Physicians' judgment about patients' search for additional information*

In general, the cardiologists reported negative judgments about the patients' autonomous searches for health information. They considered such searches to be potentially dangerous and one of the main barriers to a good doctor–patient relationship.

... an expert guide is essential ...

Some participants considered these searches to be a sign of a lack of trust in the experts' opinion.

... If a patient looks for health information on her own, she lacks the trust that builds the foundation of the doctor–patient relationship ...

Furthermore, the physicians judged online health information as misleading and unreliable because it is typically provided by "false experts".

3.2.5. *The role of communication in disease management and the evolution of the doctor–patient relationship*

According to the participants, communication played a crucial role in the doctor–patient relationship, but several problems undermined daily practices. The main difficulty that emerged in the discussion concerned the amount of time that was available for medical examinations, especially in the public health service sector. Ministerial directives (and other minor factors) limit this time to approximately 10–15 minutes for each visit. The physicians reported that this time is scarcely sufficient to visit the patient and provide essential information; no time is devoted to listening to the patient's experience, needs, questions, and emotions.

The doctor–patient relationship should be interactive and bring the patient to the center of the medical dialogue, but in public services, this aim is very hard to achieve.

3.3. Comparing the perceptions between patients and physicians

During the two focus groups, we found both agreements and discrepancies between the patients' and physicians' perceptions of the analyzed topics.

In particular, both types of participants reported some problems related to the understanding of the information provided. The patients reported difficulty in understanding the experts' language, judging physicians as an "elite" group with its own language. The physicians found it difficult to translate the medical terminology into simple words and complained that the patients' old age and low level of education undermined their ability to understand health information.

The patients diverged from the physicians even in relation to the autonomous search for health information. The patients evaluated it as a way to better manage their fear and anxiety related to the illness, whereas cardiologists ascribed this behavior to a lack of trust in the expert's opinion and described it as a factor that deteriorates the doctor–patient relationship.

The patients reported multiple unfilled needs, which were mainly related to information about how people with the same diagnosis of coronary disease experienced the illness and to specific information for their relatives, especially their spouses. By contrast, the physicians stressed the need to transmit information about drug therapy in particular.

Table 1 summarizes the comparison between the patients' and cardiologists' perceptions of these topics.

4. Discussion

The present study highlights a number of key issues regarding the provision of information to patients with coronary disease. The study focused on two aspects that affect the quality of effective communication, as follows: patients' information needs compared with experts' perceptions of these needs and the communication barriers that might undermine the patient–physician relationship.

Regarding information needs, the patients reported several unmet needs, which were mainly related to information on how to manage the distress caused by the illness and the surgery. To overcome the anxiety due to their illness and to have "positive examples" to follow, they desired information about the experience of people with the same illness. The patients also reported difficulties in managing the distress that their families experienced, in addition to their own worries and anxiety. Spouses and other relatives typically do not participate in the

Table 1. Points of contact and divergence in patients' and physicians' perceptions of the studied topics.

	Patients	Physicians
<i>Information needs</i>	Information on surgery, treatment, lifestyle habits; information for relatives; information about the experience of people with the same illness	Information about the treatment regime and its chronicity
<i>Patients' search for health information</i>	Perceived as: a trustworthy tool to better manage worries and fear; a way to learn more information on coronaropathy	Perceived as: a sign of a lack of trust by patients; an obstacle to a good patient–physician relationship
<i>Barriers to obtain/provide information</i>	Physicians' difficult language; contradictory information provided by different healthcare providers	Patients' age and education (respectively, high and low); limited amount of time for medical examinations

educational programs that hospitals offer, and they may feel incapable of providing optimal support to their sick family member. As a consequence, they often increase the patients' anxiety with their own apprehensions. Providing information to patients' families is eminently important because of the cognitive disorders, emotional problems, and behavioral changes that the patients experience. This result is in line with previous research findings (Delbanco, 1992; Dunbar, Clark, Quinn, Gary, & Kaslow, 2008; Mead & Bower, 2000; Morgan, 2003).

A problem that affects the doctor–patient relationship involves the patients' comprehension of information. Although the participants reported that they did not have difficulties in understanding the information provided by their physicians, they indirectly judged their doctors' language as difficult and elitist. Patients' knowledge of CVD increases the likelihood of optimal self-management and provides motivation for behavior changes (van der Wal, Jaarsma, Moser, & Veldhuisen, 2005), whereas an inadequate understanding of the disease causes non-compliance with medical advice (Jaarsma, 2003; Jin, Sklar, Min Sen Oh, & Chuen Li, 2008; Nichols-English & Poirier, 2000). The physicians complained that the patients' age and level of education undermined their ability to comprehend health information, causing incomprehension and mistakes. The physicians indirectly talked about the problem of patients' health literacy, that is, the degree to which individuals have the capacity to obtain, process, and understand the basic health information and services needed to make appropriate health decisions. Previous studies have identified limited health literacy as a risk factor for mortality among healthy, community-dwelling elderly patients (Baker, Wolf, Feinglass, & Thompson, 2008). Such studies have shown that a limited understanding of health information is associated with a lesser knowledge of chronic disease (Williams, Baker, Parker, & Nurss, 1998), a greater misunderstanding of medications (Davis et al., 2006; Kripalani et al., 2006) and a lower ability to perform successful self-management of chronic conditions.

The difficulty in understanding medical information and the lack of time to listen to patients' needs might explain why patients look for additional health information.

The search for this additional information is typically conducted online. The current patients judged this search as potentially trustworthy and as a way to support disease management and to communicate with doctors at the same level of knowledge. By contrast, the physicians judged it as a factor that could undermine their relationship with patients, as they considered this behavior as indicative of a lack of trust in their role.

Overall, our study contributes to the health promotion field, which faces the need to improve the quality and effectiveness of information that is provided to patients who suffer from a severe chronic disease (in this case, coronary disease). Our results suggest that chronic conditions require an integrated network of professional expertise and reliance on family, friends, and community organizations, which seem to play a central role in patients' stress management and anxiety reduction.

The findings of this research underscore the need to improve communication and the patient–physician relationship while taking into account unfilled information needs. This work also highlights the need to improve the training and educational tools of physicians who are involved in CVD prevention. There are several reasons to analyze patients' information needs. First, to make relevant information available to patients, a research strategy that joins researchers and patients is needed (Liberati, 2011). Then, to better design therapeutic programs, the patient's voice must be heard to obtain a truthful judgment of a treatment (Holloway, 2010). Finally, the analysis of patients' information preferences and the awareness of patients' information needs have the potential to improve the overall quality of chronic disease management.

4.1. Limitations

Before discussing the implications for practice, a few limitations of this study need to be mentioned. First, we observed only a small number of participants, all from the same area in the North of Italy.

In addition, the study examined only patients who were involved in cardiovascular rehabilitation, and exposure to rehabilitation may affect patients' needs and perceptions. Therefore, these results may not apply to patients who do not participate in this type of program. In addition, the use of volunteer participants likely resulted in an overrepresentation of those who were more interested in the analyzed topics. Finally, all of our participants were men. Although heart disease is often considered to be a problem for men, CVDs are the second-leading cause of death among women aged 45–64 years (Go et al., 2014). Thus, further research could investigate gender differences.

4.2. Practical implications

Despite the limitations listed above, the results of our study are compelling for practice. In this study, some significant gaps emerged between the patients and physicians. In particular, it seems that the communication exchange can be improved in terms of quantity and quality of information. For example, even if it is difficult to overcome the structural problems that are related to the limited time that physicians have to spend with patients, alternative methods of providing information can be identified. Information must be repeated and provided in other formats, such as written materials, magazines, brochures, and videotapes, which patients can consult at home. Such materials would allow them to review the information at their leisure and refer to it in any moment that they need clarification. In addition, these materials could be shared with family members, helping them to manage the situation. Even the new technologies, such as digital devices and tools that are related to e-Health, can be used to provide patients with up-to-date health information. These technologies should be tailored to the specific characteristics of each person to increase their effectiveness providing a bridge between the patients' and physicians' needs and improving the nature of healthcare relationships. Evidence-based communication strategies, which may help physicians overcome problems such as lack of time, should become part of routine clinical care for cardiac patients.

Furthermore, healthcare professionals need to fully discuss all themes related to disease management (medications, diagnoses, surgery and plans for follow-up care) with the patients. A full understanding of what will happen in the future and how to manage possible symptoms or side effects is essential for successful management (Alm-Roijer et al., 2006, 2004; Booth et al., 2005; Clark et al., 2005; Osterberg & Blaschke, 2005; Prinjha et al., 2005).

Healthcare professionals also need to incorporate an emotional assessment of family members and provide referrals and resources for support to families that experience distress in relation to the patient's disease. Interventions that help patients and their families to address disease-related changes would diminish the negative stressors that many patients feel. Stress reduction programs that are specifically designed to teach people to live with uncertainty would benefit people and promote healthy outcomes.

The increased average life span of people with chronic conditions suggests the need to engage patients and to support their proactive health management.

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Appendix

Discussion guidelines

Patients	Physicians
Have you ever search for additional information? Why? What type of tools do you use to find new information?	What type of information do you usually provide to patients with heart diseases?
Do you feel that you are sufficiently informed about your health problems? Do you need additional information to better manage your disease? Why?	Do you provide information verbally, or do you use other information mediums (such as brochures, magazines, etc.)?
What type of information have you received (at the beginning) about your coronary heart disease?	Do you provide patients with printed materials? How do you judge these types of materials? How important is it for patients to have printed materials related to their disease?
What type of information are you still receiving about your disease?	What are patients' information needs?
Who gave/still gives you this information? Do you have any difficulties in integrating and giving meaning to the information provided by multiple healthcare providers?	What are the main barriers to comprehension that you experienced during clinical practice?
Have you ever had any type of difficulties in understanding the information provided?	How can you detect the incomprehension of the information provided?
Have you explained these difficulties in understanding the meaning of the information provided to healthcare providers? How?	Do you have any suggestions to resolve this problem?
What type of information is most important for you to know? Why?	