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The Viewpoints of Hospitalized Patients with Cancer Regarding Their Nutritional Challenges in Hospital: A Phenomenological Study

Masoumeh Jabbari; MSc[1], Tahereh Alsadat Khoubbin Khoshnazar; PhD[2], Arezoo Haghighian-Roudsari; PhD[*1], Farzad Taghizadeh-Hesary; MD[3] & Ali Milani-Bonab; PhD[4]

[1] Department of Community Nutrition, National Nutrition and Food Technology Research Institute, Faculty of Nutrition Sciences and Food Technology, Shahid Beheshti University of Medical Sciences, Tehran, Iran; [2] Nursing Care Research Center, School of nursing and midwifery, Iran University of Medical Sciences, Tehran, Iran; [3] Department of Clinical Oncology, Shahid Beheshti University of Medical Sciences, Tehran, Iran; [4] Food and Nutrition Policy and Planning Research Department, School of Nutrition and Food Sciences, National Nutrition and Food Technology Research Institute, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

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Corresponding author:
ahaghighian@yahoo.com
Department of Community Nutrition, National Nutrition and Food Technology Research Institute, Faculty of Nutrition Sciences and Food Technology, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Postal code: 19395-4741
Tel: 021-22077424

ABSTRACT

Background: Complications of anti-cancer therapies can lead to inadequate nutrient intake, indigestion and deficiency of nutrients. The present study aims to better understand the nutritional challenges of hospitalized patients with cancer. **Methods:** The participants were patients referred to the oncology ward of the hospital who were selected by the maximum diversity sampling of patients with various cancers. Semi-structured interviews were conducted to collect data and continued until data saturation with 20 participants. Inductive content analysis was applied to interpret data using MAXQDA 2018 software. **Results:** The views of hospitalized patients with cancer regarding the nutritional complications were explored in four main themes, including "Inefficiency in patient food management", "The need for care and support of the treatment team", "Problems due to the consequences of the disease", "Patients' strategies in conditions of dissatisfaction with the hospital food environment". The sub-themes included "Dissatisfaction with the hospital food environment", "Neglect of patients' specific conditions", "Problem with the characteristics of hospital food", "Uncertainty of the responsible person/people", "Lack of continuous communication between the treatment team and patients", "Patients' need to consult with the treatment team", "Patients' concerns", "Disease side-effects", "Chemotherapy side effect", and "Dissatisfaction of food and environment". **Conclusion:** It is necessary to obtain a comprehensive understanding of patients' needs by a treatment team, including physicians, nurses, and nutritionists by establishing appropriate communication with the patients and nutrition education from the time of diagnosis and treatment.

Keywords: *Cancer; Hospitalized patient; Nutrition; Phenomenology*

Introduction

Cancer is consequence of uncontrolled cell growth (Hassanpour and Dehghani, 2017). In recent years, death from various cancer types has become the leading cause of death in developed

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countries as well as developing ones (Bray *et al.*, 2018). Iran, as a middle east developing country, encountered a rapid industrialization development in recent years and its associated lifestyle change and environmental factors affect the incidence pattern of various cancers among Iranian population (Farhood *et al.*, 2018). Cancer-induced death is the third cause of mortality in Iran (Amirkhah *et al.*, 2017). Anticancer therapies (i.e. surgery, chemotherapy, radiotherapy, and bone marrow transplant) have various complications, such as dysphagia, mucositis, xerostomia, anorexia, nausea, vomiting, diarrhea, constipation, and taste changes (Messin and Amrhein, 2019). These complications lead to insufficient food and nutrients intake, impaired gastro-intestinal digestion and nutrient absorption as well as nutritional deficiency in cellular level (Shyh-Chang, 2017). Loss of appetite, unintentional weight loss, muscular atrophy, immune response impairment, bed sore, resistance to anticancer treatment, depression, fatigue, undesirable quality of life, and other complications are the consequences of cancer-associated malnutrition malnutritionalong with anti-cancer treatments (Messin and Amrhein, 2019, Shyh-Chang, 2017).

Malnutrition and weight loss are the most critical factors to treat patients with cancer (Huhmann and August, 2012). It has been proved that unintentional weight loss more than 20 percent of usual body weight in cancer patients is one of the most important factors in post-surgery complications and total mortality in these patients (Huhmann and August, 2012). A comprehensive nutritional assessment at diagnosis stage is necessary for appropriate nutritional intervention and follow-up during the process of treatment in patients with cancer (Sajadian *et al.*, 2020). Several studies have reported different unmet needs to care and support cancer patients, including appropriate psychological, informational, and nutritional support (Esmaeili *et al.*, 2013, Gibson *et al.*, 2010) as well as respectful and friendly communications with medical care team (Missel and Birkelund, 2011). Well-timed and accurate screening as well as implementation of appropriate strategies (Nasrah *et al.*, 2020, Sharma *et al.*, 2016), such as staff and patient education (Faury *et al.*, 2017), nutritional interventions (Eglseer *et al.*, 2017), lifestyle modification (Koosha *et al.*, 2019), improvement in medical/care centers-related nutritional problems (Villar-Taibo *et al.*, 2016), can guarantee better clinical outcomes, quality of life, effectiveness of anticancer therapies and reduction in medical care costs in cancer patients. Regarding these challenges and importance of nutrition in hospitalized cancer patients, this study was conducted with the aim of in-depth perception of nutritional problems in hospitalized cancer patients from their viewpoints. Explanation and identification of nutritional challenges in hospitalized cancer patients could be an effective way to improve the quality of provided medical care in these patients. The results of the present study can help physicians and the treatment team to identify the major nutritional problems of patients with cancer and plan appropriate interventions to address them.

Materials and Methods

Study design and participant's selection: This qualitative study was conducted based on the phenomenological method to describe, understand, and interpret the participants' lived experiences. The study was conducted between June to August in 2019 on cancer diagnosed patients (either new or pre-existing cases) who referred to the oncology ward of Shohadaye Tajrish hospital and hospitalized for chemotherapy (experienced one or several times hospitalization in this ward), Tehran, Iran. The patients with cancer (adult males or females) who were informant, willing to participate in the study, and enable to communicate properly were interviewed. The study aimed to gather patients' experiences and opinions about their nutritional challenges during hospitalization, ways to solve or mitigate these challenges as well as perceptions about the probable barriers. The participants were recruited through the maximum diversity sampling from different types of cancer and various stages of treatment as much as possible. Participants were included in the study until data saturation was reached and no new data

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was given by them.

Data collection: After coordination with the wards related to hospitalization and treatment of patients with cancer, interviews with patients were allowed. Then, the objectives of the study were explained to the patients and if they wished to participate in the study, a written consent form was signed by them. Interviews began with demographic and general questions, such as type of cancer and stages of treatment, then, gradually continued to more specific open questions regarding nutritional complications in hospital and overall. Data collection was done using an interview protocol in the form of semi-structured in-depth interview in Persian. It included main questions, including "Can you eat easily and without problems during the hospitalization and treatment stages?", "What kind of food do you eat mostly these days?", "Can you eat all your favorite food? Why?", "What is the biggest problem that affects your eating?", "What do you think is your most important nutritional complaint at the center where you are admitted and treated?", "What do you think is the most important nutritional problem you have in eating?", and "What do you think will help you eat better these days?"

Interviews lasted between 25 to 35 minutes. All interviews were conducted by first author and audio recorded using voice recorder, then transcribed verbatim accurately after each interview.

Data analysis: The data were thematically (Braun and Clarke, 2006) interpreted using inductive content analysis. Data analysis was performed concurrently from the beginning of interviews to ensure data saturation in the emerged concepts and try to achieve the data enrichment in subsequent interviews. Strauss and Corbin coding strategy was applied for open and axial coding (Corbin and Strauss, 2014) and MAXQDA (version 2018) was used for data management (Kuckartz and Rädiker, 2019). Interviews were initially coded by the first author, re-coded and reviewed by another author (Haghighian Roudsari A), and open codes were conceptualized to explored categories and subcategories via axial coding by Jabbari M and Haghighian Roudsari A.

Data trustworthiness: Data collection and analysis were done simultaneously which helped the researchers to implement the next interview accurately. The interview audio files were listened several times and appropriate time was spent for data familiarity, analysis, and interpretation. Respondent validity was provided through returning a summary of some interviews to the participants to check whether the transcripts mirrored what they expressed. Moreover, perspectives of different specialists of nutrition, nursing, and medicine were considered to cover the issue of resilience. All stages of the research, from interviewing and coding to conceptualization, were performed in consultation with all members of the research team. A qualitative research expert (Haghighian Roudsar Ai) supervised all research process and coding procedures. Data transferability was prepared by explaining the participants' traits, the way of gathering data, interpreting and conceptualizing the data, and describing some quotations which the participants said. The Qualitative Research Review Guidelines (RATS) was used to report the study findings (Godlee and Jefferson, 2003).

Ethical considerations: The study was approved by the research council of National Nutrition and Food Technology Research Institute, Iran (Ethical code: IR.SBMU.NNFTRI.REC.1398.013). All participants were informed about the study aims. They assured that their participation was confidential and voluntary and information used in the article would be anonymous. Information and explanation of the study aim was provided orally and in writing. Then, the participants signed informed consent form to participate in the study, including being both interviewed and recorded.

Results

In the present study, twenty patients with cancer participated (17 females and 3 males) with mean age of 53 years. Among them, two participants were illiterate, eight had primary and secondary education, eight had a diploma, one had a

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bachelor's degree, and one had a seminary education. Fourteen of the interviewees were married, three were divorced, and three were widows. Regarding the cancer type, five patients had breast cancer, two had uterine cancer, four had colon cancer, one had small bowel cancer, two had bladder cancer, and two had tumors of the abdominal cavity (**Table 1**). For each type of kidney, adrenal, lung, and stomach cancer, one patient participated in this study. After open coding and classifying the codes with similar concepts, 10 sub-themes and 4 main themes were emerged presented in **Table 2**.

With an overview of patients' statements, 4 main themes appeared in explaining the nutritional problems of hospitalized patients with cancer, which are discussed below.

Theme 1: Inefficiency in patient food management

• *Dissatisfaction with the hospital food environment:* Some patients stated that the hospital environment reduced their desire to eat and their appetite. One of the patients expressed: *"Hospital environment is such that it makes you sick, it makes you tired, and it is very different when you are at home with your family." (31-year-old woman with abdominal tumor)*

A number of patients who needed to be accompanied companions due to disability stated that the food provided by the hospital to the patients' caregivers has very poor quality.

"The vegetables that are next to the food are few, for example, they can put 2 cooked carrots, chopped lettuce next to each food. I saw some hospitals that provide better food for their companions. Even though, we have not been given anything for three days now and only the patient has been given." (37-year-old woman with adrenal cancer)

Most patients were concerned about hygiene in the preparation and cooking of food and therefore did not like to eat hospital food, which meant that they did not have enough nutrition during hospitalization.

"I don't prefer stews, because I'm not sure about cleaning vegetables and I'm very sensitive." (38-year-old woman with breast cancer)

"But if the food was in a disposable container, it would be much better than glass containers. Disposable containers are sanitary." (37-year-old woman with breast cancer)

• *Neglect of patients' specific conditions:* One of the problems that some patients pointed out was that the food given to the patient in the hospital was not based on the specific needs and conditions of the disease, which caused problems for the patient.

"The food is very fatty; however, they give rice both for lunch and dinner. Last time we said that you do not need to bring rice at night, only put the chicken with a piece of carrot or mashed potatoes, it is better for us and we will be less annoyed, and rice will not be thrown away." (65-year-old woman with colon cancer)

Many patients stated that the texture of the food was so thick that it made it difficult for them to eat, especially patients with upper gastrointestinal cancer or ulcers in the mouth and throat as a result of the healing process.

"Breakfast is awful. The bread we cannot be chewed at all. It is difficult to eat. It is not stale, but it is like rubber (Laughter). The most important thing is the appearance and spiciness of the food. For example, they make Ghormeh Sabzi (Herb Stew) very spicy, which is very annoying." (38-year-old woman with stomach cancer)

A large number of patients stated that they suffer from gastrointestinal problems by eating hospital food and it is difficult for them to tolerate food, which is mainly due to the high fat content in food and poor quality of raw materials used in food preparation.

"I only eat soup here. I do not eat rice Because of the oil content, for example, pasta was full of oil last night. I did not eat vegetables at all. It was full of fat. Meat is definitely beef. Rice is basmati rice that is not cooked well. I cannot eat basmati rice at all. I eat soup more these three days." (67-year-old woman - abdominal mass problem)

• *Problem with the characteristics of hospital food:* The majority of patients attributed their nutritional problems to the characteristics of the

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hospital food, such as the ingredients, the method of cooking, the amount of food served, the lack of variety of food, and the taste of the food, which is different from their usual food. Taste disorders in many of these patients could also exacerbate this dissatisfaction.

"There is so much pepper in the soup that it burns my stomach. Here, some food are very bad and I do not eat them. I throw away the rice. The meat was very tough and the lentils in the rice were uncooked." (72-year-old woman with colon cancer)

"They have too much food. A patient receiving chemotherapy cannot eat it at all. Many of these food are thrown away." (65-year-old woman with colon cancer)

Theme 2: The need for care and support of the treatment team

• *Uncertainty of the responsible person/people:* Most patients complained that the person in charge of responding to nutritional needs was not known, and acknowledged that nurses were the only ones responsible for nutritional needs, a patient said:

"I do not know who to talk to. We've asked the head nurse why you do not increase your food variety, we do not know anybody else, and we only communicate with nurses here." (65-year-old woman with colon cancer)

Another patient complained about the poor quality of food, which showed that the respondents were not clear as a result of patients' dissatisfaction with the current situation:

"They say it has nothing to do with us, the smell of the food is not coming from the kitchen." (54-year-old woman with abdominal mass)

In this regard, another patient stated

"...the one who brings the food to me says that it is not their fault, it's the cook's fault. One time when they brought pasta, they told us that they don't see the cook." (31-Year- old patient with adrenal cancer)

• *Lack of continuous communication between the treatment team and patients:* Most participants were dissatisfied with the inadequate communication between the patient and the treatment team, including the physician and the nutritionist. It indicates that in order to provide quality care to patients, it needs proper communication with patients and accountability to patients.

"I have not seen the doctor more than once or twice. Only the residents come to visit us. Residents do not explain to anyone here" (54-year-old woman with bladder cancer)

In this regard, another participant stated: *"There is no nutritionist here. Even though you are the first one to come in, you've never asked." (65-year-old woman with colon cancer)*

Another patient stated in this regard: *"I did not see a doctor at all. I saw his assistant today and he said, 'Okay, you do not have a food problem. Eat whatever you can.'" (67-year-old woman with abdominal mass)*

• *Patients' need to consult with the treatment team:* Patients cited the need to obtain information from the treatment team and official sources as their greatest information needs. So they don't receive enough information and training from the doctor and nutritionist sought information from unofficial sources such as the Internet.

"For example, I asked them what we should eat. They said, "We work with the information we get, which is what you should and shouldn't eat." Also some patients come in with intestinal problems and tell us what isn't good to eat. Now we should know what the difference is." (54-year-old woman with bladder cancer)

Most patients want to know more about nutrition and the type of food from their doctor than other members of the treatment team.

"But I want to know for myself what is good for me. Because I care so much about nutrition. If the doctor tells me not to eat, I will not eat the lamb." (67-year-old woman with abdominal mass)

In this regard, another participant stated: *"I searched the internet for what is good for the stomach. Everyone says tripe." (31-year-old woman with abdominal mass)*

• *Patients' concerns:* According to the participants in the study, there is a difference in addressing (nutritional status) the needs of cancer

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patients in public and private hospitals.

"Because when you protest against government hospitals, it is not only useless, but also a state of resentment and hostility arises, which makes me angry. I do not know how to protest much. I went to a charity place with low expectations. "(67-year-old woman with abdominal mass)

Another concern of patients complaining about the type and quality of food was dissatisfied and stated: *"I feel I have a problem with the appearance of the food here. I do not like hospital food at all. It has stuck in my mind! (Laughter) I try to eat less of their food. (38-year-old woman with breast cancer)*

Another participant stated: *"Then again, if the food was in a disposable container, it would be much better than these glass containers like these. Disposable containers are better." (37-year-old woman with breast cancer)*

Theme 3: Problems due to the consequences of the disease

- *Disease side-effects:* Patients are aware of the consequences of their illness, such as changes in appearance, changes in appetite, and physical problems, according to the experiences they gain during illness and treatment. Therefore, health care providers are expected to coordinate and care for patients and reduce the effects of treatment and anticipate the future needs of patients. A patient stated: *"I cannot eat at all. I have not eaten a plate of rice for some time. I feel nauseous. Nausea bothers me." (57-year-old woman with breast cancer)*

One of the most common problems reported by hospitalized patients is nausea and vomiting, which reduces patients' appetite and quality of life. This highlights the importance of complication management and adequate nutrition.

"I always have nausea and heartburn when I eat food. I always have to lie on my left or right side" (54-year-old woman with bladder cancer)

Another participant stated: *"Now that we are undergoing chemotherapy, we know that we can't eat food because it makes us nauseous."*

- *Chemotherapy side effects:* Understanding patient support by health care providers about the side effects of chemistry and treatment is crucial in shaping and organizing his or her life activities and can affect their nutritional status.

"The drug affects us. Everything stinks. We've become sensitive to all odors. We've become anorexic. My stomach must be full. Something like a date or a piece of bread makes my stomach burn, so I must drink water. My stomach hurts a lot." (54-year-old woman with bladder cancer)

The need for repeated courses of chemotherapy and its side effects have affected the quality of life of patients.

"I think it's the fault of the taste. The food is not of the quality of something homemade. I think it is the smell and the taste of the food that makes me nauseous. For example, I could not eat at all last night." (62-year-old woman with colon cancer)

Another participant stated: *"I could have only soup and liquids. My whole mouth and throat were sore. The bitterness in my throat was making me nauseous." (67-year-old woman with abdominal mass)*

Theme 4: Patients' strategies in conditions of dissatisfaction with the hospital food environment

Despite all the dissatisfaction that some patients had with the hospital food, they tried to endure it in order to complete their treatment. They either refused to eat or brought food from home to the hospital. The majority of patients preferred to eat at home and had difficulty eating, especially in the hospital, due to the comparison of the quality of home and hospital food, as well as anorexia and dysgeusia.

"When I have to be hospitalized here and have 12 sessions of chemotherapy, my protest may cause the nurse to treat me differently. That's why I learned not to protest too much because public hospitals not only don't care when you protest, but also a state of resentment and hostility arises. This is charity and I came to my senses. What can I expect?" (67-year-old woman with abdominal mass)

"I ate the food here once or twice, I felt bad. I

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ate it last night but I made a mistake. They bring me food from home like soup." (65-year-old woman with colon cancer)

"If I have a problem with food, I do not say anything. But it is usually the case that I do not eat food." (38-year-old woman with breast cancer)

Table 1. General characteristics of the participants.

Variables		Values
Age (year)		53.15 ± 3.30 [a]
Gender	Female	17 (85)[b]
	Male	3 (15)
Education	Illiterate	2 (10)
	Less than a high school diploma	8 (40)
	High school diploma	8 (40)
	Bachelor	1 (5)
	Theological education	1 (5)
Marital status	Married	14 (70)
	Divorced	3 (15)
	Widow	3 (15)
Occupation	Housewife	11 (55)
	Freelance/self-employment	6 (30)
	Employee	3 (15)
Type of cancer	Breast	7 (35)
	Uterine	2 (10)
	Kidney	1 (5)
	Bladder	1 (5)
	Stomach	1 (5)
	Colon	4 (20)
	Small intestine	2 (10)
	Abdominal cavity-related	2 (10)

[a]: mean ± SD; [b]: n (%)

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Table 2. Main themes and sub-themes related to nutritional challenges of hospitalized patients with cancer

Main themes	Sub-themes	Main codes
Inefficiency in patient food management	Dissatisfaction with the hospital food environment	• Intolerance of hospital environment • Dissatisfaction with the food of the patient caregivers • Suspected to hospital food hygiene
	Neglect of patients' specific conditions	• Ignoring patients' diets • Inappropriate food texture for patients • Food-induced gastrointestinal problems
	Problem with the characteristics of hospital food	• Taste and appearance of food • Quality and variety of food • The type of food components • The volume of patients' food • Improper cooking ways of food
The need for care and support of the treatment team	Uncertainty of the responsible person/people	• Nurse only responsive people • Irresponsibility of distribution manager and department staff
	Lack of continuous communication between the treatment team and patients	• Little consultation of doctors and specialists with the patient • Lack of communication with the person in charge of nutrition • Lack of follow-up of the nutritionist • Assigning patient counseling to physician assistants
	Patients' need to consult with the treatment team	• Nutrition counseling in radiation therapy • Need the advice of a nutritionist • Need help with supplements • Get nutrition information from cyberspace
	Patients' concerns	• Not change of food after the patient complains • Patients' concern about food cleanliness • Patient concern about staff discomfort with patient protest
Problems due to the consequences of the disease	Disease side-effects	• Decreased appetite - stomach upset - decreased sense of taste - difficulty swallowing - dizziness - weight gain - nausea - constipation - odor problem - flatulence and heartburn - bitter taste in the mouth - intolerance to food odor – xerostomia
	Chemotherapy side effects	• Pain and lethargy - constipation - nausea - anorexia - taste change - bitter and dry mouth - tingling - food aversion - intolerance to hot food - intolerance to food odor - sore mouth and throat - diarrhea - flatulence
Patients' strategies in conditions of dissatisfaction with the hospital food environment	Dissatisfaction of food and environment	• Refusing to eat hospital food • Bringing food from home • Very low consumption of hospital food • Mandatory use of hospital food • Preference to starvation

Discussion

In the current phenomenological study, the viewpoints of hospitalized patients with cancer regarding the nutritional complications were explored in the four main themes, including "Inefficiency in patient food management", "The need for care and support of the treatment team", "Problems due to the consequences of the disease",

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and “Patients' strategies in conditions of dissatisfaction with the hospital food environment”.

The "Inefficiency in patient food management” category has three subcategories, including "*Dissatisfaction with the hospital food environment*", "*Neglect of patients' specific conditions*", and "*Problem with the characteristics of hospital food*”. Understanding the nutritional needs of patients with cancer and considering them in the care protocol of these patients are necessary. The findings of the current research showed that while provision of nutritional needs is so important for patients with cancer, these needs are often neglected by medical care team. In the current study, all participants emphasized the necessity of healthy nutrition and importance of nutrition in treatment and prevention of cancer complications. They were also dissatisfied with situation of nutritional services provision in the hospital, such as quality and diversity of food as well as food taste, appearance, and hygiene. They declared that medical staff do not care nutritional guidelines for patients with cancer and have a poor care performance in this regard. The participants were also dissatisfied with hospital-served food. They were showing this reluctance by refusing to eat hospital food, bringing food from home, consuming very little hospital food, and compulsory consumption of hospital food or prefer to stay hungry.

Sharma *et al*. in their observational study reported a high prevalence of malnutrition in patients with cancer during treatment (Sharma *et al.*, 2016). Inglis *et al*. in their qualitative review, emphasized the importance of nutritional support and intervention in all patients with cancer from the diagnosis time to post-treatment and survival period (Inglis *et al.*, 2019). Different studies have suggested that nutritional assessment at diagnosis time in patients with cancer are necessary to provide appropriate nutritional interventions and follow-up during their treatment (Arends *et al.*, 2017, Caccialanza *et al.*, 2016, Khoshnevis *et al.*, 2012).

The category of "The need for care and support of the treatment team" has four subcategories, including "*Uncertainty of the responsible person/people*", "*Lack of continuous communication between the treatment team and patients*", "*Patients' need to consult with the treatment team*", and "*Patients’ concerns*". Cancer diagnosis and treatment create a stressful situation for patients and their families. They experience many adverse psychological conditions, such as fear, anxiety, and depression (Pitman *et al.*, 2018). The participants declared that nutrition expert in the hospital do not care about the dietary regimen of hospitalized patients and do not have any contact with them. Most of the time, nutrition counseling of patients was assigned to doctors’ assistants. Most participants pointed out the insufficiency of provided nutritional information by medical care team. The patients suggested to apply supportive approaches to cope with these inefficiencies. They believed they can manage most adverse symptoms and cop with their problems if they have reliable and accurate information from confident resources as well as receiving appropriate nutritional and supportive services. In this regard, several studies have reported that information presented by healthcare centers is not enough for patients (Khoshnazar *et al.*, 2016, Tariman *et al.*, 2014). Patients with cancer need more information about diagnosis, treatment, dealing with disease complications, and recovery period in cancer. Different studies have shown that patients would like to receive information and response from medical care team (Benham-Hutchins *et al.*, 2017, Cox *et al.*, 2006). For example, patients need to be guided by medical care team (i.e. physicians, nurses, and nutritionists) about supplement intake and dealing with treatment complications. Gibson *et al.* reported that on-time care and continuous communication with treatment team, especially with nutritionist, are other supportive approaches from the viewpoint of participants (Gibson *et al.*, 2010). The patients remarked that nutrition counseling can alleviate their anxiety and worries. Participation in decision-making, enabling self-care, maintaining quality of life, increasing knowledge about potential benefits and risks of cancer therapies are some important goals which encourage patients to obtain information. The

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participants also pointed to the problems of communication with medical care team and lack of continuous presence of nutrition expert in their hospitalized ward. Sajadian *et al*. in their interventional study showed that nutrition counseling along with other interventions can reduce depression and anxiety in patients with breast cancer (Sajadian *et al.*, 2020). Therefore, paying attention to patients' informational needs should be a priority for nutritionists and health staff in care planning.

According to most participants, their major concerns were facing the complications of disease and lack of access to the reliable informational resource in this regard. They pointed to the necessity of appropriate diet and supplements intake from treatment team. Protiere *et al*. in their qualitative study, raised the issue of information need about treatment models, care places, taking medicine, and diet as the important needs of patients with cancer (Protière *et al.*, 2012).

The third emerged main category in the present study was "Problems due to the consequences of the disease" in oncological ward hospitalized patients. This category has two sub-categories, including "*Disease side-effects*" and " *Chemotherapy side effects*". Although there have been several developments in medical sciences regarding cancer treatment and increasing the survival of these patients, these patients have been suffering from multiple treatment-related clinical signs and complications. Many studies reported the same results in this regard. Ferreira *et al.* showed that loss of appetite, dry mouth, constipation, odor-related vomiting, and nausea, are the main reasons for decline in offered diet acceptance by patients (Ferreira *et al.*, 2013). Inappropriate taste/flavor and low temperature of hospital food, and monotonous food preparation along with lack of appetite lead to a decrease in hospitalized patients' food intake (Ferreira *et al.*, 2013). Other studies have reported other reasons, such as dehydration, imbalance of fluids and electrolytes, malnutrition, mucosal atrophy in gastrointestinal tract, and treatment intolerance (Gangwisch *et al.*, 2015, Kaner *et al.*, 2015). Studies have shown that supportive and curative needs in patients with breast cancer should be met in appropriate time (Shahsavari *et al.*, 2015). This can increase their ability to cope with problems and improve their quality of life. The findings of the present study showed that patients with cancer should have enough information and receive appropriate nutritional and supportive services to deal with disease complications. Regarding the increasing nutritional needs in patients with cancer, medical care team should always consider these needs and try to resolve them.

The current study has some limitations, including: 1) Low cooperation of hospitalized patients because of suffering from disease complications. So, they had little motivation to participate and interview, 2) Patients would not explain some problems because of their concerns of nursing team reactions, 3) Sampling from a public hospital resulted in patients with a certain economic and social levels in the study., and 4) Unequal number of male and female participants (because of unwillingness of male patients to participate and interview).

Conclusion

The findings of the present study based on the patients' viewpoints suggested the necessity of nutrition education for patients at the diagnosis time and from the beginning of treatment. Also, coordination and collaboration of medical, nursing, psychological, and nutrition counseling teams are necessary for the provision of better healthcare services for patients with cancer. Considering the nutritional needs is necessary in healthcare and treatment guidelines of patients with cancer. The results also showed that medical care team should have a comprehensive perception of patients' needs, so, they should have a good communication with patients. Most participants pointed out the "responsiveness" and "communication" factors regarding quality of hospital food and nutritional services provided by nutritionists. Based on the findings, exploring the educational and counseling needs of patients, challenges, barriers, and facilitator factors in supporting and treatment of patients are the consequences of deep understanding

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of experiences and viewpoints of patients with cancer about food and nutrition provision in hospitals. On the other hand, these findings can encourage healthcare officials and policy-makers to develop long-term and evidence based supportive health counseling in patients with cancer.

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Authors' contribution

Haghighian Roudsari A, supervised the conception and design of the study, data interpretation, critical revision of the article. Jabbari M performed data collection, data analysis and interpretation, drafting the article, preparation of the final revision of the article. Taghizadeh-Hesary F. had a role in drafting the article and patient identification. Khoubbin Khoshnazar TA. and Milani-Bonab A involved in drafting the manuscript.

Conflict of interest

The authors declared no conflict of interest.

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