

Food and heart—the nutritional jungle: Patients' experiences of dietary habits and nutritional counselling after coronary artery bypass grafting

Elbrønd, Pia; Højskov, Ida E.; Missel, Malene; Borregaard, Britt

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Food and Heart – The Nutritional Jungle;

*Patients' Experiences of Dietary Habits and Nutritional Counselling after Coronary Artery
Bypass Grafting*

[Running title; Food and Heart – The nutritional Jungle]

Pia Elbrønd¹

Ida E. Højskov²

Malene Missel²

Britt Borregaard^{1,3,4}

1. Department of Cardiothoracic and Vascular Surgery, Odense University Hospital, Odense, Denmark
2. The Heart Centre, Rigshospitalet, Copenhagen University Hospital, Copenhagen, Denmark
3. Faculty of Health Science, University of Southern Denmark, Odense, Denmark
4. Department of Cardiology, Odense University Hospital, Odense, Denmark

Corresponding author:

Ms. Pia Elbrønd, RN

Department of Cardiothoracic and Vascular Surgery

J.B. Winsløws Vej 4, 5000 Odense C

Denmark

Phone: + 4565411524

E-mail: pia.elbroend@webspeed.dk

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Conflict of interest

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MRS. PIA GAMMELGAARD ELBRØND (Orcid ID : 0000-0002-2963-5662)

MRS. MALENE MISSEL (Orcid ID : 0000-0003-3267-8038)

MS. BRITT BORREGAARD (Orcid ID : 0000-0003-2702-0231)

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Abstract

Aims and objectives. The aim of the study was to examine patients' experience of dietary habits and nutritional counselling in the early period during hospitalisation after coronary artery bypass surgery (CABG).

Background. Undergoing CABG, patients have two different nutritional needs, extra proteins and calories for the first period after surgery and a heart-healthy diet when the recovery period is over. These needs can be difficult to manage for the patients.

Design. Qualitative study.

Methods. Interviews were conducted and analysed within a phenomenological-hermeneutic frame inspired by the French philosopher Paul Ricoeur. Patients undergoing CABG were interviewed 4-5 days after surgery at Odense University Hospital from March 1 to May 15 2017. The study adhered to the COREQ guidelines.

Results. In total, 15 patients were interviewed (mean age 65 years, 87% men). After analysing the interviews following themes emerged, "Different needs – the nutritional jungle", "Food and heart – the lacking attention", and "The force of habits - being under the influence from spouses on dietary habits".

Conclusion. The interviewed patients had no or only a little knowledge about how to eat after heart surgery. In general, they experienced a lack of attention to nutritional counselling by the nursing staff during hospitalisation. Furthermore, the health behaviour of men seems to be different from women's, and therefore, interventions aiming at optimising men's health might

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be prioritised. Finally, spouses have a great influence on eating habits and should be involved in nutritional counselling.

Relevance to clinical practice. This study provides important and relevant knowledge about patients' lacking knowledge about nutrition and healing. When planning nutritional measures, whether it is promoting healing after heart surgery or preventing progression of arteriosclerosis, the study contributes with suggestions as to which factors should be considered in this process - men's health behaviour and spouses' influence on dietary habits in the household.

Keywords CABG, nutritional counselling, surgery, qualitative research

Introduction

Ischemic heart disease is the single largest cause of death and, in Europe alone, it causes more than 1,739,000 deaths per year (Wilkins et al., 2017). It is well-known that risk factors like smoking, physical inactivity, diabetes, hypertension and familiar disposition increase the risk of developing ischemic heart disease – but diet and nutritional status is also an important factor (Mack & Gopal, 2016). From a historical perspective, nutrition has been a focus within nursing care since the introduction of Notes on Nursing by Florence Nightingale, emphasising the importance of proper nutrition to recover from a disease (Nightingale, 1992). Nutrition is thereby an area of constant awareness within any aspects of the clinical pathway of a patient.

Background

CABG is an effective treatment of ischemic heart disease as it relieves symptoms and improves well-being, quality of life and overall survival (StephanWindecker et al., 2015).

However, the surgery is a strain on the human body as it activates a stress response - a hormone reaction to the trauma inflicted on the body (Gillis & Carli, 2015). The stress response stimulates the body's glucose-production, through the catabolic phase, which needs to be as brief as possible (Demling & DeSanti, 2000; Desborough, 2000).

To reduce the catabolic phase and subsequently to stimulate the anabolic phase (the healing and recovery-phase) patients undergoing CABG-surgery must eat a diet rich in proteins and calories (Racca et al., 2010). Eating ensure healing, general recovery and muscle strength recovery, which also helps to avoid postoperatively infections (Desborough, 2000; Kondracki, 2012; Racca et al., 2010). Unfortunately, studies show that patients undergoing CABG experience reduced appetite after surgery (Bratt, Thylefors, & Jensen, 2017) causing unintentional weight loss and leading to reduced muscle strength and fatigue (Boban, Persic, Miletic, Kovacicek, & Madzar, 2013; DiMaria-Ghalili, Sullivan-Marx, & Compher, 2014).

In general, changing dietary habits is an important part of treating ischemic heart disease, and the effect of this is well investigated as much focus is given to secondary prevention as a strategy to prevent further development of atherosclerosis (Knudsen, Laustsen, Petersen, & Angel, 2014). Nevertheless, suffering from ischemic heart disease and having undergone CABG these patients then have two different nutritional needs; extra proteins and calories to ensure healing during the first period after surgery and, when the recovery period is over, a

heart-healthy diet consisting of a reduced intake of saturated fats, more fish, whole grain bread, fruit and vegetables, oil and nuts (Elmadfa & Freisling, 2005; The Danish Veterinary and Food Administration, 2013).

To minimise the stress response after surgery, the European Society for Clinical Nutrition and Metabolism (ESPEN) Guideline recommend a programme like the Enhanced Recovery After Surgery (ERAS) (Weimann et al., 2017). The programme consists of several measures; preoperative preparation and medication, fluid balance, anaesthesia and postoperative analgesia, mobilisation and pre- and postoperative nutrition (Weimann et al., 2017).

Additionally, ESPEN Guideline recommends that nutrition should be integrated into the overall management of the patient, thus emphasising the importance of nutrition during hospitalisation (Weimann et al., 2017). To our knowledge, little attention has been given to the research perspective of nutritional counselling during the hospital stay after CABG-surgery.

The two contradictory nutritional needs can be difficult to manage for patients (and spouses) and according to ERAS (Weimann et al., 2017), patients are often discharged within the first week after surgery leaving little time for the nursing staff to offer nutritional counselling to the patients (Martinsen & Moen, 2010).

Thus, the objective of the study was to examine the patient's experience of dietary habits and nutritional counselling in the early period during hospitalisation after CABG.

Methods

Design

The study adopted a qualitative approach designed within a phenomenological-hermeneutic frame inspired by the French philosopher Paul Ricoeur's text interpretation theory (Ricoeur, 1976). A phenomenological approach offers a frame in which the lived experiences of the informants can be illuminated and analysed, and a comprehensive understanding can be developed (Ricoeur, 1976).

Reporting of the study followed the criteria for reporting qualitative research, COREQ guidelines, Supplementary Material 1.

Participants and data collection

Patients were purposefully sampled (Gerrish & Lathlean, 2015) and recruited from a group of patients having undergone elective CABG, who were above the age of 18 years and able to understand and speak Danish. Additionally, the intention was to include both men and women and within different age span. We did not include patients with active cancer or diabetes mellitus as these patients may have other nutritional needs. Furthermore, patients with postoperative confusion/delirium were excluded.

Data collection was performed at Odense University Hospital, Denmark, from March 1 to May 15, 2017.

Before inclusion, potential participants were given verbal and written information about the project by the first author. A total of sixteen patients met the inclusion criteria, but one patient declined. The patients were invited by convenience. The interviews were conducted in the department and lasted from 19-60 minutes. Following the fifteen interviews, patient responses proved to be redundant, and a satisfactory saturation point was met. Inclusion of further patients was not found necessary.

The interviews

Semi-structured interviews inspired by Kvale and Brinkmann were carried out individually with the patients and consisted of themes included in the objective and beginning with a narrative opening question to make the patient feel safe talking to the interviewer (Kvale & Brinkmann, 2009). The interview guide was pilot tested before inclusion of the first patient. The first author interviewed the patients on the fourth or fifth postoperative day. Each interview took place in a separate room with only the patient and the interviewer participating. The interviewer had no role in the clinical care of the patients included in the study. All interviews were audio-recorded and transcribed verbatim. Additionally, when informed about the nature of the study, it was highlighted to the patients that there would not be a right or wrong answer to the interviewer's questions; focus would be the patients' experience during hospitalisation. By emphasising this, the intention was that the patients would feel comfortable talking about his or her experiences on nutritional counselling during hospitalisation without feeling insecure and worried that the interviewer was seeking specific answers. Similarly, being interviewed about one's dietary habits could make patients feel uncomfortable and lead to them thinking, "is there something wrong with my dietary habits?" and "how will the interviewer react to potentially bad habits?". Again, bearing the patients' perspective in mind, it was underlined that focus would be the patient and his/her experience.

Data analysis

The transcribed interviews were analysed inspired by Paul Ricoeur's text interpretation theory, which is a three-level analysis (Ricoeur, 1976). Two authors coded the data. The first level is the naïve reading, where the interviews are read and reread several times to get an understanding of the entire text (Figure 1). The second level is the structural analysis and, at this level, sentences are read to establish units of meaning – what is being said. The meaning units are compared, looking for similarities and differences. Similarities of meaning are then analysed, interpreted and condensed as themes – what the text is talking about. At the third and final level of the analysis, the findings from the structural analysis are discussed using relevant theory and research to gain a comprehensive understanding of the patients' experiences of dietary habits and nutritional counselling postoperatively (Borregaard & Ludvigsen, 2018; Lindseth & Norberg, 2004; Ricoeur, 1976).

[INSERT FIGURE 1 about here] Figure Legend; Figure 1. Model of the structural process of the analysis.^{15,18}

Ethical considerations

The study was notified to The Danish Data Protection Agency (Journal no 17/5139). The study was also notified to the Regional Research Ethics Committee; however, due to Danish legislation, approval was not required. The investigation conforms with the principles outlined in the Declaration of Helsinki (Association, 2013). Each patient signed an informed consent form.

Findings

Based on the analysis three themes emerged: “Different needs – *the nutritional jungle*”, “Food and heart – *the lacking attention*”, and “*The force of habits* - being under the influence from spouses on dietary habits”. The themes will be illuminated in-depth one by one in the following subsections and exemplified by quotations from the interviews.

Interview quotes are given to provide examples of explicated meaning. The examples can reveal ways of being, thinking, and acting in the world that shed light on what is known but covered over, or forgotten. These examples are presented throughout the findings, along with the researchers' interpretations (Crowther, Ironside, Spence, & Smythe, 2017; Missel & Birkelund, 2019).

In total, fifteen patients were included, and of those, thirteen were men (87%), and two were women, mean age 65 years (range from 57 to 79 years). Patient characteristics are described in Table 1.

[insert table 1]

Different needs – the nutritional jungle

The patients did not experience being counselled systematically on what to eat after surgery to promote healing and recovery. Patients sometimes overheard other patients being informed about proteins and calories or had observed other patients being offered protein drinks (Crowther et al., 2017). However, they did not reflect on and compared other patients' meals with their own nutritional needs, and the interviews illuminated how some patients were unaware of the importance of having a diet rich in proteins and calories.

In contrast, there were also patients who described how they were offered protein drinks and information about proteins. One patient explained it was important to listen to the nutritional counselling offered by the nursing staff because the counselling should promote recovery. He felt the protein drinks helped him get the energy to go for walks:

"...just drink them [protein drinks] and move on." Patient F

The patients who had an experience of nutritional counselling to promote recovery described that they felt taken care of by the nursing staff. The counselling gave them a sense of being able to do something on their own to help recovery. They appreciated being counselled despite feeling tired and insecure after surgery:

"....and they [the nursing staff] mentioned some of the things, which were good to [to stimulate the production of red blood cells] ...broccoli...I don't remember it that well, but I just thought when she [the nurse] listed all the things, they were some of the things I often eat at home."

Patient J

Patients often experienced reduced appetite after surgery and had been eating only small portions at mealtimes. One described that she had forced herself to eat, knowing that eating was important. Another patient expressed how he skipped meals several times, as he had no appetite. Some felt nausea, which often was more pronounced at meal times, causing no appetite at all. Thus, the reduced appetite had a negative impact on the patients' eating

experience during hospitalisation. Furthermore, the patients did not experience that health care professionals had a particular focus on their difficulties in eating.

During the interviews, the patients also expressed a need for nutritional counselling to promote healing and recovery:

“....but if it is necessary that we change dietary habits, then you will have to tell us.” Patient E

Additionally, the patients did not see the connection between the food served to be rich in proteins and calories intending to promote healing:

“Well, I have chosen the food I liked the best [during hospitalisation], but I wonder about the food served at the ward....well, it is very traditional and there is only a little salad.” Patient B

Suffering from heart disease and having undergone CABG, the food during hospitalisation could be expected to be heart-friendly. However, the patients’ observations indicated a gap in patient knowledge and information about nutrition, and if the patients were not receiving counselling about these recommendations, misunderstandings could arise and the recovery period may be prolonged.

Food and heart – the lacking attention

During the interviews, patients narrated how they intended to make dietary changes as a result of their heart disease and following surgery. Some had already made dietary changes before surgery, and some were waiting for recommendations on proper eating when participating in cardiac rehabilitation.

Most of the patients knew about the importance of eating healthy; knowledge they had achieved by watching various food programs on TV and reading brochures about diet and heart disease available at their local hospitals. Some patients were unable to explain how they had acquired their knowledge, “they just knew”. However, others had not made an effort to get knowledge about their heart disease and recommendations for lifestyle changes. One patient described how he was encouraged by a community nurse to search the internet for relevant information about a diet, reducing cholesterol, but he did not feel encouraged and preferred personal counselling:

“This community nurse advised me to search the internet and look for the Weight Watchers, but that was not the kind of help, I was asking for”. Patient C

The interviews illuminated how the patients were motivated to make dietary changes and had a ‘desire to survive their heart disease’. However, they were not taking initiatives by themselves to know more about their heart disease during hospitalisation, and there was a lack of attention being given between food and heart disease. The patients’ health behaviour was thus characterised by a low level of initiative and in general, a “wait and see” attitude:

“...I don’t think that I have talked to anyone, who has given me counselling on what to eat...or about, why I have become ill....I might have talked to many people who could have provided me with this information before surgery, but I don’t think that was the case.”

Patient A

Despite heart surgery and suffering from a chronic illness such as ischemic heart disease, there were some patients who felt no motivation for changing their dietary habits to a heart-friendly diet. Changing habits was considered inconvenient and time-consuming, thus prevention of progression of the chronic illness was not a high priority:

“No, I did not want to change dietary habits, because daily, I am busy and sometimes I only have a bowl of oatmeal for lunch.... and that is enough for me.” Patient K

Not changing dietary habits due to a lack of time or thinking one's efforts will not be successful could be a coping strategy for the patients to maintain known habits and thereby to feel secure and within one’s comfort zone. Not wanting to change habits could also be explained by patients not having fully understood the consequences of their illness and the effect of making relevant changes.

The patients often expressed self-contradictory comments on their understanding of health, for example, a patient who did not consider his dietary habits the cause of his heart disease and at the same time, he explained how a change in dietary habits could improve quality of life:

“...food will not make you ill – of course, if you eat big hamburgers every day, then you get ill, but we don’t eat like that; we eat a variety of different foods.” Patient G

Additionally, the patient expressed a wish or intention to make dietary changes:

“I would like to see if I can change a bit.....only eat one portion instead of two...” Patient G

These considerations showed how the patients were challenged by having to change dietary habits. There was also a sense of ambivalence, wanting to change because of the heart disease and now having undergone surgery, but also a sense of feeling insecure about being able to change habits. The patients knew it was important to change habits, but it is possible that they were not mentally ready for changes or lacked faith in their ability to make changes.

One patient explained how he was not aware that his symptoms were related to his heart and said that he had considered himself in ‘the safe zone’ due to daily exercise:

“But as I said earlier, I believed that I was...well, in the safe zone as I exercised the way I did, but the two things don’t work that way.” Patient F

The patients’ perceptions of their health and dietary habits showed that they considered themselves and their habits as “healthy enough”. If habits were seen as healthy enough, the patients were less likely to feel motivated to change habits. Thus, feeling healthy enough, was an accepted health status, and there was no need to make dietary changes. This perception allowed the patients to continue unhealthy habits.

The force of habits - being under the influence from spouses on dietary habits

When describing their dietary habits, male patients generally narrated that they preferred traditional food, while the two female patients preferred to eat many vegetables and fruit.

These preferences might indicate a difference in dietary habits among men and women. A female patient described the differences in her household:

“Well, my husband and I have different dietary habits...he likes traditional food like meatballs, gravy and potatoes and I like modern food such as plenty of vegetables and salad), but I’ll make a salad for myself, and we’re both pleased.” Patient N

The patients recognised the differences in preferences related to sex, and they just made individual adjustments, so different preferences were met when cooking.

During the analysis, female patients narrated that they were responsible for cooking family dinner while male patients said that their spouses were responsible for the household, shopping groceries and cooking as one patient described:

“No, I have a wife who takes care of that [cooking].” Patient O

Besides female spouses being responsible for the household cooking, the male patients who had already made the dietary change before surgery described that the changes mostly were due to initiatives made by their wives. At first, the patients had been sceptical but eventually accepted the changes:

“She persuaded me to give up gravy because I was very fond of potatoes and gravy and I said never mind the meat as long as there is a good sauce and some potatoes.” Patient M

Another patient explained how he experienced the influence of his spouse on his dietary habits:

“Food means a lot to me, I was old-fashioned, and potatoes and gravy was my favourite dish until I met my wife, then things changed...” Patient G

The analysis illuminated that women typically are responsible for shopping and cooking, and thus, they have a considerable influence on dietary habits in the household. Dietary changes were experienced by male patients to be made on the initiative of a female spouse. Having a healthy diet was not a concern for the male patients, and household decisions were most often placed with female spouses having a considerable influence on their male spouses' health. As such a great responsibility for cooking and changing dietary habits are placed with the spouses.

Critical interpretation and discussion

The objective of the study was to examine patient's experience of dietary habits and nutritional counselling in the early period during hospitalisation after CABG. In general, we found that patients had little or no experience of receiving nutritional counselling during hospitalisation. Furthermore, we found that men's health behaviour indicated a lack of knowledge about heart disease and spouses play an important role in men's dietary behaviour.

Most of the patients had no experience of receiving nutritional counselling on what to eat after surgery to promote healing and recovery, even when it was clinically indicated, and this then led to the patients being in a nutritional jungle. Some of the patients had no appetite and skipped meals without being offered oral supplements instead, which indicates that counselling was not being offered. The ESPEN guideline on clinical nutrition in surgery recommends that nutrition should be integrated into the overall treatment and care of the

patient. This involves early oral feeding, plenty of oral supplements, nutritional counselling and nutritional therapy when nutritional risk is established (Weimann et al., 2017). In a literature review by Larsen and Uhrenfeldt (2013), it is described how patients in four out of 13 articles did not have an experience of receiving the expected advice and nutritional counselling when having eating difficulties during hospitalisation (Larsen & Uhrenfeldt, 2013). Furthermore, this is in line with a study by Boaz et al. (2013), which examined nurses' knowledge and attitudes regarding nutrition care (Boaz et al., 2013). The authors found that nurses in general considered nutrition important, however, when the nurses ranked providing nutrition care (like serving meals rich in proteins and calories), they found it a less important task (Boaz et al., 2013). Other studies have explored nurses' barriers in nutritional care, and nurses explained they lacked time, resources and ward facilities to provide the necessary care (O'Connell et al., 2018; Papier, Lachter, Hyams, & Chermesh, 2017). Thus, patient experiences in the current study stress the need for interventions enabling nursing staff to have education about nutrition and how to provide individual counselling and care about nutrition to patients during hospitalisation. Structured nutritional counselling has previously been integrated with other clinical settings and seems to support self-management skills (Missel, Hansen, Jackson, Siemsen, & Schønau, 2018).

Surprisingly, we found that in general, the male patients describe how they are challenged by a lack of knowledge about the connection between dietary habits and the risk of developing atherosclerosis. Thus, this influences living with the consequences of suffering from ischemic heart disease. The lacking attention between food and heart has serious implications for men's health as it is known that men die earlier than women (Madsen, 2014). Men have higher mortality rates compared to women, which is mainly caused by cardiovascular disease (Evans, Frank, Oliffe, & Gregory, 2011; Rowlands & Gough, 2017). The male patients in our study presented a "wait and see"-attitude and thereby did not take any lifestyle changing initiatives. These patients preferred personal counselling rather than seeking information by themselves. Similarly, we know from theory and research that men's health behaviour is complex and influenced by many factors; one of them is masculinity (Madsen, 2014). According to Rowlands and Gough (2017), masculinity influences men's health and nutrition (Rowlands & Gough, 2017). Their research indicates that men's diets typically are more unhealthy than women's and that men pay little attention to nutritional properties of food (Rowlands & Gough, 2017) – as equally found in our study. Furthermore, men do not see

overweight as a problem, and they are not aware of that inadequate nutritional habits are the cause of overweight, which can lead to illness and early death (Madsen, 2014).

One way of understanding this behaviour could be within the context of men's self-perceived health, as described by Madsen (Madsen, 2014). Food is gendered (Rowlands & Gough, 2017), and so is men and women's health behaviour (Madsen, 2014). Men tend to rate their health much better compared to women and as well, when compared to other men – despite the men suffering from more serious conditions (Madsen, 2014). Thus, there is a paradox between men's perception of their health and their actual health and this paradox is central to the understanding of men's health behaviour (Madsen, 2014). Knowledge of men's perception of their health is relevant when addressing men's need for health information and support (Baker, 2018).

Our findings also suggest differences in food preferences among male and female patients', which are reflected in their dietary habits. Male patients did not take a great interest in cooking and healthy food, as these were not their top priority. Moreover, any dietary changes were initiated by female spouses who exerted spousal influence on men's dietary habits. Studies support that women typically carry out the majority of cooking in a household and men pay less attention to the nutritional value of food. Thus, to cook and provide food for the family is still considered a natural feminine task (Buening-Fesel & Rueckert-John, 2016; Rowlands & Gough, 2017), and thereby these spouses are imposed a great responsibility for the health of their husbands. This suggests that spouses should be invited to participate in nutritional counselling in the early period after surgery for CABG. The counselling could be provided as an integrated part of the information given at discharge from the hospital. A study by Tulloch & Greenman has demonstrated the benefits of supporting spouses when adapting to new habits and coping for patients with chronic illness (Tulloch & Greenman, 2018). Additionally, involving spouses is known to have a positive impact on men's health, as spouses could provide individualised support for their partner (Tatangelo, McCabe, Campbell, & Szoek, 2017).

Trustworthiness and limitations

Throughout the study, methodological rigour was attained by using the qualitative concepts of relevance, validity and reflexivity, as described by Malterud ((Malterud, 2001). This study is one of only a few qualitative studies exploring patient's experience of dietary habits and nutritional counselling in the early period during hospitalisation after CABG. Thus, in this

study, the focus was to understand the meaning of the investigated phenomena, and the findings can, be seen as complementary to existing quantitative research on CABG patients' nutritional needs. Reflexivity was ensured by a discussion between the authors, both during the data collection phase and during the analysis. On several occasions, during the interviews, the interviewer experienced a conflict between the role as a researcher and the role as a nurse. The patients sometimes expressed nursing-related issues or questions, and as a nurse, the interviewer was obliged to become involved. Several times the interviewer had the impression that the answers and support that she gave as a nurse helped to build up the patient's confidence and trust in her as a researcher. Internal validity was ensured by the inclusion of patient quotes to ensure transparency and which substantiates the findings of the study. Furthermore, the study used COREQ-criteria for the reporting of qualitative research. One of the strengths of this study is that the data was gathered from patients who could describe their experiences of their dietary habits and nutritional counselling during the early period after CABG. They were willing and able to give descriptions of their own experiences, providing rich personal accounts. This enabled an in-depth and trustworthy analysis (Gerrish & Lathlean, 2015; Polit & Beck, 2008).

The study has limitations. First, data were collected in one centre in Denmark, which influences on the generalisability of the findings to other cultures. Nonetheless, we believe that the difficulties of the patients in understanding the different nutritional needs after CABG might be the same for other patients undergoing CABG. Furthermore, our sample might not represent all patient types, but we are confident that the identified themes reflect the most typical experiences by the patient group, as they are consistent with international literature. However, the reader should take into account the analysis of sex differences according to meal preferences as described in the theme The force of habits - being under the influence from spouses on dietary habits, as the study included two female patients and 13 male patients. This is though, the normal distribution of patients undergoing CABG and thus might be representative of this patient group. It was not the intention from the beginning of the study to look at sex difference, but it became clear during the analysis, that there might be an issue regarding how female versus male patients and spouses experience healthy food.

Conclusion

The patients had only a little knowledge about what to eat after heart surgery and experienced a lack of attention to nutritional counselling by the nursing staff during hospitalisation, which

led the patients into a nutritional jungle. The importance of nutrition and eating the right diet after surgery stresses the need for a greater and systematic focus on this area of nursing. Men's health behaviour seems to differ from women's and should be given high priority. Finally, spouses should be involved in both counselling during hospitalisation and afterwards during rehabilitation, as their knowledge and support are pivotal for successful outcomes.

Relevance to clinical practice

The study gives an understanding of the gap between patients lacking knowledge about nutrition, development of ischemic heart disease, and the general experience among patients of not receiving nutritional counselling during hospitalisation. This is important knowledge, and the lack of counselling reveals a need for a more systematic approach when the nursing staff is planning and providing nutritional counselling. Providing patients with counselling about proper nutrition to promote recovery is a professional task, and it should be recognised as an integrated part of treatment. The study also gives an understanding of that spouses play an important role as they typically may be the ones planning and cooking household meals. This knowledge is useful, and it should be taken into consideration when planning nutritional care for the patient to promote their recovery after surgery. Spouses should be seen as a resource in the recovery period as they can provide nutritious meals to the patient when discharged from hospital. Thus, spouses should also be taken into consideration when offering nutritional counselling to patients.

Evidence-based interventions are needed to support patients and their spouses systematically to enable them to adjust to postoperative sufficient nutrition to minimise the catabolic condition following surgery. Sufficient nutrition serves as a significant component in the recovery of the body after surgery for the patient to be appropriately rehabilitated. The present study adds to the growing evidence base for the value of nutritional support for this patient population. Additionally, our findings can serve to inform future supportive nutrition care service development and intervention research aimed at supporting patients undergoing CABG-surgery.

Contributions

Study design: PGE conceived the idea for this study. PGE and BBO designed the study. PGE wrote the first draft of the manuscript. All revised the manuscript critically. All have given their final of the version to be published.

What does this paper contribute to the wider global clinical community?

- Knowledge about the two different nutritional needs after CABG seems to be difficult for many patients to understand; from a diet promoting healing and recovery in the early period, to a “heart”-healthy diet in the longer period after surgery.
- Spouses to patients having undergone CABG play an important role in household meals and nurses should, therefore, involve them during targeted counselling and education. Spouses seem to be an obvious resource helping the patient to recover after open heart surgery.
- Insight from this study stresses the need to address more focus on nutritional counselling, why this is an obvious task for nurses to undertake. Thus, the nursing practice should aim at more evidence-based interventions to support patients and spouses in the early period after surgery.

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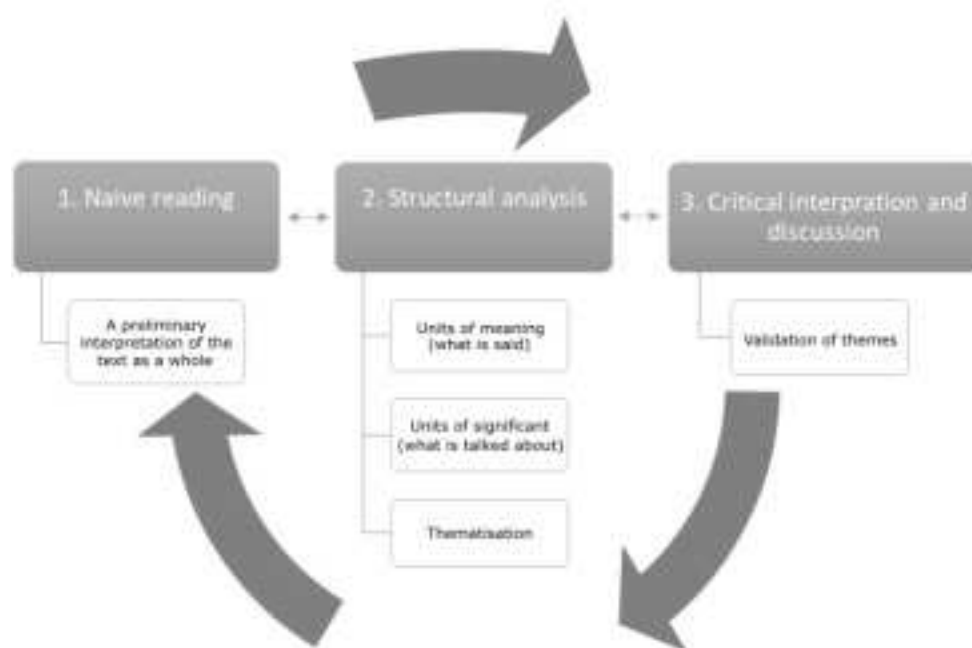
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Table 1. Patient characteristics

Sex, male, n (%)	13 (87)
Age, years (range)	65 (57-79)
Marital status, living with someone/married, n (%)	12 (80)
Occupational status, n (%)	
Working	7 (47)
Retired	7 (47)
Unemployed	1 (6)



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