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Perceptions and experiences of nutritional care following the overwhelming experience of lower extremity amputation; a qualitative study.

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Abstract

Introduction: Good nutritional care of people following major lower extremity amputation is essential as poor nutritional status can lead to delayed wound healing. Working with patients to identify their perspectives on food, views on nutritional care and the need for dietary counselling enables the development of optimised nutritional care.

Aim: To explore hospital patients' perspectives on food, dietary counselling, and their experiences of nutritional care following lower extremity amputation.

Design: A qualitative, explorative study design was employed.

Method: An inductive content analysis of semi-structured interviews with a purposive sample of 17 people over 50 years of age, who had recently undergone major lower extremity amputation, was undertaken. The study was reported according to the COREQ guideline.

Findings: Three themes emerged; Responsible for own dietary intake, Diet based on preferences and experiences with dietary counselling and Feeling overwhelmed. The participants expressed motivation to ensure their nutritional needs were met but described feeling emotionally overwhelmed by the experience of amputation. They appeared not to expect nursing staff to focus on nutritional issues as they expressed belief that they themselves were solely responsible for their dietary intake. They described being motivated to receive nutritional counselling but indicated advice should be compatible with their lifestyle and eating habits.

Conclusion: Lower extremity amputation can be an overwhelming experience which affects nutritional intake. People appear to consider themselves responsible for their nutritional care and describe not experiencing or expecting nursing staff to engage in this aspect of care. Dietary counselling by nurses who respects and incorporates patient preferences and experiences following amputation has the potential to enhance nutritional care.

Clinical implication: This study illustrates that nurses caring for people who undergo lower extremity amputation need to recognise that nutritional care is an essential component of nursing and should focus on working in partnership with the patient.

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

- People with lower extremity amputation are motivated to ensure their dietary intake is good but have limited resources to overcome nutritional barriers as they are overwhelmed by the amputation
- If nursing staff do not focus on nutritional care patients are left to manage nutritional issues on their own
- Nutritional counselling and appropriate advice on a healthy diet needs to be provided to people at risk of, and following lower limb amputation.

INTRODUCTION

Patients who undergo non-traumatic major lower extremity amputation face changes to most aspects of their daily life. These extend beyond the physical changes associated with extremity loss and involves loss of social mobility, socioeconomic status, independence and identity (Ostler, Ellis-Hill, and Donovan-Hall 2014; Norlyk, Martinsen, and Kjaer-Petersen 2013). Prior to amputation, illness may cause stress metabolism inducing a catabolic state with loss of muscle and appetite increasing the risk of malnutrition

(Preiser et al. 2014; Jensen 2010). Being undernourished and having a lower extremity amputation enhances the risk of developing wound-related complications and may lead to secondary amputation (Stechmiller 2010). There is limited exploration about patients' perspectives of nutritional counselling and how to support dietary habits that improve nutritional status following lower extremity amputation. This study explores how people undergoing non-traumatic major lower extremity amputation (hereafter referred to as amputation) perceived nutritional counselling and nutritional therapy during hospitalisation.

BACKGROUND

People who require amputation are characterised by older age, an overrepresentation of men and the presence of several chronic diseases with atherosclerosis, hypertension and diabetes mellitus being most prevalent (Nelson et al. 2012; Malik, Tesfaye, and Ziegler 2013). Recent studies have reported an overall complication rate following amputation of 43%. Complications include secondary lower extremity amputation (Curran et al. 2014), which has a 30-day mortality of up to 22% (van Netten et al. 2016).

Despite improved treatment strategies, the high prevalence of secondary amputation and mortality has not changed over the last decade (Jones et al. 2013; Hoffstad et al. 2015). Secondary lower extremity amputation is most commonly caused by post-operative wound complications (Curran et al. 2014).

Postoperative wound complications include inadequate or delayed healing processes. Ensuring sufficient nutritional intake can optimise wound healing especially in people at risk of malnutrition (Guo and Dipietro 2010).

The prevalence of malnutrition in Europeans admitted to hospital is estimated to be between 21% to 37% (Felder et al. 2015; Kondrup and Sorensen 2009). A global nutritional survey (Nutrition Day) found inadequate food intake among 47% of patients admitted to 56 hospitals (Schindler et al. 2016). Therefore, people may be admitted to hospital malnourished and then not receive the nutritional support they require. A study undertaken in 2015 examined the nutritional status of 478 hospital patients at risk of amputation and found that 70% were at risk of malnutrition (Gau et al. 2016). To our knowledge only

Eneroth et al. have explored the nutritional status of people with a diabetic foot ulcer admitted to hospital for amputation. They found a third of people were malnourished on admission (Eneroth et al. 1997).

Dietary advice to the Nordic populations is based on the guidelines from the European Society for Clinical Nutrition and Metabolism (ESPEN)(Sobotka 2011) and The Nordic Nutrition Recommendations (Nordic Council of Ministers 2014). A diet abundant in vegetables, fish, seafood, low-fat dairy products and with a low sugar content, is recommended as it is considered to reduce the risk of chronic diseases (Wirfält, Drake, and Wallström 2013). In contrast, foods with high energy, sugar or solid fat content, processed meats and pre-cooked food are considered to increase the risk of chronic disease (Wirfält, Drake, and Wallström 2013). It is recommended that all European hospitals provide “Good Nutritional Practice” that includes screening for malnutrition on admission, followed by an assessment to determine nutritional requirements and continues with daily monitoring and evaluation of dietary intake (Howard et al. 2006). Studies have previously demonstrated problems with hospital food services and low level of satisfaction with food choice and food quality by both medical and surgical patients (Johns, Hartwell, and Morgan 2010; Naithani et al. 2009). Further, a lack of information and communication between nurses and patients regarding food provision has been shown to impact the patient experience negatively (Lassen, Kruse, and Bjerrum 2005).

Although, there is a lack of knowledge regarding patients’ experiences of nutritional care following amputation, studies have explored their experiences of amputation. Ostler et al. examined expectations of eight patients after lower extremity amputation and found they did not know what to expect of the rehabilitation process beside the expectation to gain normality in their life (Ostler, Ellis-Hill, and Donovan-Hall 2014). Another study involving six patients following similar surgery outlined a need for tailored professional counselling which links with support provided by family and social networks (Washington 2016). Provision of counselling focusing on individualised dietary advice and intake have been shown to improve outcomes for patients in the acute care setting (Cheung, Pizzola, and Keller 2013; Munk et al. 2016).

Rationale and aim

Provision of tailored nutritional care following lower extremity amputation requires an understanding of patient's views on their choice of food, dietary advice and the role of nutrition in their admission. Lack of information on food choice, nutritional counselling and dialogue with nurses has previously shown to negatively affect patients' experiences (Cooper 2014; Holst, Rasmussen, and Laursen 2011; Johns, Hartwell, and Morgan 2010). Thus, it is important to include the perspectives of patients with amputation to determine how best to deliver nutritional care to this group. The aim of this study was to explore hospital patients' perspectives on food, dietary counselling, and their experiences of nutritional care following lower extremity amputation.

METHODS

Study design

In this study, we used an explorative qualitative design, where patients with amputation were interviewed just before or after discharge from the hospital. By using this approach, we were able to explore the perspectives of the participants with the aim of discovering and understanding relationships and associated patterns based on personal experience of the phenomena (Crabtree, B. F. and Miller, W.L. 1999). To ensure a comprehensive reporting of the study we used the consolidated criteria for reporting qualitative research (COREQ) as a checklist (Tong, Sainsbury, and Craig 2007) <http://www.equator-network.org/>.

Participants and setting

We recruited a purposive sample of patients who had recently undergone a lower extremity amputation on one surgical ward at a large university hospital in Copenhagen, Denmark between 2015 and 2016. People who were able to give informed consent were considered eligible. We excluded people who had a low level of cognition or had signs of emotional distress documented in their medical record.

The nutritional care received was part of the "enhanced recovery programme" (Kehlet 2011) and comprised of nutritional screening and monitoring of dietary intake during the post-surgery period. Nursing staff were responsible for ordering and serving food, ensuring fulfilment of nutritional needs and documentation of nutritional issues that required nutritional therapy or referral to the hospital dietician. The hospital kitchen operated using a restaurant concept whereby patients were able to order all meals and snacks from an a la carte menu. High-protein drinks were offered to supplement the hospital meals.

Data collection

Eligible participants were identified by a ward nurse or research nurse and approached at the end of their hospital stay. Participants received oral and written information explaining the purpose and methods of the study. The participants were offered a minimum of 24 hours to consider their participation. We obtained informed consent before the beginning of the interview.

Interviews

Face to face interviews was undertaken using a semi-structured interview guide. We constructed the interview guide on themes generated from a literature search and the clinical experience of the authors. The interview guide comprised of open-ended questions covering three key areas: participants' perspectives of food and meals as a part of their daily living; experiences and views of dietary care during hospitalisation and expectations and thoughts about food following discharge. The interview guide is presented in the supplementary material. The interviewer encouraged the participants to talk freely about topics that they raised and used questions to probe and clarify meanings. Fourteen participants were interviewed in a quiet room on the ward where disturbances could be minimised. Three participants were interviewed at home shortly after discharge at their request. Each interview was recorded using a digital recorder and transcribed by the first author using VoiceWalker version 2.0.0.

Analysis

We performed manifest and latent content analysis as described by Graneheim and Lundman (Graneheim and Lundman 2004). The manifest analysis was conducted at a descriptive level to illustrate participant's perspective on food and meals experiences both in daily life and during their hospital stay. The latent analysis was undertaken at an interpretive level to offer insight into how participants perceived food and nutritional advice and what role nutrition plays in their life. The transcribed interviews were first carefully read several times to identify meaning units that explore the aim. To ensure all dominating topics were identified we also included meanings units that were not directly related to the objective. The meaning units were condensed to isolate the core of the text and coded (Table 1). The procedure of the analysis involved repeated reading, reflecting, re-coding and categorisation that went backwards and forwards between the meaning units, codes, sub-categories and categories. The authors constructed the sub-categories, categories and themes by discussion. Any disputes were discussed until consensus was reached. The findings are presented with quotations from informants to validate the analysis and the numbers in the bracket following citations refer to the participant number. To ensure a

Ethical consideration

The study was reviewed by the Ethical Committee of The Capital Region of Denmark and considered not to require formal evaluation (H-3-2014_FSP67). The Danish Data Protection Agency approved the study (03395 AHH-2014-041). The first author was known to the participants in her role as a clinical researcher at the ward but was not involved in their daily care. During recruitment, it was emphasised that the participants were under no obligation to participate nor would their care be affected in any way if they chose not to participate.

FINDINGS

Seventeen participants took part in the interview (Table 2). A total of 24 patients were approached, but seven patients declined due to tiredness or exhaustion (n=4) and early discharge (n=3). The mean length of the interview was 43 minutes (range 23-65). Six participants were employed at the time of the amputation. Six participants smoked, and eight had previously smoked. Seven had experienced recent weight loss and were at risk of malnutrition. All participants were admitted to the hospital due to complications related to insufficient circulation in the lower extremities. Fifteen participants underwent emergency surgery, and two had a planned operation.

Three themes emerged from the interviews: “Responsible for own dietary intake” which related to the participant's experiences during their hospital stay, “Diet based on preference and experiences of dietary counselling” which related to previous food experiences and perceptions including dietary advice, “Feeling overwhelmed”, which related to emotional distress following amputation. The last theme emerged, even though the study aims and the interview guide did not seek to explore participants' feelings about their experience of amputation (Table 3).

Theme 1. Responsible for own dietary intake

During the latent analysis, the interpretation of the data showed that the participants believed that they had sole responsibility for their dietary intake following surgery. They outlined that it was their responsibility to be motivated to eat and follow dietary advice. Participants appeared not to expect dietary advice, although their wish to receive counselling was described. They reported that health professionals did not take responsibility for their nutritional care and failed to identify nutritional issues. The findings from the manifest analyses are presented in the following three categories: Motivated to eat, Advice on diet wanted but not expected, and Nutrition is not a shared mission.

Motivated to eat

This category comprises of three sub-categories: Eating to survive, Food linked to recovery, and Nutritional interventions - a sign of deterioration. The participants appeared to believe that a good nutritional status would enhance their chances of regaining strength and thereby enable them to use their leg prosthesis and reclaim independence and mobility. However, some participants also described how they were eating out of necessity to survive. These participants perceived eating as a daily struggle where they had to force themselves to eat. Low appetite and weight loss was viewed as a potential threat to their health and wellbeing and made them less hopeful of recovery. One patient expressed how he realised he had to eat to survive:

"So there I sat, just picking my food. I had to ... I was very much aware of the fact, that if I didn't eat something - I would die." [Participant 7]

The link between nutrition and recovery was described by the participants, though they did not report considering nutrition to be linked to their current health or level of disease. The association between previous dietary habits and their amputation was not described so clearly, although some clearly considered nutrition to be important in keeping their remaining leg by preventing further deterioration.

One participant described:

"I do focus on my "healthy" leg. It may not be as healthy after all. It is just as swollen as my other leg was when it was amputated. I would be very sad to lose that leg tooI hope that the doctors focus on preserving my leg." [Participant 8]

In contrast, other participants described how they interpreted nutritional interventions they received on the ward as a symbol of deterioration of their health leading them to fear for their life. They did not describe being thoroughly informed of the purpose of the nutritional intervention.

Advice on diet wanted but not expected

This category is presented by two sub-categories: Guidance about dietary intake desired, and Low expectation of receiving dietary advice. The participants expressed a willingness to receive guidance by healthcare professionals so they could choose food that would stimulate their healing process. They also expressed a desire to ensure their nutritional needs were met and discuss their dietary intake with health professionals. One participant described how he would like receiving advice on his diet:

"If someone had told me what I could do about food and drinks, then I would do it. No doubt about it. I would like to live a few more years." [Participant 12]

Despite the desire for nutritional guidance, participants expressed that they did not expect to receive any counselling about their diet. They expected healthcare professionals to be competent and to manage severe nutritional conditions that required nutritional therapy. However, participants appeared to have no or a low level of expectation for health professionals to engage in general nutritional issues, as they did not view this as a part of their treatment or care. One participant explained this:

"No, I had not expected that, it's not why I'm in the hospital." [Participant 15].

Nutrition is not a shared mission

The category holds two subcategories: Nutrition not a key part of care, and Solely responsible for diet intake. Participants did not report experiencing nursing staff focusing on nutritional issues which reinforced their belief that nutrition was not a part of the hospital care, as the following participant expressed:

"No. Nobody asked about it. They could see I was losing weight, but they didn't say anything about it."
[Participant 3]

Participants outlined that they were responsible for their nutritional intake and status. They did not mention that healthcare professionals had any responsibility for their nutritional issues. As one participant explained:

"It's not their responsibility. At the end of the day, it's up to me to follow the advice and counselling to the best of my ability." [Participant 1]

The belief that nutritional intake was solely their responsibility persisted even when having limited capacity to eat due to pain or nausea. As one participant described his responsibility despite his struggles with low appetite and weight loss:

"I don't think it's yours (the nurses) problem.... It's up to me...." [Participant 3]

Theme 2. Diet based on preferences and experiences with dietary counselling

The findings constructed during the latent analysis suggested that the participants' receptiveness to nutritional guidance was based on food preferences, knowledge of nutrition and previous experience with nutritional advice. Participants reported an understanding of the link between nutrition and recovery and placed value on what they defined as healthy food. However, they appeared to reject healthy food as they had seen it portrayed in magazines, and other media sources, as they reported that this was incompatible with their way of life. The findings from the manifest analyses are presented in the following categories:

Food choice guided by preference and Nutritional guidance challenging to follow.

Food choice guided by preference

This category holds two sub-categories: Food preparation part of daily life; and Quality, price, flexibility and tradition guide the diet. On the one hand, participants outlined that cooking food was just part of the daily

routine, and also a necessity to ensure a reasonable quality of meals. One patient described his cooking like this:

"It's not a hobby of mine or anything like that. I'm not a good chef, I admit to that. I just cook because I have to get something decent to eat." [Participant 12]

In contrast, the choice of food was explained as being highly determined by preferences. The participants described valuing good quality ingredients and preferring classic rather than modern menus. Good quality was defined as ingredients known from childhood even though they did not use these ingredients in their daily meals. Not all participants reported managing to cook, and they considered frozen or pre-cooked food as healthy meals with a high nutrient content or just good enough for them.

"Then I buy a glass of peeled potatoes for the price of 70 pence. I slice them and fry them. In the meantime, I put the frozen fish in the microwave for six minutes. Place the fish on the pan for a minute or two and dinner is ready." [Participant 11]

Valuing high-quality food and being able to afford this where described, but also not having any preferences were described. Participants expressed durability, flexibility and price of food as the key factors behind their choice of diet. One participant described how he and his wife prepared for food shopping:

"Normally we looked through the supermarket leaflets weekly to find the best offer. You have to think about the money – what's a good saving and what's not. And there has to be enough for several days, right..." [Participant 14]

Nutritional guidance challenging to follow

This category contains three sub-categories: Hesitant to change food habits, Dietary advice difficult to follow and Healthy Food complicated and unpalatable. Participants described embracing new nutritional habits during their hospital stay but also portrayed more hesitation to change their nutritional habits or lifestyle after discharge. Participants considered their nutritional need as decreased due to the lack of

physical activity and did not view a low dietary intake as a problem. They expressed a wish to regain their previous life. As one participant explained:

"Even though it's important to eat and all that. I'm afraid - I don't think I will change my ways when I come home. I'll eat the same kind of meals, as I'm used to." [Participant 11]

Participants diagnosed with diabetes mellitus reported having experience of nutritional counselling, while this was not the case for participants without diabetes. Advice regarding cooking, focusing on making more favourable menus and information about the impact of food on blood glucose was viewed as guidance with high value.

Further, participants with diabetes mellitus expressed a change in approach to nutritional guidance. The advice had shifted from more restrictive advice focusing on limitation as a way to keep the blood glucose stable to more liberal nutritional advice, where the participants just had to eat in combination with enhanced insulin treatment to maintain a stable level of blood glucose. As one participant explained:

"Back then, I was told to be very careful about my diet. Now they tell me I don't have to do that anymore, just eat whatever you can, no restrictions at all." [Participant 7]

Participants reported following outdated advice, as they had difficulty understanding current recommendations. Experimenting with food and different amounts of insulin was reported. One participant explained how she had tried to manage her insulin adjustment on her own since she was diagnosed with diabetes:

"Nobody has guided me... I have just done it to the best of my ability. Well, and that might not always have been good enough." [Participant 6]

Finally, the subject of healthy food and lifestyle was a topic that raised strong opinions. Despite the acknowledgement of the importance of a good nutritional status, participants rejected the concept of a healthy lifestyle. They were not aiming to have a healthy lifestyle as they viewed healthy food to be without effect, to be bland food or to be too complicated to make. Further, healthy food was considered by some to

include too many vegetables; as one woman stated when asked about her definition and perspectives of healthy food:

"It's vegetables. Just vegetables and I don't like vegetables...They have no taste. I love potatoes, which I can eat every day." [Participant 10]

Theme 3. Feeling overwhelmed

This theme consisted of three categories: Physical deterioration, No time to prepare, and Questions about the future. Participants described their first experiences of being faced with amputation as dominated by feelings of fear and insecurity. Questions and concerns about their future life were described as overwhelming. Leading up to the amputation was described as a time of increasing pain and a rapid physical deterioration of the extremity, which participants reported as both surprising and concerning.

Despite the physical deterioration of the extremity, participants described hoping for a positive outcome.

Participants described the decision to consent to have the surgical amputation procedure as a "choice without options". Further, it was expressed that the lack of time that they had to prepare for the surgery was frightening, as illustrated by one participant's comment:

"For me, the fact that I only had two hours to get used to the idea of being amputated was a terrifying experience for me. That was the scariest thing." [Participant 7]

Following the amputation, participants' described an increase in need for information as the questions related to their future life emerged. This combined with a continuous struggle to learn new strategies for daily activities and coping with pain was overwhelming. As a result, participants' appeared to have limited resources to focus on other issues, such as eating, as one woman described:

"In the beginning, there were days where I couldn't eat anything because of pain. I just couldn't. I can't concentrate on anything when I'm in such pain. It's not that I don't want to, but I just can't do it."

[Participant 4]

DISCUSSION

This study explores how people with major lower extremity amputation view their diet, their experiences of hospital nutritional care and dietary advice. Three main findings emerged from the interviews; Responsible for own dietary intake, Diet based on preferences and experiences with dietary counselling and Feeling overwhelmed.

The impact of amputation

In this study, we found that the participants felt emotionally overwhelmed as they realised the consequences of the amputation. Not surprisingly, the experience of being overwhelmed by suddenly facing a life with an amputation while still coping with uncertainty and pain are previously described (Ostler, Ellis-Hill, and Donovan-Hall 2014; Norlyk, Martinsen, and Kjaer-Petersen 2013; Feinglass et al. 2012; Senra et al. 2012). Madsen et al. present a "theory of pendulating" that describes the cognitive and emotional behaviour patterns following a recent amputation (35). The theory offers insights to how patients' cognitive and emotional status shifts back and forth between three phases: losing control, digesting the shock and regaining control. The theory offers an explanation for the pattern of reactions and their ability to manage the new situation. In our study, we found ambiguity in that the participants hoped for dietary advice, but had low expectations of receiving counselling. They also acknowledged the importance of sufficient dietary intake for successful recovery but had limited resources to deal with the low intake or to change dietary habits. Following amputation, patients are in a fragile state where basic needs such as having a sufficient dietary intake can be a secondary priority compared to dealing with problems of existence. This also relates to the theory of grief and loss by Gulberg, who describes four phases of different behaviour patterns and coping reactions: the state of shock, the phase of the reaction, procession phase and finally the orientating phase (Gulberg 2007). In our study, we did not aim to explore this aspect of the amputation but as illustrated by both Gulberg and Madsen et al., the time following the amputation (loss) is challenged by emotional, psychological, physical and social changes that may limit their

capacity to focus on issues as postoperative diet. This underlines the need for fundamental nursing interventions and care strategies that incorporate this knowledge while insuring the fulfilment of patients' fundamental needs.

Motivation, willingness and responsibility – a health approach

We found a clear motivation to eat, and a desire to ensure good nutritional status among the participants, regardless of the physical and psychological challenges they had to encounter. The motivational factor for eating was the fear of further amputation, especially losing the remaining leg. This concern has also been described by Suckow et al. in a thematic analysis of 26 people with amputation where it had an adverse impact on quality of life (Suckow et al. 2015). This contrasts with the nurses' apparent lack of nutritional focus on nutritional care experienced by the participants in our study. Lack of nutritional focus by nursing staff is well-documented and has previously been described as a barrier to nutritional care (Eide, Halvorsen, and Almendingen 2015; Green and James 2013; Ross LJ et al. 2011; Holst, Rasmussen, and Laursen 2011b). In our study, participants acknowledged the necessity of nutrition but lacked capacity and knowledge to act on barriers to a low dietary intake, and did not experience their nutritional issues being addressed by nursing staff.

The participants in our study placed full responsibility for their nutritional state on themselves, despite struggling with pain, learning new procedures and adapting to being amputated. Despite the feelings of responsibility, motivation and the threat of losing the remaining leg, participants found it difficult to follow the recommended behaviour change in lifestyle to prevent further amputations of the leg. Factors are described in a social cognition model called the Health Action Process Approach (HAPA) (Schwarzer, R 1992). HAPA was developed by health psychologist Schwarzer in 1992 to emphasise the importance of self-efficacy in behavioural changes. HAPA is based on previous behaviour models Health Belief Model and Theory of Planned Behaviour (Sheeran, Abraham, 1995; Conner, Sparks, 1995). HAPA was constructed to predict future behaviour and describe how demographic variables, a level of control and belief influences

behaviour changes that is either temporally or will persist over time. HAPA describes three components that will determine a person's intentions to make a behavioural change a: self-efficacy, where the person is confident to ensure a sufficient nutritional intake following surgery; outcome expectancies, where the effect of eating will support the healing process; threat appraisal, the fear of losing mobility or life. Further, support in the surroundings such as offering dietary advice, stimulate setting for mealtime, and a context that signals the importance of nutrition enable change. Finally, the level of social support from e.g. relatives or health professionals defines whether the change will be temporally or will maintain over time. According to HAPA, patients with amputation show motivation to make behaviour changes in lifestyle that influence the cause of their chronic disease. By supporting the patients' motivation and incorporate nutritional care into the hospital treatment and care strategies, health care professionals can support behavioural changes among patients with an amputation that can improve their outcome both the short and long term.

The gap between nutritional recommendations and the population at risk

Our study illustrates how people with chronic diseases struggle to follow nutritional recommendations. The findings describe a belief amongst the participants that they had low nutritional needs due to their low activity level and they described vegetables as being the healthiest food for them. A similar belief was described in a qualitative study of 29 older independently-living people, who articulated that a healthy diet for older people should contain high levels of fresh fruit and vegetables with less need for meat (S. Brownie and Coutts 2013). This view is based on both the ESPEN and Nordic Nutritional recommendations that aim to improve the health status of populations (Sobotka 2011; Nordic Council of Ministers 2014). When patients are admitted to the hospital and undergo major surgery, the recommendations change to a higher energy intake with a higher protein content (Beck, Holst, and Rasmussen 2012). This is, however, probably not known to most people admitted to hospital and that is a challenge for nutritional care and the need for appropriate information for patients. We also found that people with amputations based their diet on their preferences and dietary habits. This finding may not be surprising, but is important. A 2015 review found that peripheral arterial disease (PAD) is associated with longstanding poor dietary diets and habits (Nosova,

Conte, and Grenon 2015) indicating a need for dietary advice to form part of the treatment for people with PAD. Although, we did not investigate the participants' previous eating habits our findings indicate a need to increase dietary counselling provision for older populations as they can face challenges in complying with current dietary recommendations and may be unaware of government-endorsed dietary guidelines (Chen et al. 2016; Sonya Brownie and Coutts 2014). The dietary perspectives presented in our study also suggest an ambiguity among the participants between the awareness or understanding of the importance of the diet and rejection of healthy food and hesitation to make changes in lifestyle or dietary habits. Feinglass et al. concluded following a qualitative study of 22 patients with amputations that preventing amputation is not a simple task as the main challenge in rehabilitation is to increase the patient's motivation and capacity for behaviour changes to avoid further complication (Feinglass et al. 2012).

Methodological considerations

Even through the findings draw from one area of practice, the findings relate to other practice areas as they resonate with findings from international studies within the area under investigation. The study's credibility was ensured by recruiting participants that varied in age, sex and diagnosis. Further, the use of interviews was an appropriate method to collect data on views and experiences (Malterud 2001). During the analysis, the credibility was ensured by regular meetings among the authors where meanings unit, codes, sub-categories and categories were discussed. Transferability was facilitated by only including participants who had an amputation and by a comprehensive description of the setting, data collection and analysis of the study. The dependability was ensured by the first authors making notes after each interview to ensure the first interpretation and by continually evaluating the interview and analysis with the others authors. Saturation during data collection was achieved when the last two interviews did not provide new information (Malterud 2001). However, the topic related to the experiences of being amputated, which was not part of the aim could have been explored in more depth.

CONCLUSION

Following lower extremity amputation people are overwhelmed by the impact of the amputation and have limited resources to manage basic needs like nutrition. Despite the emotional crisis, they feel motivated and responsible for their dietary intake and are motivated to receive dietary advice to enhance the chance of successful healing. It is important that the health professionals demonstrate that nutrition is an important part of treatment and use a health approach that activates patients' motivation and respects individual preferences when offering dietary advice to people with amputation.

PERSPECTIVES AND CLINICAL IMPLICATIONS

Our findings suggest that caring for people with lower extremity amputation needs a health approach where the strategy is to activate the motivational factor within each patient to ensure basic needs. Further, the nurses need temporarily to compensate the patients' lack of resources by engaging in the nutritional care to provide a sufficient dietary intake and to prevent complications. Furthermore, to offer knowledge and counselling that may strengthen patients' capacity to improve their health and nutritional status. Future intervention studies should include the patients and caregivers perspectives on proper care. Mako et al. found that the meaning of good surgical care was to keep the patient safe (Mako, Svanäng, and Bjerså 2016) which for people with lower extremity amputation means to limit the risk of further amputations.

CONFLICT OF INTEREST

None declared

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Table 1. Examples of the coding process during the manifest analyses

Meaning unit	Condensed meaning unit	Code	Sub-category	Category
Pat: Well, if that's what it takes, then so be it. There were no alternatives. Medicine couldn't fix this. So I knew what would happen next...I was here last year and operated on the other foot where they removed a big part of my foot. It took four months to heal. So I knew something drastic had to happen because my foot was falling apart. So at that moment, the decision to be amputated was easy to make and then deal with it afterwards. You know "bad things come in threes" - that the way it is.	Realised that there were no alternatives or curable treatment and due to previous experiences, he knew that he would be amputated. The decision to be amputated was without a choice	No alternatives or treatment makes only room for one decision	Choice without options	Physical deterioration
Int: Have anyone of the nursing staff talked to you about what you normally eat? Pat: No, nobody has talked to me about food. Int: Are you surprised that no one has asked you about it? Pat: No, not at all. Int: Didn't you expect that? Pat: I didn't expect that at all. No. Because they are usually too busy, I think,	No experiences or expectations to health professionals asking about eating normal habits as they are too busy	Lack of nutritional focus	Nutrition not a key part of care	Nutrition is not a shared mission
Pat: Yes, I consulted a dietician once. But all she did was to take a lot of notes - she wrote a lot down on paper. I don't believe I can do what she wanted me to do all the time. I'm not very good at being on a controlled and strict diet.	The nutritional counselling provided no help but introduced a need to comply with a more strict diet.	Nutritional counselling involves a diet that's hard to comply to.	Dietary advice difficult to follow	Nutritional guidance challenging to follow

Int: Interviewer; Pat: Participant

Table 2. Participant characteristics

ID	Sex	Age	Living alone	Comorbidity	Previous Dietary counselling	Amputation level ¹	Previous amputation
1	Female	78	No	Atherosclerosis	Yes	BKA	Yes, same leg
2	Male	78	No	Diabetes	Yes	AKA	Yes, opposite leg
3	Male	75	Yes	Atherosclerosis	No	AKA	No
4	Female	53	No	Atherosclerosis	No	BKA	No
5	Male	72	No	Diabetes	Yes	BKA	Yes, same leg
6	Female	58	No	Diabetes	No	BKA	Yes, same leg
7	Male	73	Yes	Diabetes	Yes	AKA	Yes, same leg
8	Male	73	Yes	Atherosclerosis	No	AKA	No
9	Female	75	Yes	Diabetes	No	AKA	Yes, same leg
10	Female	57	Yes	Diabetes	No	BKA	No
11	Male	72	Yes	Diabetes	No	BKA	Yes, same leg
12	Male	68	Yes	Atherosclerosis	No	BKA	No
13	Male	54	Yes	Diabetes	Yes	BKA	Yes, both legs
14	Male	46	No	Diabetes	Yes	BKA	No
15	Male	76	No	Atherosclerosis	No	BKA	No
16	Female	72	Yes	Atherosclerosis	No	AKA	No
17	Male	68	Yes	Atherosclerosis	No	Foot	Yes, both legs

¹AKA: Above Knee Amputation, BKA: Below Knee Amputation

Table 3. Themes, categories, sub-categories and frequency of reference to themes in the interviews.

Themes, categories and sub-categories	Brief description of sub-categories	Frequency of references
Responsible for own dietary intake		
<ul style="list-style-type: none"> • Motivated to eat <ul style="list-style-type: none"> ○ Eating to survive ○ Food linked to recovery ○ Nutritional intervention a sign of deterioration • Advice on diet wanted but not expected <ul style="list-style-type: none"> ○ Guidance about dietary intake desired ○ Low expectation of receiving dietary advice • Nutrition is not a shared mission <ul style="list-style-type: none"> ○ Nutrition not a key part of care <ul style="list-style-type: none"> ○ Solely responsible 	<p>Participants were eating out of necessity due to the severity of the situation.</p> <p>The participants believe in the effect of nutrition. Did not experience nutrition as part of the treatment. Nutritional interventions needed thorough information to prevent participants from being anxious.</p> <p>The participants were open-minded and showed the willingness to receive dietary advice.</p> <p>Participants had a low expectation of receiving dietary advice during the hospital stay.</p> <p>Healthcare professionals did not engage in nutritional issues.</p> <p>Participants believed they had sole responsibility for their nutritional state.</p>	<p>16</p> <p>24</p> <p>10</p> <p>17</p> <p>21</p> <p>40</p> <p>23</p>
Diet based on preferences and experiences with dietary counselling		
<ul style="list-style-type: none"> • Food choice guided by preference <ul style="list-style-type: none"> ○ Food preparation part of daily life ○ Quality, price, flexibility and tradition guide choice • Nutritional guidance challenging to follow <ul style="list-style-type: none"> ○ Hesitant to change food habits ○ Dietary advice difficult to follow ○ Healthy food complicated and unpalatable 	<p>The food was a part of everyday life. Was of no concern.</p> <p>The participants' choose food according to quality, durability and price. A different definition of healthy food.</p> <p>The participants had gained new habits they would keep. Others did not expect to change their habits.</p> <p>Advice based on restriction or narrow-minded approach to food was not appreciated.</p> <p>The participants rejected "healthy organic food and lifestyle."</p>	<p>18</p> <p>29</p> <p>39</p> <p>34</p> <p>29</p>
Feeling overwhelmed		
<ul style="list-style-type: none"> ○ Physical deterioration ○ No time to prepare ○ Questions about the future 	<p>Participants were hoping for improvement despite the frightening development of gangrene.</p> <p>The lack of time to prepare mentally was stressful.</p> <p>Questions about living conditions, mobility and how to regain normal ADL and social life.</p>	<p>18</p> <p>9</p> <p>28</p>