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Nutritional management of cirrhosis patients: A qualitative study exploring perceptions of patients and health workers in Ghana



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SUMMARY

Background and aims: Malnutrition is common among patients with end stage liver disease including liver cirrhosis and liver cancer. Optimal nutrition is important to reduce morbidity and mortality of these patients. There is limited qualitative data on nutritional status and management of chronic liver disease patients. We aimed to explore the knowledge, opinions and practices of cirrhosis patients and health workers in nutritional management of cirrhosis in Ghana, in order to determine whether there is a need to improve nutritional care for cirrhosis patients.

Methods: We conducted a qualitative study using semi-structured interviews of cirrhotic patients (n = 16) and healthcare providers (n = 27) in three academic centers in Accra, Kumasi and Cape Coast (Ghana). Recruitment was by purposive sampling of patients attending specialist liver disease clinics. The recorded data were analyzed using NVivo 11 software, with generation of codes, themes and subthemes. **Results:** The major themes that emerged from the data included nutrition as part of care delivery during the hospital visit, nutritional recommendations, dietary changes and long-term practice improvement. The results showed that patients and health workers felt dietary recommendations for patients were frequently addressed, but could be significantly improved. We found that in the opinion of study participants, local guidelines are important and necessary in nutritional management of cirrhosis patients, and that participants felt it was difficult to change dietary habits following cirrhosis diagnosis.

Conclusions: These results suggest that nutritional management of cirrhosis patients in Ghana requires improvement. Strategies to improve this could include a multi-disciplinary approach to nutritional management, development of local guidelines and continued nutritional assessment, monitoring and follow-up.

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1. Introduction

In 2016, over 1.2 million deaths worldwide were due to cirrhosis of the liver and the disease burden in sub-Saharan Africa remains elevated, in part due to the high prevalence of risk factors such as chronic hepatitis B (HBV) and hepatitis C (HCV) viral infections in the region [1–3]. Global estimates have seen an increasing trend in

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morbidity and mortality from cirrhosis and hepatocellular carcinoma (HCC) [1,4,5]. In Ghana, the burden of both communicable and non-communicable diseases continues to grow, with mortality due to liver disease ranked currently as the 6th most common cause of death [6,7]. Cirrhotic patients can develop complications of the disease such as hepatic encephalopathy, hepatorenal syndrome and malnutrition, which also contribute to increased morbidity and mortality [8]. Malnutrition among cirrhosis patients is often missed as a diagnosis by health professionals, and this leads to an increase in associated complications including ascites, peripheral edema, hypoglycemia and hepatic encephalopathy [9,10].

Malnutrition arises as a result of factors such as reduction in dietary intake, increased energy expenditure and malabsorption. In the nutritional management of cirrhosis patients, recommendations include a caloric intake of at least 35 kcal/kg/day, and protein intake of 1.2–1.5 g/kg/day. For patients with ascites, the recommended intake is 2 g (80 mmol) of sodium or salt restriction to less than 5 g per day [11–13]. There is significant evidence that when nutritional management among cirrhosis patients is optimal, the incidence of complications falls, and patients' prognoses improve [9,11,12,14].

In Ghana, there is a paucity of data on nutritional status and nutritional management of patients with liver cirrhosis [7]. It is important to ascertain the current state of nutritional care of cirrhosis patients by gathering information from both those who receive and those who provide care. Consequently, the knowledge, opinions and practices of health workers who serve as a source of nutrition information for patients, as well as the patients themselves, need to be examined, in order to identify whether nutritional management of cirrhotic patients needs to be improved.

The aim of this study was to explore the experiences and perceptions of cirrhosis patients and health workers in nutritional management of cirrhosis in Ghana, in order to identify whether there is a need for improved nutritional care for cirrhosis patients.

2. Materials and methods

2.1. Ethics approval and consent to participate

The study has been approved by the Ethical Review Boards and Institutional Review Committees of Korle Bu Teaching Hospital, Komfo Anokye Teaching Hospital and Cape Coast Teaching Hospital. Informed consent was obtained from each participant before enrollment.

2.2. Study area and period

This study was conducted at three of the largest teaching hospitals in Ghana; Korle Bu Teaching Hospital in Accra, Komfo Anokye Teaching Hospital, Kumasi and Cape Coast Teaching Hospital, Cape Coast. These hospitals serve as tertiary referral centers for health centers, polyclinics, district and regional hospitals. These three hospitals have consultant gastroenterologists who oversee the running of liver disease clinics and carry out patient consultation. The study was conducted from February 2017 to April 2017.

2.3. Study design

This was a qualitative study in which the perceptions and experiences of liver cirrhosis patients and health workers were explored through the use of semi-structured open-ended questionnaires.

2.4. Study population

Patients diagnosed with liver cirrhosis based on clinical features, laboratory investigations and radiologic findings, who had been receiving care at one of the three teaching hospitals for at least one year, and thus had some knowledge about care received for their condition, were included in this study. Healthcare providers such as doctors (including medical officers and specialists), ward and Out-patient department (OPD) nurses, and dietitians, with at least one year's experience of working with and caring for liver cirrhosis patients were included.

2.5. Sample size and sampling technique

A purposive sampling technique was used to select a total of forty-three (43) participants, comprising sixteen (16) cirrhosis patients and twenty-seven (27) healthcare workers across the three hospitals. The method of saturation was used to determine the sample size, with participant recruitment coming to an end when no new or additional information was obtained from the participants.

2.6. Data collection technique and procedures

Data was collected by the use of an open-ended questionnaire related to care delivery, dietary assessment and dietary changes after diagnosis. All interviews were conducted face to face in English or Twi (a Ghanaian language) by a single, neutral, interviewer across all of the three sites. Each interview was conducted in a quiet room at a time convenient to each participant, whose privacy and comfort was ensured. All the interviews were recorded using a digital recorder. The interviews that were conducted in Twi were transcribed into English and verified by another researcher who also speaks Twi. The interview times ranged from 30 to 40 min. Respondents were asked questions on care delivery, dietary assessment and dietary changes. A field journal was used to keep track of the entire process of data collection as well as record any emerging ideas. Participants were reimbursed for the cost of their travel to and from the hospital.

2.7. Data processing and analysis

Data collection and analysis were done concurrently. Participants were given unique identifiers to ensure anonymity. Interviews were recorded, transcribed and coded. All transcripts were reviewed by a second person to enhance the validity of the results after the interviews had been listened to and the transcripts read twice by the author. The recorded interviews were transcribed verbatim and coded into themes after reading them thoroughly twice to get insight about the responses received and to correct mistakes. Coding was done using NVivo version 11 software (QSR International Pty Ltd, Victoria, Australia) to determine emerging themes and sub-themes from codes and categories. A second researcher separately coded transcripts to determine themes and sub-themes, in order to verify the validity of the coding. Coding was done separately for patients and healthcare workers. Some different codes and categories were generated between the two groups of participants, however, these led to the same themes for both patients and healthcare workers. Analysis of data obtained was based on content analysis as described by Green and Thorogood [15].

3. Results

3.1. Participant characteristics

Out of the twenty-seven (27) healthcare workers recruited, there were relatively more nurses ($n = 16$) interviewed than

doctors (n = 7) and dietitians (n = 3) (Table 1). Both out-patient (hepatology clinic) and ward (general internal medicine) nurses were recruited. All nurses interviewed were general nurses and did not have specialist nursing training. Doctors comprised three specialist gastroenterologists and four medical officers, working in general internal medicine. Patients with both decompensated and compensated cirrhosis, due to causes such as viral hepatitis and alcoholic liver disease were recruited. The majority were Child-Pugh class A and B, with only a few class C patients interviewed due to advanced disease and significant hepatic encephalopathy.

3.2. Nutritional management

Themes relating to perceptions and practices of nutritional management of liver cirrhosis patients that were identified included nutrition as part of care delivery, nutritional recommendations, and dietary changes and follow up practices. Some of the sub-themes included nutritional assessment and nutritional advice, and guidelines (Table 2).

Theme 1. Nutrition as part of care delivery during hospital visits

Sub-theme 1. Assessment of nutritional status

The majority of healthcare workers reported that it was often difficult to perform nutritional status assessment for cirrhosis patients during their visits due to multiple factors, which included insufficient time and logistics. Many reported that the extent of nutritional status assessment involved asking a patient whether they had anorexia (loss of appetite or interest in food) and at times what they were eating. This information was also echoed by patients as well.

"We don't have time to assess it, that is one of our weak points" – Female doctor

"Sometimes [it] comes down to logistics and prioritization. But it is difficult to assess them objectively in our clinic setting." – Male doctor

"For my diet [the doctor] has never asked me before." – Female patient

Sub-theme 2. Referral to a dietitian

There were varying opinions by both healthcare workers and patients on whether referring a patient to a dietitian is part of the

Table 1
Characteristics of healthcare workers and patients.

		Frequency	Percent
Healthcare worker characteristics			
Gender	Male	12	44
	Female	15	56
Profession	Physicians	7	26
	Nurses	16	59
	Dietitians	3	11
	Disease Control Officer	1	4
Years of practice	<10 years	15	56
	≥10 years	12	44
Practice location	KBTH	8	30
	KATH	11	40
	CCTH	8	30
Patient characteristics			
Gender	Male	10	63
	Female	6	38
Age	<50 years	8	50
	≥50 years	8	50
Duration of diagnosis	<5 years	13	81
	≥5 years	3	19
Practice location	KBTH	5	31
	KATH	9	56
	CCTH	2	13

Table 2

Summarized themes and sub-themes of perceptions and experiences of patients and healthcare workers on nutritional management of liver cirrhosis patients in Ghana.

Theme	Sub-theme
Nutrition as part of care delivery during hospital visit	- Nutritional status assessment
	- Referral to a dietitian
Nutritional recommendations	- Nutritional advice
	- Nutritional recommendations and source of recommendations
	- Expectations about dietary advice
Dietary changes and long-term practice improvement	- Adherence to nutritional advice
	- Expectations about improving dietary care

routine practice. Some healthcare workers perceived this as a normal occurrence for cirrhosis patients, whilst some opined that this was not the case, and that there was poor co-ordination between medical professionals especially between doctors and dietitians. Some patients had been referred to a dietitian at least once, whilst others had not since diagnosis.

"I think maybe there's just too little communication between the doctors and the dietitians, we don't engage them, we don't find out what they tell our patients." – Male Doctor

"Newly diagnosed, they are referred to the dietitian the dietitians are always on the ward" – Female nurse

"Yes I have seen a dietitian before" – Male patient

"But as in the hospital per say seeing a dietitian aspect, no." – Female patient

Theme 2. Nutritional recommendations

Sub-theme 1. Nutritional advice

There was a large disparity between patients and healthcare workers with regard to the content of nutritional advice given to patients. Most patients reported that a healthcare provider had given them advice on foods to eat and to avoid at some point during their care. These patients mostly remembered being told to eat less fats, less meat and more vegetables. In comparison, the majority of healthcare providers stated that giving patients dietary advice was part of routine care, and that the nutritional advice given was mostly with regard to increasing protein intake, increasing caloric intake through complex carbohydrates and reducing salt intake.

"Yeah, they tell you not to eat oily food or too much chicken but eat vegetables because those are what will help" – Male Patient

"...there is a myth that they need to starve them of protein but it's not correct and we have to try that they take in more protein for them to build their stores and live a healthy lifestyle." – Female doctor

"We talk about carbohydrate intake, ...food rich in calories a situation where you are experiencing a whole lot of hypoalbuminemia then you have to increase the protein content." – Male nurse

Sub-theme 2. Nutritional guidelines and source of nutritional recommendations

All healthcare providers reported that they did not know of any specific nutritional guidelines for the management of cirrhosis patients. They based nutritional advice for patients on general guidelines related to a balanced diet or knowledge they had acquired during their professional training. Some dietitians mentioned that they gave patients a food chart, however no doctors or nurses reported this as part of their practice.

There aren't any [hospital guidelines] that I know of, this is something that I've picked up over the years for my training. – Male Doctor

"In fact, all our recommendations are based on the Mediterranean and Dutch diets." – Female Dietitian

Some patients mentioned that they had received handouts before, but these were not particularly well explained and they still found it difficult to know what to eat sometimes, whilst a minority of patients mentioned that they relied on friends and family or the internet for their dietary recommendations.

"Once I met some people here and they gave me some chart. But they haven't told me what to eat and what not to eat." – Male Patient

"You will also be eating it until you google to find out it is not good for me with this condition." – Female patient

Theme 3. Dietary changes and long-term practice improvement

Sub-theme 1. Adherence to nutritional advice

Both healthcare workers and patients reported that adherence to nutritional advice was a challenge in the patients' continued care. For patients, it was difficult to change old eating habits, whilst for healthcare workers, it was hard to truly know whether a patient was adhering to advice or not, because there was no objective follow up assessment performed.

"Well since we don't have a monitoring system in place to assess what they are doing, I cannot certainly tell you that they observe those dietary modifications." – Male Nurse

Sub-theme 2. Expectations about improving dietary care

Most patients were of the opinion that healthcare workers ought to do more when it comes to giving them nutritional advice in the management of their condition. Healthcare workers agreed that care ought to be improved, and anticipated that a concerted effort on the management of these patients, involving all members of the multidisciplinary team would greatly advance nutritional care that is provided to patients.

"I want him to tell me that when you eat this food that will increase or decrease the sickness, that is what I always expect but they don't say that." – Male Patient

4. Discussion

The findings of this study demonstrated that both healthcare workers and patients observed challenges that hinder the nutritional management of patients with cirrhosis, some of which include: insufficient time to perform nutritional status assessment and adequately discuss nutritional advice; a lack of local nutritional guidelines for cirrhosis; difficulty adhering to nutritional advice; and lack of monitoring of diet.

A hospital visit for cirrhosis patients was often focused on history taking and physical examination with subsequent prescription of pharmacological therapy. It was evident that healthcare workers identified the importance and necessity of nutritional management from their responses, however an awareness of human resource and logistical challenges was cited as a reason why nutritional assessment, referral to a dietitian and/or adequate discussion about nutrition could not be routinely performed. Human resource deficits

are illustrated through figures that show Ghana to be among countries with the lowest doctor-patient and nurse-patient ratios in the world [16,17]. Studies in other developing countries have identified challenges such as a poor workforce or human resource deficit to be associated with shorter consultation times, which lead to lack of communication between healthcare workers and patients [18,19].

In this study, there was no reportage of specific assessment for malnutrition in managing patients. The European Association for the study of the Liver (EASL) recommends a rapid screening to identify those at risk of malnutrition and subsequently a more detailed nutritional assessment, which should include evaluating dietary intake, muscle mass, and global assessment tools in cirrhosis such as subjective global assessment [13]. It is important to note that existing tools have not been validated among specific populations such as patients from sub-Saharan Africa.

Our results also demonstrated that many patients had not seen a dietitian and there was poor synchrony between dietitians and other healthcare workers with regard to dietary management. EASL guidelines recommend that a dietitian with training and knowledge in the management of patients with liver disease, should work in concert with a hepatology team [13]. This makes better use of human resources and health system organization [20]. With many low- and middle-income countries facing similar challenges in health systems in the face of the growing burden of non-communicable diseases including chronic liver disease, it is important to strategize and develop policies that will improve care, including non-pharmacologic interventions like the adequate nutritional management of patients.

Nonexistent local nutritional guidelines and lack of access to a dietitian were identified by healthcare workers and patients as a barrier preventing appropriate nutritional practices. This is consistent with a study by Murphy et al., which identified similar barriers to adequate nutritional care among patients in low- and middle-income countries [21]. Possible strategies for improving the shortfall in local nutrition guidelines for cirrhosis patients could involve development of dietary education materials with local examples, based on daily macro- and micronutrient requirements for chronic liver disease patients [22].

4.1. Limitations and strengths

One major strength of this study is that it was a multi-centre study involving patients and physicians from three key referral centers for cirrhosis patients in Ghana. It could be postulated that the findings from this study may reflect a similar situation in other sub-Saharan African countries who have a similar disease burden and health system structure. Another strength of this study is that healthcare providers with varying professional backgrounds and years of experience, as well as patients with varying stages of disease enriched the experiences and perceptions obtained, and introduced triangulation into the study, thus increasing rigor [23].

A potential limitation of this study is the small sample size, however the method of saturation was used, therefore recruitment of new participants was terminated when no new information was obtained. Additionally, purposive sampling was used to select participants, which may have created a selection bias. Another limitation is that study data was obtained from public sector hospitals which may have different patient characteristics such as socioeconomic status or different health care services provision.

5. Conclusions

In conclusion, our study can be used to better understand the nutritional management of liver cirrhosis patients. Our findings imply that nutritional care in these patients needs to be improved,

through strategies which include nutritional assessment as part of the routine care of patients with liver cirrhosis, a multidisciplinary approach in the management of such cases and the need to develop guidelines appropriate for the local context to help reduce nutrition related complications and mortality.

Future studies are needed to quantitatively examine nutritional status of cirrhosis patients in Ghana in relation to their health outcomes. Further studies could also examine the impact of improving nutritional management of cirrhotic patients on their health outcomes.

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Statement of authorship

All authors were involved in development and conduction of the study. Authors YAN, MA, JS and AP were responsible for formal analysis and writing the first draft of the manuscript. All authors made significant contributions in revising it, and have all given their approval for the final version.

Conflicts of interest

The authors declare no conflicts of interests.

Author statement

Yvonne Ayerki Nartey: Validation, Formal Analysis, Investigation, Resources, Data Curation, Writing- Original Draft, Writing-Review and Editing, Visualization, Supervision, Project Administration.

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