



Aalborg Universitet

AALBORG UNIVERSITY  
DENMARK

## Patients' Experiences with Nutritional Care during Hospitalization and Proposals for Improvement

Mikkelsen, Sabina Lund; Skadhauge, Lotte Boa; Tobberup, Randi; Rasmussen, Henrik Højgaard; Holst, Mette

*Published in:*  
International Journal of Nursing and Health Care Research

*DOI (link to publication from Publisher):*  
[10.29011/2688-9501.101337](https://doi.org/10.29011/2688-9501.101337)

*Creative Commons License*  
CC BY-SA 4.0

*Publication date:*  
2022

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

*Citation for published version (APA):*  
Mikkelsen, S. L., Skadhauge, L. B., Tobberup, R., Rasmussen, H. H., & Holst, M. (2022). Patients' Experiences with Nutritional Care during Hospitalization and Proposals for Improvement. *International Journal of Nursing and Health Care Research*, 5, [1337]. <https://doi.org/10.29011/2688-9501.101337>

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

### Take down policy

If you believe that this document breaches copyright please contact us at [vbn@aub.aau.dk](mailto:vbn@aub.aau.dk) providing details, and we will remove access to the work immediately and investigate your claim.



Research Article

# Patients' Experiences with Nutritional Care during Hospitalization and Proposals for Improvement

Sabina Mikkelsen<sup>1</sup>, Lotte Boa Skadhauge<sup>1</sup>, Randi Tobberup<sup>1</sup>, Henrik Højgaard Rasmussen<sup>2</sup>, Mette Holst<sup>2\*</sup>

<sup>1</sup>Department of Gastroenterology, Aalborg University Hospital, Sønderkov vej 5,9000 Aalborg,Denmark

<sup>2</sup>Department of Gastroenterology, Aalborg University Hospital and Department of Clinical Medicine, Aalborg University, Aalborg, Denmark.

\*Corresponding author: Mette Holst, Department of Gastroenterology, Aalborg University Hospital and Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

**Citation:** Mikkelsen S, Skadhauge LB, Tobberup R, Rasmussen HH, Holst M (2022) Patients' Experiences with Nutritional Care during Hospitalization and Proposals for Improvement. Int J Nurs Health Care Res 5: 1337. DOI: 10.29011/2688-9501.101337

**Received Date:** 13 September, 2022; **Accepted Date:** 21 September, 2022; **Published Date:** 26 September, 2022

## Abstract

**Background:** Disease-related malnutrition is prevalent among hospitalized patients and further deterioration is seen during hospitalization. **Objectives:** The aim of this study was to investigate hospitalized patients' experiences regarding nutritional care during their hospitalization and to come up with suggestions for improvement. **Methods:** The design was a qualitative interview study using a semi-structured interview guide. Participants were inpatients at nutritional risk recruited by nurses and dieticians from 31 units at a Danish University Hospital. **Findings:** Fifty-four patients were included. The content analysis identified three main themes: 1) Experiences with nutritional care, 2) Facilitators and barriers for sufficient food intake during hospital stay and 3) Proposals for improvement regarding nutritional care. Some participants were satisfied with the nutritional care, while other were dissatisfied. Facilitators improving food intake were the presentation of the food, the smell of the food, favorable food products, eating in the living room, a manned snack trolley and the social aspect of eating together with both relatives and fellow patients. Barriers were the presentation and smell of the food, disturbing fellow patients and the implication of care activities in patient rooms during meals, lack of social eating and nutritional impact symptoms. Some patients missed having their diet intake recorded, as they found it important during admission, and to have a dialog about insufficient food intake with nurses or dieticians. Proposals for improvement include dialogue about food and difficulty of eating, as well as better food quality. Finally, a proposal was to individualize and visualize the menu of the day, ordering and diet recording. **Conclusions:** Some patients were satisfied with the nutritional care during their hospitalization, while others were dissatisfied. Suggestions for improvement to optimize nutritional care in hospitals were improved dialog with staff about nutrition including monitoring nutrition intake, and an individualized and visualized menu.

**Keywords:** Nutritional care; Hospitalization; Inpatients; Experience; Hospital food; Interviews

## Introduction

Disease-related Malnutrition (DRM) or the risk of DRM is detected using nutrition screening tools [1,2]. DRM may be caused by underlying disease and its treatment [2], which can lead to

reduced food intake due to pain, nausea, lack of appetite amongst other [3-7]. DRM is associated with negative consequences for both the individual and community. These include depression, poorer response to treatment, longer hospitalization, and increased risk of complications, reduced quality of life and increased mortality [8-11].

About 35-83% of hospitalized patients are malnourished or at nutritional risk [12-19]. According to international and national guidelines for detecting and managing malnutrition, patients should be screened for nutritional risk within 24 hours after admission, and in the case of nutritional risk, patients should receive nutritional treatment at the hospital [2,20-23]. The guidelines slightly differ regarding disease diagnose [20-23]. Unfortunately, far from all patients are screened or receive a nutrition plan accordingly [24-26].

Staff nurses have been interviewed regarding practices around malnutrition. Barriers for implementing nutritional care and interventions among health professionals at the hospital were lack of resources, unclear distribution of responsibility for nutritional care tasks, lack of knowledge and competences, low priority as well as lack of flexibility of food service [26-31]. These reasons may explain why health-care professionals use their subjective clinical judgement to assess whether a patient is at nutritional risk or not, even though this often is insufficient [32].

Besides lack of sufficient attention to malnutrition, nurses perceive reasons for nutritional deterioration during hospitalization to include interruptions during meals, fasting due to procedures, problems with chewing and lack of appetite due to the disease and treatment, lack of information about the individual nutritional needs as well as institutional food routines [33-35]. Other reasons could be that patients were ignorant about the implications of malnutrition; hence, did not perceive weight loss as problematic [36], or that patients did not like the food, wanted food alternatives and wanted to be included in the decision regarding meals [34,37,38].

Due to the persistent problem of DRM among hospitalized patients, the aim of this study was to investigate including describe, interpret and understand patients' experiences regarding nutritional care. These findings will lead to, suggestions for improvement of nutritional care in order to minimize further deterioration of malnutrition in hospitalized patients.

## Methods

This study was designed as a qualitative interview study of hospitalized patients at a University Hospital in Denmark. The study was part of a study called "More2Eat", which also includes an observational cohort study. A phenomenological hermeneutic approach was used for the content analysis of the interviews. The semi-structured interview guide was inspired by of the method Kvale & Brinkmann [39].

### Participants and Setting

The patients were recruited from 31 wards including all specialties, medical and surgical wards at a University Hospital in Denmark. Throughout the hospital, a firm effort was made over the years to optimize the adherence of nutrition guidelines, including

screening of patients at nutritional risk, providing nutritional care plans, as well as monitoring weight and nutrition intake for those at nutritional risk.

The inclusion criteria "were" at nutritional risk, "were" willing to share experiences, and admitted for a minimum of two days and  $\geq 18$  years of age. A nurse or dietician at each of the 31 wards identified patients at nutritional risk. The investigator contacted relevant patients for the purpose of participation in the interview study. The interviews were conducted by three investigators. One or two of the investigators were present at each interview. The three investigators were all experienced in conducting patient interviews. Depending on the patient's preference, the interviews took place either in a dedicated office within the ward or in the patient's room. The patients were given the opportunity to decide whether they preferred to carry through the interview lying in bed or sitting in a chair.

### Interview-guide and data collection

The semi-structured interview guide consisted of seven overall topics. After the initial demographic questions, questions included patients' experiences with food during their hospitalization using the following topics: information about the menu, diet recording during hospitalization, appetite and motivation for eating, eating environment and other items which may affect appetite and proposals for improvement at the University Hospital.

The interviews lasted 10 to 30 minutes and were recorded with a tape recorder (Olympus Dictaphone WS-852). One of the investigators transcribed the interviews verbatim after each interview.

### Ethical Consideration

The rules of the Helsinki Declaration of 2002 were followed when conducting the study. The included patients signed a declaration of informed consent before initiating the interviews. All patients were given a personal project number (ID-number), when the interviews were transcribed with the purpose of anonymization. The participants did not receive compensation for participating.

### Data Analysis

A qualitative content analysis was used to analyze the transcribed material. A qualitative content analysis will describe the meaning of the data on a systematically way [40]. To get an overview over the transcribed material, the first and last author read all transcribed material to start the analysis. Thereafter, the material was condensed, and meaningful quotations were coded. Subcategories was created based on the content of the codes, followed by grouping relevant subcategories to create main categories. Based on the content of the main categories, themes were created [41]. All authors discussed the codes, subcategories,

main categories, themes as well as the interpretation of the results. To obtain consensus between the authors, disagreements were discussed until consensus was reached.

### Validity and Reliability

A checklist from the consolidated criteria for reporting qualitative studies was used to secure validity and reliability of the findings [42].

## Results and Analysis

In total, 54 patients were interviewed and 51.9% of the participants were men. Age of the participants ranged from 41 to 90 years, with a mean of 69.4 (10.6 SD). The below themes, main categories and subcategories were identified during the analysis of the interviews, which are presented in Table 1.

Theme	Main categories	Subcategories
Experiences with the nutritional care	Experiences with the catering and foodservice	Positive experience with catering and foodservice
		Negative experience with catering and foodservice
	Diet recording and dialogue with staff about nutrition	Positive about diet recording
		Negative about diet recording
	Visibility of the menu of the day	Information about the menu of the day
		Attitude towards the menu of the day
Facilitators and barriers for sufficient food intake during hospitalization	Facilitators	The presentation of the food
		The smell of the food
		Good food products
		Eating in the living room
		A manned snack trolley
		The social aspect
	Barriers	The presentation of the food
		The smell of the food
		Fellow patients and treatments
		The social aspect
Proposals for improvement regarding the nutritional care	Catering and food during hospitalization	Dialogue about the food and leftovers
		Better food and snacks
		Poor and missing food products
		Buying additional food to the relatives
	Diet recording and dialogue with staff about reaching nutritional goals	Lack of diet recording
		The meaning of monitoring dietary intake
		Staff should to a higher degree motivate and follow up on patient food intake
	Visibility of the menu of the day	Improved visibility
		Individual ordering of the menu of the day

**Table 1:** Themes and main categories as well as subcategories.

## Experiences with the nutritional care

### *Experiences with the catering and foodservice*

It appeared that most patients had a positive experience with the catering and food service.

*“Well, they encourage you to eat, and if you don't want the food they keep going until they find another alternative (...), so they are really nice to try to come up with suggestions. I think that's great.” (I17)*

Patients were pleased when nurses or service staff paid attention to whether the patient had something to eat and found alternatives if they disliked the food served. Furthermore, some patients found the nurses to be good at bringing snacks and having the option to have a second portion, snack, or oral nutritional supplements if the patients requested it. Patients appreciated the dialogue with nurses regarding their nutritional intake and found it motivating if nurses pushed them a little, but not too hard, to eat more.

*“Then they praised me every single time that I ate something (...) “it's actually good that you've eaten what you have now”.” (I22)*

*“They push you a little, and if they didn't do it, I wouldn't have had anything so far.” (I7)*

In addition, I22 mentioned that the nurses had praised her for the fact that she had eaten, even if it was not much. I22 experienced it being nice and motivating to eat more, rather than if they had scolded her for not eating more.

Contributing to the positive attitude towards the catering was the taste of the food, since many of the patients praised the food, which was to all main meals, including breakfast, lunch and dinner. One of the patients found it to be like staying at a luxury hotel.

*“When you hear about hospital food, you always hear something negative. I actually think it's good, and it's very varied, and the fact that you can have soup for dinner is good for me.” (I2)*

Many patients experienced the food as varied and appreciated the many options in each meal and found the options to be sufficient. This indicates that a variety of foods; thus, something for everyone is key.

However, not all patients were satisfied with the catering and food, nor the attention paid to their individual needs. Some said that the nurses did not pay attention to what the individual patient was allowed to eat and simply brought food that the patient was not able to eat or disliked. Others found that the nurses had provided insufficient answers when they asked what they could have to eat. It seemed like the catering varied across the wards at the University Hospital, the service around meals or the act of motivating patients in order to support food intake.

*“I'm used to better food at home, (...) sometimes it's just sloppily prepared (...). It's probably made according to all the rules for food handling (...) but it's a shame because it doesn't taste good.” (I37)*

In addition, it seemed like food options were different across the wards. Some of the patients mentioned that if chicken was on the menu, it was the only option available.

*“One day a lady went to fetch dinner at the food trolley, (...) but the only servings were meatballs in curry and curry soup. She obviously didn't like curry, so this might not be the best combination for a day's meal opportunities.” (I28)*

Based on I28, the situation with the choice of food was unfortunate, since the patients would like to have something to choose between, but that was not the case. Furthermore, not all patients experienced the opportunity to have snacks in the afternoon or in the evening and for those who did, some found the snacks were often unvaried and not to their liking.

### *Diet recording and dialogue with staff about nutrition*

Among the included patients, 23 had their diet recorded during their admission, while 31 had not sheared that experienced. A number of patients mentioned that they had their liquids registered, while their food intake was not.

*“They usually bring the paper (diet recording form) and then I register it by myself. (...) it gives a bit of an overview. (...) but I think it's fine to do it myself instead of having them to write it down.” (I17)*

I17 appreciates the overview that food intake diet recording provides.

*“Somewhere, it (diet recording) motivates you to eat more, because I have a protein goal and I'm making it a competition to reach this goal. It's also a bit of fun.” (I33)*

Based on I33 quote, it seems like the diet recording can be a motivating competition for the patient. Recording the diet and reaching sufficient nutrient intake is something the patient can actively contribute to, in contrast to the receiving medical treatment. This may be one explanation of why some of the patients found it motivating; however, the motivation of food recording to enhance diet goals seemed to be dependent on the nurse or dietician having a motivating and individually based dialog with the patient about nutritional goals. Some patients mentioned experience with conducting diet recording by themselves, while others who had staff do it were not involved in the process at all or did not want to take part in it.

Some of the patients who conducted food recording were negative about it.

*“I think it would annoy me that “I am so stupid that I can't do*



*better. I think it would have the opposite effect on my food intake.” (I34)*

*“I focus on how I feel, (...) I don't pay much attention to that diet recording.” (I40)*

This could indicate that involvement in the diet recording may be influenced by motivation from staff, and how ill they feel. Furthermore, some of the patients did not think that the focus on food intake was necessary, as the basic treatment meant more to them.

However, the majority of the included patients did not have their diet recorded during their hospital stay, even though this is “best practice” for patients at nutritional risk.

#### *Visibility of the menu of the day*

At the University Hospital, the menu of the day is presented without pictures on a printed document in the hallway. There were both positive and negative attitudes towards the way it was presented.

Among the included patients, only five patients had not been aware that they could see the menu of the day. A large proportion of the patients were mobile and able to go out and see the menu by themselves; although not all patients did. In immobile patients, the nurses told the patients about the food options before the meal was served.

*“If I haven't been up, they bring the list of what you can choose, but sometimes it would be nice to have a look before choosing.” (I24)*

Several of the patients mentioned that it would be nice to see the food before they had to choose what to eat.

*“Yes, I've sometimes been out and looked at it (menu), but sometimes the text doesn't live up to what's coming.” (I37)*

It seemed like some patients did not find an association between what was presented in the text menu and what was actually served; thus, would prefer visualization of the food.

### **Facilitators and barriers for sufficient food intake during hospitalization**

#### *Facilitators*

Several of the patients mentioned that the presentation of the food on the plate and food-trolley was important motivators to eat. Some phrased it as “the eyes eat first”.

*“Well, it's served appetizingly, so there's also somethings for the eyes.” (I2)*

Portion size was mentioned as a facilitator as well as a barrier by many patients.

*“For my part, I want to eat up, and then I always say a small portion, because I would rather have a small portion and eat it all (...). I think I eat more if I'm almost done and I just have to eat the last part instead of the food coming on such a big plate.” (I14)*

The smell of the food was seen as a facilitator and a barrier:

*“The food tastes good and it looks inviting, (...) also the fact that you have the smell of food, that means a lot for the appetite.” (I33)*

This suggests that the smell of the food can activate appetite and increased the desire to eat. However, this did not apply to all patients as some referred the smell of food as evoking nausea, suppressed their appetite, or that the smell made them satiated.

Specific foods and liquids were preferred when lack of appetite was present. These included fruit, ice cream, soup, rye-bread porridge (traditional Danish dish), oatmeal, sparkling water, tonic water and cola amongst others.

The social aspect of meals was seen a facilitator for eating more in those able to enjoy getting out of bed and into a living room. This provided a break from the hospital bed, a change of environment and an opportunity to socialize with others.

*“Three of us meet for breakfast, lunch and dinner to get out of the patient rooms. We have such a good time, talk to each other and have fun. And you know very well that when you have company, you eat a little more.” (I47)*

*“It's nice to sit out there (living room), there's also a good view, and it's a little lighter out there. (...) and there are some people you can talk to.” (I12)*

Some of the patients said that they did not have the opportunity to use a living room but were social with their fellow patient in the patient rooms at the ward. Therefore, the formation of a relationship seemed to have a motivating effect on some patients' dietary intake. However, a few patients were reluctant to eat with others, as they were very sick, and some patients preferred the opportunity to eat with their relatives in the hospital. The relatives either bought food in the cafeteria or brought food from outside.

*“So, I have a very worried husband, (...) and we like to eat together (...). So, I don't really need eating with other patients.” (I10)*

This suggests that the social aspect has a large effect on some of the patients' appetite. The final facilitator for eating more was a manned snack trolley, which was taken into the patient rooms daily in some of the units.

#### *Barriers*

The patients mentioned some barriers for eating during their hospitalization.

*“It's the way the food is served on the food trolley. Sometimes it*

*might look a little boring. If it was put in a different way or served differently, then it might look a little more inviting.” (I22)*

Most patients found themselves motivated by appetizing food, as the appearance was of great importance to their appetite.

Most of the patients experienced poor or fluctuating appetite. Some of the nutrition impact symptoms mentioned were nausea, vomiting, changed taste due to treatment e.g., chemotherapy, being out of breath, upset stomach, sore throat, oral thrush and fatigue.

*“If you are sick, then nothing tastes good, and as you are getting better, the food tastes better.” (I40) Also, surroundings may be a barrier to food intake.*

*“There was a lady, she shouted and screamed, and she did it continuously (...). It was really terrible.” (I32)*

Another barrier that affected the patients' appetite was when fellow patients complained or received treatment or care activities in the room during meals.

*“It's not funny when they have to change a diaper while you're eating. It's happened a few times, then there's a nasty smell in here.” (I40)*

*“I'm not very good at having people next to me, so it's been perfect for me to lie alone. It's also not always fun to get up and have something in your diaper, if you're sleeping with others, and it also ruins the appetite for the person you're lying next to.” (I41)*

The last barrier was also the social aspect, as some of the patients did not like to eat with people they did not know. Other patients said that it could be exhausting to talk with other patients.

Therefore, this suggests that the course of the disease and the presence of the disease of others may have a great impact on motivation and appetite.

### **Proposals for improvement regarding the nutritional care**

#### *Catering and food during hospitalization*

Patients were asked if they had suggestions for improvement in relation to the catering. Some of the patients mentioned that it could be nice to know when the food arrived at the ward, as one patient experienced taking a bath at the time when the food was served.

Other patients wanted the opportunity of giving feedback to the nurses if they did dislike the food.

*“Generally, the food they have made is great and beautiful, but for me a bit to the good side. (...) I can't have it because it's too cloying in my mouth, I can't have fatty foods. If you don't have a big appetite, you don't want to put it in your mouth.” (I50)*

Several of the patients referred to the hospital food as a bit “grandmother's food style” and not all patients were happy about that as they eat differently at home. A proposal for improvement could be more diverse food styles and liquid alternatives, as well as opportunities to choose individually from a menu of options which may fulfill the individuals' requirements and wishes. Additionally, a proposal for improvement was more fruit and fresh salad as side dishes. Findings indicate that fresh food are easier to eat if the appetite is low.

Most of the included patients would like to eat with their relatives. Some patients would prefer to order food to the relatives at the ward, so the patient and relatives could eat the same foods at the same time. Buying food for relatives at the ward may make it more attractive for relatives to come for a visit, as some relatives live several hours away from the hospital.

*“If you have some relatives, (...) who are an hour and a half away from the hospital, and time runs during the visit, they must have something to eat somewhere on the way home. By being able to buy extra food, you also get a little more time together.” (I48)*

#### *Diet recording and dialogue with staff about reaching nutritional goals*

As mentioned above, not all patients had their diet recorded, even though it should be done in all patients at nutritional risk:

*“You might think it's a bit bad, because when I eat so little because of my bad throat, they should have some control over how much I eat. It's important, since I am also a cancer patient, that I get what I need.” (I4)*

It seems that even if diet recording is not undertaken, some patients understand the idea behind keeping track on nutrition intake and would like to keep track of their dietary intake as:

*“It's a good idea, because you miss the feedback regarding nutrition - have you eaten enough?” (I45)*

Some of the patients think it could be easier to keep track of their dietary intake, if they could do it on a screen e.g., on an iPad, as a patient mentioned:

*“I guess it's smarter (use of tablet), because then the nurses don't have to type the dietary intake into the computer.” (I33)*

The above quotes indicate that patients are very interested and want to keep track of and improve their dietary intake. Patients; however, revealed that it health-care professionals gave attention to those who did not eat the served portions in order to identify what could disturb their eating. Therefore, an improvement could be to provide patients and health-care professionals the opportunity to record diet intake on a tablet that enters data directly into the patient medical record.

### *Visibility of the menu of the day*

Not all patients had the opportunity to read the menu or see a picture of the servings. Patients would like to consider visually what they would like to eat before ordering the food:

*“But there should be one (document with the menu of the day) for each room, (...) so I can go and see what I can get to eat today. Now you have to read the menu of the day and order the food, while you are standing in line for food, it's a bit troublesome.”* (I18)

Another suggestion is that the patients can order their meals and snacks on a screen e.g., a bedside tablet. In that way, the patients can read and preferably see the menu of the day in the way it is served, and order food they prefer.

*“Well, I think it's smart (order food on a screen), because some people like carrots and some don't, so you can select what you want. I think it's smart, then there's a chance that the patients will eat more.”* (I47)

The above quotes suggest that it may help patients to eat more if it is something they like. In addition, the menu of the day could be adapted to the specific patient's energy and protein needs. In that way, it should help the patients to select foods that comply with their needs and prompt patients with poor appetite to select energy-and protein dense foods and liquids.

## **Discussion**

The aim of this study was to investigate the experiences of in patients at nutritional risk regarding nutritional care during their hospitalization as well as to suggest improvements for nutritional care and thus improve nutritional status while hospitalized.

### **The main findings were:**

- Most patients had good experiences with the nutritional care regarding the catering and the foods served.
- Most patients who had their diet recorded were active in the registration process and found it motivating to eat more, especially if nurses or dieticians paid attention to their input.
- Facilitators and barriers for improved eating behavior were: presentation of foods, smell of foods as well as the social aspects of eating together. Furthermore, facilitators were relevant food products and a manned snack trolley. Additionally, barriers were the disturbance from fellow patients and care activities, treatments undertaken in the patient's rooms during meals, as well as NIS.
- Proposals for improvement were more dialogue about the food and attention to patients not eating the portions served, variation of foods and snacks, the opportunity of buying food for and eating together with relatives, monitoring dietary intake as well as visualization and individual ordering from the menu of the day.

Not all patients had their diet intake monitored. The majority of patients who had their diet monitored found it motivating, as they had feedback regarding eating enough or not. A previous study has found the same statement that patients were happy with food monitoring, especially if attention was given to its results [43]. Some patients found that diet recording could improve the nutritional care and dialog with staff about its importance. This is supported by other studies, suggesting to include patients in the diet registration process [32,43]. One study mentioned that patients' awareness and feeling of responsibility were improved if patients were included in the diet recording. Furthermore, it would help nurses remember that the diet should be registered [32]. Other studies have found that developing standards for nurses and teaching them about nutritional care may improve nutritional care [30,44].

Another facilitator suggested to secure improved eating behaviour was a manned snack trolley. A manned snack trolley has been investigated in a previous study, which found that oral nutritional supplements were significantly more often served when it was brought to the patient rooms and given a motivating presentation [45].

A previous Danish study investigated patients' attitude regarding adherence to a nutritional intervention at the hospital. Their patients experienced that their medical condition and eating alone were some of the barriers of adherence to a nutritional intervention [27]. These barriers are in line with some of the barriers seen in the present study, as patients wanted to eat in a living room and together with other patients or relatives. Patients in the present study also mentioned fellow patients and treatments in the patient's rooms as a barrier. In line with previous studies, presentation of the food, more food alternatives and the smell of the food were seen as potential barriers [37,46].

In this study, the majority of patients had proposals for improvement regarding individual ordering of the menu of the day. This has been investigated in previous studies that also found it advantageous if the food and nutritional guidance were individualized [47-49]. An individualized approach must be assumed to increase the patients' opportunity to have shared decision-making about the diet. A recent study found that the most effective behavior change techniques for promoting shared decision-making were instructions to perform the behaviour change, demonstrations, feedback as well as material reward, amongst others [50]. Therefore, it suggests that it may be an advantage if patients could have their dietary options individualized during their hospitalization and preferably linked to a recording system of nutrition intake to provide patients the opportunity to receive feedback regarding achieving nutrient intake goals. An individualized approach may increase the patients' dietary intake and thus improve nutritional care.



## Strengths and Limitations

The included patients were recruited from 31 wards at a Danish University Hospital with different specialties and organizational structures regarding numbers of beds, nurses, clinical dietitians, physicians and other health-care professionals. This strengthens the results in this study, as the results will be more transferable to other hospital settings. The interviews were performed by three investigators with experience with patient interviews, which increase the study's reliability. The included patients had different lengths of stay, which may affect the patients' experiences with the nutritional care during their hospitalization as some patients had been admitted for a long time while others were just hospitalized for a few days. This is a limitation in this study; however, mimics the reality of a hospital setting.

## Conclusion

Some patients were satisfied with the nutritional care during their hospitalization, while others were dissatisfied. The patients had suggestions for improvement to optimize the nutritional care at the hospitals. Further research is needed regarding the effect of implementation of the patient's suggestions for improvement and the handling of barriers and facilitators in clinical practice.

## Authorship

LBS, HHR, RT and MH conducted the study design, where the data collection was performed by SM. SM transcribed the material and performed the analysis together with MH. The interpretation of the data was performed by all the authors. The first draft of the manuscript was made by SM. MH revised the manuscript and all authors agreed on the final edition.

## Acknowledgements

The authors want to thank to the participating patients. Additionally, the authors would like to say thank to Botilla Jensen and Steffen Hansen for helping with the data collection. Furthermore, the authors want to thank nurses and dietitians for their help to find patients for this study.

## Ethical Approval

The North Jutland data protection agency approved the study application ID 2021-097. The North Jutland regional ethic committee found no need for full application 2020.08.15.

## References

1. Kondrup J, Allison SP, Elia M, Vellas B, Plauth M (2003) ESPEN guidelines for nutrition screening 2002. *Clin Nutr* 22: 415-21.
2. Cederholm T, Barazzoni R, Austin P, Ballmer P, Biolo G, et al. (2017) ESPEN guidelines on definitions and terminology of clinical nutrition. *Clin Nutr* 36: 49-64.
3. Abbott J, Teleni L, McKavanagh D, Watson J, McCarthy AL, et al. (2016) Patient-Generated Subjective Global Assessment Short Form (PG-SGA SF) is a valid screening tool in chemotherapy outpatients. *Support Care Cancer*. 24: 3883-7.
4. Mette H, Nina Z, Trine Ø, Sabina M (2019) Disease Related Malnutrition in Hospital Outpatients, - Time for Action. *Int J Food Sci Nutr Res* 1: 1002.
5. Holst M, Rasmussen HH, Bruun KS, Otten RE, Geisler L (2019) Nutritional Risk in Pulmonology Outpatients and Health Professionals' Perspectives on Nutritional Practice. *J Nurs Stud Patient Care* 1:1-7.
6. Jensen SA, Rasmussen HH, Engsig A, Holst M (2018) Nutritional impact symptoms evoking unintended weight loss among elderly patients in general practice. *Integr Clin Med Ther* 1: 1-8.
7. Lindqvist C, Slinde F, Majeed A, Bottai M, Wahlin S (2020) Nutrition impact symptoms are related to malnutrition and quality of life -A cross-sectional study of patients with chronic liver disease. *Clin Nutr* 39: 1840-1848.
8. Ingeman A, Andersen G, Thomsen RW, Hundborg HH, Rasmussen HH, et al. (2017) Lifestyle Factors and Early Clinical Outcome in Patients with Acute Stroke: A Population-Based Study. *Stroke*. 48: 611-617.
9. National Alliance for Infusion Therapy and the American Society for Parenteral and Enteral Nutrition Public Policy Committee and Board of Directors (2010) Disease-Related Malnutrition and Enteral Nutrition Therapy: A Significant Problem with a Cost-Effective Solution. *Nutr Clin Pract* 25: 548-54.
10. Martínez-Escribano C, Arteaga Moreno F, Pérez-López M, Cunha-Pérez C, Belenguer-Varea Á, et al. (2022) Malnutrition and Increased Risk of Adverse Outcomes in Elderly Patients Undergoing Elective Colorectal Cancer Surgery: A Case-Control Study Nested in a Cohort. *Nutrients*. 14: 207.
11. Dos Santos HAV, Leandro-Merhi VA (2022) Can the Nutritional Risk Screening (NRS-2002) predict unfavorable clinical outcome in hospitalized elderly patients? *Aging Clin Exp Res* 34:1165-1169.
12. Kaegi-Braun N, Boesiger F, Tribolet P, Gomes F, Kutz A, et al. (2022) Validation of modified GLIM criteria to predict adverse clinical outcome and response to nutritional treatment: A secondary analysis of a randomized clinical trial. *Clin Nutr* 41:795-804.
13. Almendre AAR, Leabdrió-Merhi VA, Aquino JLB de (2022) AGREEMENT BETWEEN NUTRITIONAL SCREENING INSTRUMENTS IN HOSPITALIZED OLDER PATIENTS. *Arq Gastroenterol* 59: 145-149.
14. Allard JP, Keller H, Jeejeebhoy KN, Laporte M, Duerksen DR, et al. (2016) Decline in nutritional status is associated with prolonged length of stay in hospitalized patients admitted for 7 days or more: A prospective cohort study. *Clin Nutr* 35: 144-152.
15. Balci C, Bolayir B, Eşme M, Arik G, Kuyumcu ME, et al. (2021) Comparison of the Efficacy of the Global Leadership Initiative on Malnutrition Criteria, Subjective Global Assessment, and Nutrition Risk Screening 2002 in Diagnosing Malnutrition and Predicting 5-Year Mortality in Patients Hospitalized for Acute Illness. *J Parenter Enteral Nutr* 45:1172-1180.
16. Beck AM, Knudsen AW, Østergaard TB, Rasmussen HH, Munk T (2021) Poor performance in nutrition risk screening may have serious consequences for hospitalized patients. *Clin Nutr ESPEN* 41:365-370.

17. Holst M, Beermann T, Mortensen MN, Skadhauge LB, Lindorff-Larsen K, et al. (2015) Multi-modal intervention improved oral intake in hospitalized patients. A one year follow-up study. *Clin Nutr* 34: 315-22.
18. Ramos FD, Fontanilla JA, Lat RE (2021) Association between Degrees of Malnutrition and Clinical Outcomes among Non-critically Ill Hospitalized Adult Patients with Type 2 Diabetes Mellitus. *J ASEAN Fed Endocr Soc* 36: 172-179.
19. Sauer AC, Goates S, Malone A, Mogensen KM, Gewirtz G, et al. (2019) Prevalence of Malnutrition Risk and the Impact of Nutrition Risk on Hospital Outcomes: Results From nutritionDay in the U.S. *J Parenter Enteral Nutr* 43: 918-926.
20. (2022) The Danish Health Authority. Malnutrition: Detection, treatment and follow-up of citizens and patients at nutritional risk. Guidance for municipalities, hospitals and general practice.
21. Volkert D, Beck AM, Cederholm T, Cruz-Jentoft A, Goisser S, et al. (2019) ESPEN guideline on clinical nutrition and hydration in geriatrics. *Clin Nutr* 38: 10-47.
22. Weimann A, Braga M, Carli F, Higashiguchi T, Hübner M, et al. (2021) ESPEN practical guideline: Clinical nutrition in surgery. *Clin Nutr* 40: 4745-4761.
23. Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, et al. (2021) ESPEN practical guideline: Clinical Nutrition in cancer. *Clin Nutr* 40: 2898-2913.
24. Eglseer D, Halfens RJG, Lohrmann C (2017) Is the presence of a validated malnutrition screening tool associated with better nutritional care in hospitalized patients? *Nutrition*. 37: 104-111.
25. Halvorsen K, Eide HK, Sortland K, Almendingen K (2016) Documentation and communication of nutritional care for elderly hospitalized patients: perspectives of nurses and undergraduate nurses in hospitals and nursing homes. *BMC Nurs* 15: 70.
26. Rasmussen HH, Kondrup J, Staun M, Ladefoged K, Lindorff K, et al. (2006) A method for implementation of nutritional therapy in hospitals. *Clin Nutr* 25: 515-523.
27. Andreasen J, Søndergaard LN, Holst M (2018) Factors affecting patient and nursing staff adherence to an integrated physical activity and nutritional intervention targeting functional decline on an acute medical ward: a qualitative study. *Patient Prefer Adherence*. 12: 1425-1435.
28. Eide HD, Halvorsen K, Almendingen K (2015) Barriers to nutritional care for the undernourished hospitalised elderly: perspectives of nurses. *J Clin Nurs* 24: 696-706.
29. Meyer SE, Velken R, Jensen LH (2017) Nutritional status assessment – a professional responsibility in community nursing. *Sykepl Forsk* 12: e-61797.
30. O'Connell MB, Jensen PS, Andersen SL, Fernbrant C, Nørholm V, et al. (2018) Stuck in tradition-A qualitative study on barriers for implementation of evidence-based nutritional care perceived by nursing staff. *J Clin Nurs* 27: 705-714.
31. Ottrey E, Porter J, Huggins CE, Palermo C (2018) "Meal realities" - An ethnographic exploration of hospital mealtime environment and practice. *J Adv Nurs* 74: 603-613.
32. Krogh LH, Beck AM, Kristensen NH, Hansen MW (2019) Handling the inpatient's hospital 'Career' - Are nurses laying the groundwork for healthy meal and nutritional care transitions? *Nurs Inq* 26: e12262.
33. Cass AR, Charlton KE (2022) Prevalence of hospital-acquired malnutrition and modifiable determinants of nutritional deterioration during inpatient admissions: A systematic review of the evidence. *J Hum Nutr Diet* 1-16.
34. Dickinson A, Welch C, Ager L, Costar A (2005) Hospital mealtimes: action research for change? *Proc Nutr Soc* 64: 269-75.
35. Larsen LK, Uhrenfeldt L (2013) Patients' lived experiences of a reduced intake of food and drinks during illness: a literature review. *Scand J Caring Sci* 27: 184-94.
36. Bullock AF, Greenley SL, Patterson MJ, McKenzie GAG, Johnson MJ (2021) Patient, family and carer experiences of nutritional screening: a systematic review. *J Hum Nutr Diet* 34: 595-603.
37. Cate DT, Mellema M, Ettema RGA, Schuurmans MJ, Schoonhoven L (2021) Older Adults' and Their Informal Caregivers' Experiences and Needs regarding Nutritional Care Provided in the Periods before, during and after Hospitalization: A Qualitative Study. *J Nutr Gerontol Geriatr* 40: 80-107.
38. Dewing J (2009) Prioritising mealtime care, patient choice, and nutritional assessment were important for older inpatients' mealtime experiences. *Evid Based Nurs* 12: 30.
39. Kvale S, Brinkmann S (2015) *Interview 3<sup>rd</sup> ed.* København: Hans Reitzels Forlag; 440.
40. Schreier M (2013) Qualitative Content Analysis. In: *The SAGE Handbook of Qualitative Data Analysis*. Sage 170-83.
41. Graneheim UH, Lundman B (2004) Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 24:105-112.
42. Tong A, Sainsbury P, Craig J (2007) Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *Int J Qual Heal Care* 19: 349-57.
43. Holst M, Rasmussen HH, Laursen BS (2011) Can the patient perspective contribute to quality of nutritional care? *Scand J Caring Sci* 25: 176-84.
44. Jefferies D, Johnson M, Ravens J (2011) Nurturing and nourishing: the nurses' role in nutritional care. *J Clin Nurs* 20: 317-30.
45. Holst M, Mortensen MN, Jacobsen BA, Rasmussen HH (2010) Efficacy of serving bedside in-between meals - An intervention study in three medical departments. *E Spen Eur E J Clin Nutr Metab* 5: e30-e36.
46. Snyder HJ, Fletcher KE (2020) The Hospital Experience Through the Patients' Eyes. *J Patient Exp* 7: 408-17.
47. Alberda C, Alvdj-Korenic T, Mayan M, Gramlich L (2017) Nutrition Care in Patients With Head and Neck or Esophageal Cancer: The Patient Perspective. *Nutr Clin Pract* 32: 664-674.
48. Sean LC, Neo Kim EA, Moon Fai DC (2011) Effects of nutritional counselling on anthropometric measures in adult patients with cancer undergoing treatment and their perception and satisfaction level: a comprehensive systematic review. *JB Libr Syst Rev* 9: 886-924.
49. Lafrenière S, Folch N, Dubois S, Bédard L, Ducharme F (2017) Strategies Used by Older Patients to Prevent Functional Decline During Hospitalization. *Clin Nurs Res* 26: 6-26.
50. Agbadjé TT, Elidor H, Perin MS, Adekpedjou R, Légaré F (2020) Towards a taxonomy of behavior change techniques for promoting shared decision making. *Implement Sci* 15: 67.