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International Journal of Nursing Sciences

journal homepage: <http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132>

Original Article

Health practitioner practices and their influence on nutritional intake of hospitalised patients



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ARTICLE INFO

Article history:

Received 5 December 2018

Received in revised form

20 February 2019

Accepted 6 March 2019

Available online 11 March 2019

Keywords:

Cognition

Dietary services

Patients

Personnel, Hospital

Qualitative research

ABSTRACT

Objectives: In the hospital setting, poor dietary intake interacts with disease and represents a major and modifiable cause of malnutrition. Understanding barriers to adequate dietary intake is an important strategy to guide the development of interventions to improve nutrition intake. The aim of this study reported in this paper was to explore patient, family and health care professionals' perceptions of barriers to and enablers of adequate nutrition care and dietary intake of medical inpatients.

Methods: An exploratory qualitative study design incorporating group and individual interviews of patients ($n = 14$), their family members ($n = 4$), and health care professionals ($n = 18$) was undertaken. Participants were recruited pragmatically, using a mix of convenience and purposive sampling. A theoretically informed, semi-structured interview schedule was based on observations of practice and the Theoretical Domains Framework. Interviews were audio-recorded, transcribed verbatim and analysed inductively using a general inductive approach.

Results: Three key themes emerged from analysing participant interviews. Siloed approaches to nutrition care reflected the diverse range of health care professionals responsible for nutrition care but who often worked in isolation from their colleagues. Competing work priorities for nurses reflected the challenge in prioritise nutrition care which was often constrained because of other care needs or work-related pressures. Helping patients to eat highlighted that nurses were often the only health care professional who would provide assistance to patients at mealtimes and lack of available staff could negatively influence patients' nutrition intakes.

Conclusions: We have identified many complex and interrelated barriers which preclude adequate dietary intake in acute medical patients. These predominantly reflect issues inherent in the hospital culture and environment. Multi-faceted and sustainable interventions that support a facilitating nutrition culture and multidisciplinary collaboration, inclusive of patients and families, are needed to address these underlying barriers.

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1. Introduction

Worldwide, malnutrition in hospitalised patients is a significant concern and reported to be between 20% and 50% [1,2]. The association between malnutrition and the increased risk of

complications, poorer clinical outcomes and higher mortality demonstrates the substantial negative impact of malnutrition on patients [3–6]. Malnourished patients are also likely to spend longer in hospital contributing to higher health care costs and increased economic burden [7,8].

Disease states are a major contributor to the development of malnutrition and consequently some patients present to hospital in a malnourished state. Malnutrition can also develop in hospital as a result of decreased protein-calorie intake [9]. Several reports of

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Peer review under responsibility of Chinese Nursing Association.

patients' dietary intake in hospital suggest that the majority of patients eat inadequately to meet their nutritional needs [10–13] and that patients may feel hungry and have difficulty accessing food [14]. A number of complex and interrelated barriers may prevent adequate dietary intake in the acute medical setting, including patient-related factors and aspects of the hospital environment [9] including interruptions and lack of mealtime assistance [15]. The desire to prevent hospital-acquired malnutrition has resulted in a number of strategies being developed to improve dietary intake, such as protected mealtimes [16], feeding assistance and use of oral nutrition supplements. While such strategies hold promise for improving nutrition intake for hospitalised patients, the degree of study heterogeneity and overall low quality of studies available highlights the need for more robust research in this area [16–18]. Further, many studies were not explicit about intervention development and were silent on the extent to which patient and/or family perceptions informed the intervention or implementation strategies.

For interventions aimed at improving nutrition intake to be successful, a clear understanding of the specific issues that influence patients' intakes within a particular context or setting is needed. Patients, as recipients of care, and their families have a personal, first-hand understanding of what helps or hinders them to eat well while they are in hospital, and are important informants on this issue. Hospital staff, who are at the interface of nutrition care, are also well positioned to identify factors that influence nutrition intakes of their patients. The few studies where staff perceptions of nutrition in hospital have been investigated have identified insufficient knowledge, poor communication, lack of role clarity, inadequate assistance with meals, poor prioritization and competing tasks, and the hospital food service as key factors that impact patients' nutrition intake [19–22]. Given that hospital staff are the main providers of nutrition care to patients, their perspectives should be considered when planning nutritional interventions.

To add to this body of literature we have, as an interdisciplinary health professional group, used an integrated knowledge translation approach [23] to bring together clinicians and researchers who partnered with consumers to develop and evaluate an intervention to improve nutrition intake for adults medical inpatients. The study, PARTnerships to improve nutrition in hospitalised PATients (PARTICIPATE), was designed to emphasise the importance of clinical and research partnerships in developing change interventions and was conducted using a patient and family centred approach [24]. As part of this study we explored patient, family and health professional's perceptions of barriers to and enablers of adequate nutrition care and dietary intake of medical inpatients. The purpose of collecting these data was to inform development of an intervention to improve nutrition intake in hospitalised medical patients.

2. Methods

2.1. Study design

Within a larger, mixed-methods study, an exploratory qualitative approach was used to investigate patient, family and health professionals' perceptions of factors that help or hinder adequate nutrition intake among acutely ill medical patients.

2.2. Setting

The study was conducted in a 28-bed inpatient Acute Medical Unit in a tertiary public hospital in Southeast Queensland, Australia. This ward provides care for patients presenting with general

medical conditions, the most common of which were functional/musculoskeletal disorders, respiratory conditions and infection. The average length of stay on this ward was five days and the nurse to patient ratio ranged from 1:5 to 1:6 during the data collection period.

2.3. Participants

The study sample consisted of patients, family members and hospital staff who agreed to participate in an interview and met the eligibility criteria. Patients, and their adult family members, were eligible to participate if they were: (a) ≥ 18 years of age, (b) able to take food or fluids orally and (c) able to communicate in English (verbally and in writing). We did not include patients who were: (a) not expected to survive the 48 h from recruitment or were not eligible for full aggressive care; or (b) admitted with a diagnosis or history of an eating disorder. Staff were eligible to participate if they were (a) a registered or enrolled nurse, doctor, dietitian, nutrition assistant or allied health clinician providing patient care in the Acute Medical Unit or (b) food service staff providing meals to patients in the Acute Medical Unit. Participants were recruited pragmatically, using a mix of convenience and purposive sampling with potential participants identified to the research team by the nursing leader on the ward. We anticipated interviewing at least 30 key informants representing patients and their families ($n = 15$), nurses ($n = 5$), physicians ($n = 3$), allied health ($n = 5$), and food service staff ($n = 2$) as our previous experience suggested this would be sufficient to achieve data saturation [25–27].

2.4. Tool development and piloting

A semi-structured interview guide was used to explore participants' perception of factors that helped and hindered adequate nutrition intake for patients admitted to the Acute Medical Unit. Questions were both data and theory informed. Findings from preliminary nutrition audit data, previous literature [19–21] and the Theoretical Domains Framework [28,29] were used to help frame development of the interview guide. The Theoretical Domains Framework provides a synthesis of 33 theories of behaviour and behaviour change clustered into 14 domains [28] to provide a theoretical lens through which to view the cognitive, affective, social and environmental influences on behaviour. Questions were structured around the domains most frequently identified as areas of concern in our initial research (Supplementary Material 1 and 2). Prior to undertaking the interviews, we tested the interview questions with a representative group of health care consumer volunteers ($n = 3$) and health professionals ($n = 3$) who were not associated with the study ward. Only minor changes were suggested to the wording of questions.

2.5. Data collection

Individual interviews were conducted with family members of patients where the patient was present but unable to participate, for example where patients may have had decreased cognition. For nurses, a homogenous focus group were chosen to allow for social interaction and to avoid the potential for multi-disciplinary judgement [30]. Individual interviews were conducted with the doctor, dietitian, speech pathologist and food service staff member. All interviews were conducted in a quiet room at a time of mutual convenience by trained interviewers. The interviewer took a mutual and unobtrusive role to create an environment that was conducive to open discussion. A funnel strategy was employed in all interviews to allow open engagement in discussion, by starting with broader questions then narrowing down to specific areas of

nutrition care [31]. Responses from participants guided the discussion and the order of questions was adjusted to accommodate topics raised. Iterative questioning and probes were used to obtain comprehensive data with the intention of enhancing data credibility [32]. Data saturation continued until no new ideas were emerging from the literature. Average duration of interviews varied; individual patient and/or family interviews (10 min); focus groups with nurses (55 min); and, individual health professional interviews (30 min). All interviews were audio-recorded and transcribed verbatim for analysis.

2.6. Data analysis

Data were analysed using a general inductive approach as described by Thomas [33]. Data analysis began through familiarisation, including data immersion and noting key concepts in transcript margins in order to develop an overall understanding of the data [34]. Codes were developed based on verbatim statements from participants and these were grouped into sub-themes and themes with a code-recode approach used to increase dependability of the analysis [32].

A number of different strategies were used to promote study rigor [35]. Prior to planned data collection the interview guide was tested and further refined based on feedback obtained during the pilot testing. Participant triangulation where we included perspectives of a range of health professionals, patients and family members was used to help establish data credibility [32]. Reflexivity was used during data analysis to ensure confirmability where the individual experience did not significantly influence generation of findings. Several researchers contributed to the data collection and analysis and were from nursing and dietetics backgrounds. An audit of the data analysis conducted by TT, AM and LG was undertaken by SR and LW and team discussions helped to confirm aspects of the study findings.

2.7. Ethics

The study was approved by the local health service Human Research Ethics Committee (HREC/15/QGC/37) and was ratified by the University Ethics Committee (NRS/22/14/HREC). All participants provided informed consent.

3. Results

3.1. Participant characteristics

In total we conducted interviews with 36 participants including patient ($n = 14$), family members ($n = 4$) and staff ($n = 18$) on the Acute Medical Unit. The majority of patient participants were female ($n = 11$; 78.6%) and their age was (67.9 ± 20.5) years. Family participants comprised one man and three women who were either a spouse or child of a patient. Staff interview participants included nurses ($n = 10$), a dietitian ($n = 1$), speech pathologist ($n = 1$) and nutrition assistant ($n = 1$), food service staff ($n = 4$) and physician ($n = 1$) (Tables 1 and 2).

3.2. Patient and family perceptions of nutrition

While data were collected from patients and family members as well as a range of hospital staff, the majority and greatest diversity of data came from the latter. Data from patients and families was brief and tended to focus on the quality and choice of the food, food preferences, and their desire to maintain usual eating habits while in hospital. Most patients expressed satisfaction with the meals provided to them while in hospital. However, several patient

participants also described how their illness impacted eating, citing issues such as difficulty swallowing, constipation, nausea, and diarrhoea as affecting dietary intake. Similarly, disease processes were highlighted as influencing intake, with patients identifying the need to eat in a particular way as part of their disease management (i.e. in the case of diabetes) or because health issues made chewing and swallowing difficult.

Health care professionals clearly articulated the importance of nutrition in the patients' recovery process and how optimal nutrition helps the patient to "get better as quickly as possible" (Participant 6 - Dietitian). Preventing complications through optimal nutrition was also emphasised especially for "some of the older patients who decondition really quickly" (Participant 6 - Dietitian) with dehydration and confusion highlighted as possible consequences of reduced dietary intake.

Dietary intake assessment was important for some patients, particularly those with decreased appetite or obvious weight loss. However, the accuracy of the information provided on food charts was limited because nurses described only being able to do "as much as we can [to] keep an eye on it". (Participant 2, Registered Nurse) The nutrition assistant, whose role it was specific to providing nutrition care, could be more comprehensive in his/her assessment of nutrition intake as described:

"I do regular meal audits and if I notice a pattern of a patient not eating well, I would try to figure out why they're not eating well, is it because of the food, is it because of they're just generally unwell and they don't feel like eating at all, yeah based on what I find out I try to put something in place."(Participant 5, Nutrition Assistant)

Assessment of nutrition risk was acknowledged as important however variability in assessment was evident and included formal approaches, such as use of the Malnutrition Screening Tool [36], to a more general visual assessment of the patient. As one nurse described:

"I think visual. You look at them and you can tell, would be my first thing. Because it's obvious they're nutritionally challenged ...So looking at your patient and looking how emaciated they are or how obese they are, or poor healing, or anything. So, it's pretty much all visual." (Participant 9, Registered Nurse)

3.3. Health care professionals perceptions of nutrition

While assessment of nutrition intake and nutrition risk were considered important, it was acknowledged that providing optimal nutrition care was often difficult. Hospital staff and health professional participants identified a number of factors that were likely to influence patients' dietary intake and the provision of nutrition care, expressed in three themes: 1) siloed approaches to nutrition care; 2) competing priorities; and 3) helping patients to eat.

3.3.1. Siloed approaches to nutrition care

Across the range of health professions, nurses were identified as the ones who had primary responsibility for supporting dietary intake of patients. Their responsibilities were considered to encompass updating diet codes to ensure delivery of the correct meal, sourcing meals outside of scheduled mealtimes, preparing patients for meals and providing support to patients who could not feed themselves. Other health professionals were described as having quite specific responsibilities. The dietitian was considered responsible for dietary prescription, the speech pathologist for recommending texture modifications where necessary, nutrition

Table 1The characteristics of staff participant ($n = 18$).

Role	Discipline	Individual interviews	Group interviews
Registered nurse	Nursing	2	3
Nursing unit manager	Nursing	1	0
Enrolled nurse	Nursing	0	2
Student nurse	Nursing	0	2
Speech pathologist	Allied Health	1	0
Food service staff	Allied Health	0	4
Nutrition assistant	Allied Health	1	0
Clinical dietitian	Allied Health	1	0
Resident physician	Medicine	1	0

Table 2The characteristics of patients and family participants ($n = 18$).

Participant ID	Age	Gender	Relationship
Patients			
1	32	F	—
2	63	F	—
3	87	M	—
4	25	F	—
5	38	F	—
6	74	F	—
7	81	F	—
8	71	F	—
9	85	F	—
10	83	F	—
11	36	F	—
12	87	M	—
13	74	M	—
14	71	F	—
Family participants			
1	80	M	Husband
2	84	F	Daughter
3	73	F	Wife
4	78	F	Daughter

assistants for supporting the dietitian, and food service staff for ensuring meals were delivered to patients. There was little mention by nursing and allied health professionals of the role physicians played in optimising nutrition. Likewise, the one physician participant did not see nutrition care as a core component of the therapeutic interventions within their responsibility.

While most members of the healthcare team were seen to have a clear role in nutrition care, how this was enacted differed and the provision of nutrition care by different health professionals often happened in an isolated manner with health professionals working concurrently but not necessarily collaboratively. Across the health care team there was an understanding that each member had a role to play in supporting nutritional care yet a shared understanding of the different roles played by various health professionals was lacking. While some viewed roles as being complementary and collaborative, others perceived a divide in working practices with some reporting minimal interaction with other health professionals in the delivery of nutritional care.

Mealtime assistance is one such example where roles differed and were enacted individually rather than in a coordinated fashion. Most food service staff (Participants 15, 16, 17) described their responsibility as placing meals within patients' reach and ensuring the accuracy of meals delivered to patients. Nurses were seen, by themselves and others, as being responsible for coordinating patient meal set-up and providing assistance with eating. The dietitian (Participant 6) and speech pathologist (Participant 4) did not have direct roles in terms of mealtime assistance but influenced nutrition prescription to ensure optimal and safe nutrition intake. The role of the dietitian was seen to focus predominantly on

nutrition management and intervention (Participant 6). Two participants illustrate this understanding:

"... on the plating line we check diets, we monitor what meals they get and make sure that everyone gets the right diet according to the menu ..." (Participant 16, Food Service Staff)

"... my role is to make sure that whatever nutrition and dietitians are recommending that I can ensure that the patient is meeting that, but through safe ways, which is safe consistencies be it fluids or foods." (Participant 4, Speech Pathologist)

However, a shared understanding of professional roles and responsibilities for nutrition care tasks was not evident. For example, participants' views differed on whose responsibility it was to ensure patients had access to their meals, that is, tray placement and assistance with opening packages. Some considered food service staff to have the responsibility to *"make sure they [the patient] can reach their food"* (Participant 16, Food Service Staff) while others saw this as primarily a nursing role.

There was also a lack of consensus about who was responsible for delivery of missed or extra meals to patients. Nurse participants described experiencing resistance from kitchen staff to deliver extra meals when patients missed a meal while the kitchen staff considered the retrieval of extra meals to be a nursing responsibility. The reluctance to take responsibility for the provision of these extra meals was related to the high patient care workload experienced by nurses on the ward and the perception by food service staff that they faced operational time constraints that prevented them from leaving the kitchen to deliver additional meals. Some participants were aware of these isolated and divided working practices, as one participant explained:

"The nurses don't have time to run down and get a meal from the kitchen, and the kitchen don't have time... the nursing staff are ... going out of their way to try and get something that the patient will eat, but then it's really difficult for the kitchen to be able to provide things, past a certain time." (Participant 6, Dietitian)

Although a coordinated approach to nutrition care appeared lacking, communication about aspects of nutrition care occurred in a variety of spaces and formats, mostly reflecting communication dyads or information sharing between two individuals. For example, nurse participants described *"... tell[ing] the doctors or the dietitians"* (Participant 8, Nurse) if they were concerned about a patient's nutrition status. Similarly, allied health participants described opportunistically communicating with medical staff, *"... if I see the doctors on rounds"* and with nurses *"about my assessments"* (Participant 4, Speech Pathologist). However, despite clear descriptions about communication between health professionals there were fewer examples of multidisciplinary focused communication about how to optimise nutrition care.

3.3.2. Competing work priorities for nurses

Competing priorities at patient meal times were described by many participants to be barriers to patients receiving optimal nutritional care. Incorporating nutrition care into daily work was described as an issue which primarily affected nurses, who described being constrained in practice by a range of factors including time, staffing profiles, and the general busyness of the ward environment.

Perceived lack of time was reported by participants to be a significant barrier to prioritising nutrition. Nearly all participants perceived that nurses lacked sufficient time to feed patients with the nurse-to-patient ratio considered the most significant time barrier ensuring patients nutritional care was delivered. As one nurse participant explained:

“...because our nurse ratio is 1:6 – one nurse to six patients – and you can have three to four patients that are full feeds, full assists. So, it is very time constraining.” (Participant 3, Registered Nurse)

Nurses explained that nutrition was often compromised by other ward-related activities occurring simultaneously that required competing attention and that these other activities were prioritised over nutrition care which *“takes a back seat to everything else that nurses have to do”* (Participant 5, Nutrition Assistant). Examples of competing activities included assessing and managing seriously ill patients; administration of medications and therapeutic treatments; and, providing hands-on assistance for patient activities of daily living.

“If it's a really busy shift, then I just can't get there. You try to ask if anyone else can help but sometimes it just doesn't happen. And that's not the best. You know, you feel really bad when someone's like 'I haven't had anything to eat'. But yeah, there's always things going on, there's observations [sic], there's sick people there's you know – there is a lot going on here all the time.” (Participant 2, Registered Nurse)

This same participant went on to describe strategies used to try and facilitate nutrition care explaining that she would try and incorporate nutrition care alongside other patient care responsibilities where she would *“try to feed them and giving them medications at the same time”*. However, nutrition was not perceived to universally be a care priority at the ward level.

3.3.3. Helping patients to eat

Assisting patients to be fed was considered a nursing responsibility and while many nurses described seeking assistance from other nursing colleagues to assist with eating, they also recognised that there were times when meals would go cold and patients' trays would be collected before the patients could be fed:

“...making sure that their [the patient] trays don't get taken, that's one of the biggest issues is their trays get taken, you know, if you are stuck with one patient that is difficult, and another patient needs assistance but they come and take the trays away before they ask.” (Participant 3, Registered Nurse)

Nurses were the only participants who described assisting with nutrition intake at mealtimes. Allied health participants reported staying away from the ward at busy meal times unless a patient needed to be seen: *“I certainly don't do rounds, unless I want to actually see a particular patient around lunchtime”* (Participant 4, Speech Pathologist).

Families were, however, considered an important resource in

supporting adequate nutrition intake. Families could bring in the patient's favourite foods (Participant 1, Registered Nurse) and were considered to have an *“important role”* in encouraging and motivating patients to eat (Participant 2, Registered Nurse; Participant 6, Dietitian). If patients were assessed as being able to meet nutritional requirements in *“a safe way”* (Participant 4, Speech Pathologist), that is, patients had *“a safe swallow, they're not at risk of aspirating”* (Participant 2, Registered Nurse), then encouraging families to *“assist patients to eat”* (Participant 10, Nurse) was considered appropriate. Nevertheless, it was recognised that some family members did not wish to assist their relative to eat or that some patients did not have families to provide this type of support (Participant 3, Registered Nurse).

4. Discussion

This study explored the perceptions of hospital staff (health care and support/service staff), as well as patients and families, around providing adequate nutrition to acute medical patients. The inclusion of patients and their family members as participants in this research was important to ensure their perspectives of nutrition care informed our understanding of what factors might help or hinder adequate nutrition intake for acutely ill medical patients. This approach aligns with an international movement towards increased patient and family involvement in participating in care [37] and informing health care practices. Patient-centredness has been highlighted as being important, but challenging, to enact at mealtimes [38] consequently it was important for us to understand the views of patients and their family members in relation to the provision of adequate nutrition to hospitalised patients. While we were able to obtain data from 14 patients and 4 relatives, the depth of data was insufficient to develop a comprehensive understanding of the issues from their perspectives.

Whilst staff conveyed there was a multidisciplinary approach to nutrition care, in that they recognised their own and others' roles in nutrition care delivery and demonstrated effective communication between health professionals, these roles were disconnected and a collaborative approach to nutrition care was lacking. These findings are not dissimilar to those reported by others who have described the impact of mealtime roles, teamwork and effective communication as being necessary for the delivery of high quality nutrition care [39]. Although there were numerous strategies enacted across the continuum of care to facilitate nutritional care, it was apparent that staff tended to focus on their own discipline-specific tasks and did not demonstrate ways in which they worked together to manage issues and optimise nutrition intake. It is possible that staff may not have recognised the importance of collaboration and the value in a team approach to providing comprehensive nutrition care. Fragmentation of nutrition care has been previously acknowledged as an issue and it has been identified that health care professionals work in silos, focusing primarily on their own roles and responsibilities [21,40]. A coordinated and complementary approach to nutrition care needs to occur alongside hospital-wide leadership [21] and within a culture where all stakeholders (patients, family, staff) value the importance of nutrition [40].

A poor understanding of responsibility for certain roles could contribute to this apparent lack of teamwork [21]. Whilst participants in this study mostly had a shared understanding of the roles and responsibilities of different team members in patients' nutrition, role overlap or lack of role clarity was also evident. Role ambiguity, particularly between nursing and foodservice staff, may have contributed to tray placement, meal set up and assistance being overlooked and resulting in the patient not receiving his/her meal. Shifts in nursing roles over years (i.e. nurses were previously accountable for meal delivery but this role is now usually

performed by food service staff) may have contributed to the role ambiguity where distinction between nursing and foodservice mealtime tasks became difficult [41,42]. Confusion around the definition and assignment of nutrition-related tasks [19,21,43,44] and role diffusion, whereby the role of each clinical profession in nutritional care is poorly defined and consequently not fulfilled have been previously reported [21,42] and highlights the importance of clearly defining roles in multidisciplinary nutrition care.

Participants expressed mixed views on the role that doctors played and it was not perceived that they incorporated nutrition as a serious part of patients' treatment. The physician's comments suggested that nutrition care was not central to the patients' medical management. However, staff intimated that doctors were held in high esteem by patients and that patients would readily take on advice provided by the medical team. The lack of engagement in nutrition care by medical staff could represent a missed opportunity to influence and encourage patients to optimise their nutritional intake. Previous studies have shown that physicians have substantial potential to influence patients' intakes through active engagement and attitudes around nutrition [45,46]. This highlights the need to utilise physicians as nutrition leaders or champions who can advocate for and enforce a collaborated nutrition care approach. For this to be effective, physicians need to view nutrition as important for patient recovery, however this may be challenging given the limited nutrition education currently delivered as part of medical training [47].

5. Limitations

Interview data from a range of health professionals, patients and their families are a strength of this work. We used a pragmatic approach to participant recruitment with potential participants identified to the research team by the nursing leader on the ward. While the nurse leaders identified participants according to our a priori defined inclusion and exclusion criteria, we acknowledge that this approach could potentially introduce some selection bias. However, while eliciting the perspectives of patients and their family members we were unable to achieve a richness in these data, as we would have hoped. It is possible that interviewing patients or family after the episode of acute illness has subsided might be preferable and enable more time to be spent during the interview to obtain more comprehensive data [48]. Nevertheless, what data we obtained illustrated the importance of considering patient preferences, nutrition impacting symptoms and disease-related issues when providing nutrition care. Using these data to inform intervention development is essential with intervention development done in consultation to ensure patient-related issues are addressed [49]. We also had limited input from physicians, with only one agreeing to be interviewed which did not allow for a comprehensive representation of views from this professional group to be obtained.

6. Conclusion

A number of factors can influence optimisation of nutrition care for acutely ill medical patients. An organisation that values nutrition care and leaders who advocate for a multidisciplinary approach to nutrition care is an important step in developing a consistent, collaborative and effective approach to improving nutrition intakes of patients while they are in hospital. Role clarity and appropriate resources are also essential to enacting nutrition care strategies designed to optimise nutrition intakes. To provide optimal nutrition to patients, each member of the multidisciplinary team should play an active role, which is clearly defined, in nutrition care and promote engagement with patients and families in

optimising nutrition care.

Conflicts of interest

The authors have no conflicts of interest to declare.

Funding

This work was generously funded through the Private Practice Trust Fund at Gold Coast Hospital and Health Service.

Acknowledgements

The authors would like to acknowledge the contribution of the nursing and allied health staff in the Acute Medical Unit at Robina Hospital. We also acknowledge the contributions of patients and families to this work. We acknowledge the contributions of Ms Heidi Neil who providing valuable assistance with this research.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijnss.2019.03.008>.

References

- [1] Barker LA, Gout BS, Crowe TC. Hospital malnutrition: prevalence, identification and impact on patients and the healthcare system. *Int J Environ Res Public Health* 2011;8(2):514–27.
- [2] Agarwal E, Ferguson M, Banks M, Bauer J, Capra S, Isenring E. Nutritional status and dietary intake of acute care patients: results from the Nutrition Care Day Survey 2010. *Clin Nutr* 2012;31(1):41–7.
- [3] Lim SL, Ong KCB, Chan YH, Loke WC, Ferguson M, Daniels L. Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality. *Clin Nutr* 2012;31(3):345–50.
- [4] Neyens J, Halfens R, Spreeuwenberg M, Meijers J, Luiking Y, Verlaan G, et al. Malnutrition is associated with an increased risk of falls and impaired activity in elderly patients in Dutch residential long-term care (LTC): a cross-sectional study. *Arch Gerontol Geriatr* 2013;56(1):265–9.
- [5] Charlton KE, Batterham MJ, Bowden S, Ghosh A, Caldwell K, Barone L, et al. A high prevalence of malnutrition in acute geriatric patients predicts adverse clinical outcomes and mortality within 12 months. *ESPEN J* 2013;8(3):e120–5.
- [6] Agarwal E, Ferguson M, Banks M, Batterham M, Bauer J, Capra S, et al. Malnutrition and poor food intake are associated with prolonged hospital stay, frequent readmissions, and greater in-hospital mortality: results from the Nutrition Care Day Survey 2010. *Clin Nutr* 2013;32(5):737–45.
- [7] Agarwal E, Ferguson M, Banks M, Batterham M, Bauer J, Capra S, et al. Malnutrition and poor food intake are associated with prolonged hospital stay, frequent readmissions, and greater in-hospital mortality: results from the Nutrition Care Day Survey 2010. *Clin Nutr* 2013;32(5):737–45.
- [8] Lim SL, Ong KC, Chan YH, Loke WC, Ferguson M, Daniels L. Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality. *Clin Nutr* 2012;31(3):345–50.
- [9] Stratton RJ, Green CJ, Elia M. Disease-related malnutrition: an evidence-based approach to treatment. Wallingford, UK: CAB International; 2003.
- [10] Chapple LS, Deane AM, Heyland DK, Lange K, Kranz AJ, Williams LT, et al. Energy and protein deficits throughout hospitalization in patients admitted with a traumatic brain injury. *Clin Nutr* 2016;35(6):1315–22.
- [11] Thibault R, Chikhi M, Clerc A, Darmon P, Chopard P, Genton L, et al. Assessment of food intake in hospitalised patients: a 10-year comparative study of a prospective hospital survey. *Clin Nutr* 2011;30(3):289–96.
- [12] Roberts S, Chaboyer W, Leveritt M, Banks M, Desbrow B. Nutritional intakes of patients at risk of pressure ulcers in the clinical setting. *Nutrition* 2014;30(7–8):841–6.
- [13] Mudge AM, Ross LJ, Young AM, Isenring EA, Banks MD. Helping understand nutritional gaps in the elderly (HUNGER): a prospective study of patient factors associated with inadequate nutritional intake in older medical inpatients. *Clin Nutr* 2011;30(3):320–5.
- [14] Naithani S, Whelan K, Thomas J, Gulliford MC, Morgan M. Hospital inpatients' experiences of access to food: a qualitative interview and observational study. *Health Expect* 2008;11(3):294–303.
- [15] Xia C, McCutcheon H. Mealtimes in hospital—who does what? *J Clin Nurs* 2006;15(10):1221–7.
- [16] Porter J, Ottrey E, Huggins CE. Protected Mealtimes in hospitals and nutritional intake: systematic review and meta-analyses. *Int J Nurs Stud* 2017;65: 62–9.
- [17] Edwards D, Carrier J, Hopkinson J. Assistance at mealtimes in hospital settings

- and rehabilitation units for patients (>65 years) from the perspective of patients, families and healthcare professionals: a mixed methods systematic review. *Int J Nurs Stud* 2017;69:100–18.
- [18] Porter J, Haines TP, Truby H. The efficacy of Protected Mealtimes in hospitalised patients: a stepped wedge cluster randomised controlled trial. *BMC Med* 2017;15(1):25.
 - [19] Duerksen DR, Keller HH, Vesnaver E, Laporte M, Jeejeebhoy K, Payette H, et al. Nurses' perceptions regarding the prevalence, detection, and causes of malnutrition in Canadian hospitals: results of a Canadian malnutrition task force survey. *J Parenter Enteral Nutr* 2016;40(1):100–6.
 - [20] Keller H, Vesnaver E, Davidson B, Allard J, Laporte M, Bernier P, et al. Providing quality nutrition care in acute care hospitals: perspectives of nutrition care personnel. *J Hum Nutr Diet* 2014;27(2):192–202.
 - [21] Ross LJ, Mudge AM, Young AM, Banks M. Everyone's problem but nobody's job: staff perceptions and explanations for poor nutritional intake in older medical patients. *Nutr Diet* 2011;68(1):41–6.
 - [22] Chapple LA, Chapman M, Shalit N, Udy A, Deane A, Williams L. Barriers to nutrition intervention for patients with a traumatic brain injury: views and attitudes of medical and nursing practitioners in the acute care setting. *JPEN - J Parenter Enter Nutr* 2018;42(2):318–26.
 - [23] Kothari A, Wathen CN. A critical second look at integrated knowledge translation. *Health Policy* 2013;109(2):187–91.
 - [24] Harrison J, Frampton S. Patient and family engagement in research in Era 3. *J Am Coll Radiol* 2016;13(12 Pt B):1622–4.
 - [25] Marshall AP, Lemieux M, Dhaliwal R, Seyler H, MacEachern KN, Heyland DK. Novel, family-centered intervention to improve nutrition in patients recovering from critical illness: a feasibility study. *Nutr Clin Pract* 2017;32(3):392–9.
 - [26] Marshall AP, Wake E, Weisbrodt L, Dhaliwal R, Spencer A, Heyland DK. A multi-faceted, family-centred nutrition intervention to optimise nutrition intake of critically ill patients: the OPTICS feasibility study. *Aust Crit Care* 2016;29(2):68–76.
 - [27] Roberts S, Marshall A, Chaboyer W. Hospital staffs' perceptions of an electronic program to engage patients in nutrition care at the bedside: a qualitative study. *BMC Med Inf Decis Mak* 2017;17(1):105.
 - [28] Cane J, O'Connor D, Michie S. Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implement Sci* 2012;7(1):37.
 - [29] Michie S, Johnston M, Abraham C, Lawton R, Parker D, Walker A. Making psychological theory useful for implementing evidence based practice: a consensus approach. *Qual Saf Health Care* 2005;14(1):26–33.
 - [30] Cyr J. The pitfalls and promise of focus groups as a data collection method. *Socio Methods Res* 2016;45(2):231–59.
 - [31] Morgan DL. Planning and research design for focus groups. In: *Focus groups as qualitative research*, vol. 16. Thousand Oaks, CA: Sage; 1997.
 - [32] Shenton AK. Strategies for ensuring trustworthiness in qualitative research projects. *Educ Inf* 2004;22:63–75.
 - [33] Thomas DR. A general inductive approach for analyzing qualitative evaluation data. *Am J Eval* 2006;27(2):237–46.
 - [34] Pope C, Ziebland S, Mays N. Qualitative research in health care: analysing qualitative data. *BMJ Br Med J* 2000;320(7227):114.
 - [35] Krefling L. Rigor in qualitative research: the assessment of trustworthiness. *Am J Occup Ther* 1991;45:214–22.
 - [36] Ferguson M, Capra S, Bauer J, Banks M. Development of a valid and reliable malnutrition screening tool for adult acute hospital patients. *Nutrition* 1999;15(6):458–64.
 - [37] Huber M, van Vliet M, Giezenberg M, Winkens B, Heerkens Y, Dagnelie PC, et al. Towards a 'patient-centred' operationalisation of the new dynamic concept of health: a mixed methods study. *BMJ Open* 2016;6(1). e010091.
 - [38] Ottrey E, Porter J, Huggins CE, Palermo C. "Meal realities" – an ethnographic exploration of hospital mealtime environment and practice. *J Adv Nurs* 2018;74(3):603–13.
 - [39] Ottrey E, Porter J, Huggins CE, Palermo C. Ward culture and staff relationships at hospital mealtimes in Australia: an ethnographic account. *Nurs Health Sci* 2018.
 - [40] Tappenden KA, Quatrara B, Parkhurst ML, Malone AM, Fanjiang G, Ziegler TR. Critical role of nutrition in improving quality of care: an interdisciplinary call to action to address adult hospital malnutrition. *J Acad Nutr Diet* 2013;113(9):1219–37.
 - [41] Kowanko I. The role of the nurse in food service: a literature review and recommendations. *Int J Nurs Pract* 1997;3(2):73–8.
 - [42] Jefferies D, Johnson M, Ravens J. Nurturing and nourishing: the nurses' role in nutritional care. *J Clin Nurs* 2011;20(3–4):317–30.
 - [43] Duerksen DR, Keller HH, Vesnaver E, Allard JP, Bernier P, Gramlich L, et al. Physicians' perceptions regarding the detection and management of malnutrition in Canadian hospitals: results of a Canadian malnutrition task force survey. *J Parenter Enteral Nutr* 2015;39(4):410–7.
 - [44] Lindorff-Larsen K, Hojgaard Rasmussen H, Kondrup J, Staun M, Ladefoged K. Management and perception of hospital undernutrition—a positive change among Danish doctors and nurses. *Clin Nutr* 2007;26(3):371–8.
 - [45] Holst M, Rasmussen HH, Laursen BS. Can the patient perspective contribute to quality of nutritional care? *Scand J Caring Sci* 2011;25(1):176–84.
 - [46] Kreuter MW, Chheda SG, Bull FC. How does physician advice influence patient behavior? Evidence for a priming effect. *Arch Fam Med* 2000;9(5):426–33.
 - [47] Devries S, Dalen JE, Eisenberg DM, Maizes V, Ornish D, Prasad A, et al. A deficiency of nutrition education in medical training. *Am J Med* 2014;127(9):804–6.
 - [48] Given LM. Rich data. In: Given LM, editor. *The SAGE encyclopedia of qualitative research methods*. vols. 1–0. Thousand Oaks, CA: SAGE Publications; 2008.
 - [49] Pulvirenti M, McMillan J, Lawn S. Empowerment, patient centred care and self-management. *Health Expect* 2014;17(3):303–10.