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Title

“Meal realities” – An ethnographic exploration of hospital mealtime environment and practice

Running head

“Meal realities” in hospital

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Conflicts of interest

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ABSTRACT

Aim

To explore and understand patterns of mealtime culture, environment and social practice from the perspective of staff, volunteers and visitors on the hospital ward.

Background

Inadequate food intake is a common and complex problem in hospital and can lead to malnutrition. Mealtime interventions have been implemented to address this problem with limited success. A better understanding of mealtime environment and practice is needed to ascertain which interventions are more likely to be effective in addressing inadequate food intake in hospital.

Design

A qualitative, ethnographic approach was used to promote a comprehensive understanding of mealtime environment and practice.

Methods

Sixty-seven hours of fieldwork was conducted August-October 2015. More than 150 participants were observed and 61 unique participants were interviewed in 75 interviews. Data analysis followed an inductive, thematic approach, informed by systems and complexity theory.

Findings

Themes of “patient centredness” and “system” and their disharmonious interrelationship emerged. Staff, volunteers and visitors strive for patient centredness at mealtimes. The routine and structured nature of the meal and care systems was constantly in tension with providing patients the care they needed.

Conclusion

The findings of this study expose the challenges associated with maintaining patient centredness at mealtimes in complex healthcare and foodservice systems. This facilitates a better understanding of why inadequate food intake is difficult to address in the hospital setting and highlights the need to support strategies that approach foodservice processes and nutritional care as complex and non-linear.

KEYWORDS

Culture, food services, hospitals, nursing, meals, qualitative research

SUMMARY STATEMENT

Why is this research/review needed?

- Mealtime interventions have had limited success in improving patients’ food intake and nutritional status in hospital.
- Mealtime environment and practice has not been comprehensively explored in hospital.

- Identifying the challenges experienced by staff, volunteers and visitors at mealtimes may support innovation in nutritional care.

What are the key findings?

- This paper provides a comprehensive description and understanding of the factors that influence mealtimes in hospital, conceptualized by a mealtime complexity model.
- The findings expose the challenges that staff, volunteers and visitors face when maintaining patient centredness in complex healthcare and foodservice systems.

How should the findings be used to influence policy/practice/research/education?

- This paper provides new knowledge of the tension between patient centredness and system, as experienced by staff, volunteers and visitors.
- The findings highlight the need to move away from strategies that approach foodservice processes and nutritional care as complicated and linear in hospital.
- The mealtime complexity model provides a valuable resource for clinicians, researchers and organisations to inform new approaches that address inadequate food intake in hospital.

INTRODUCTION

Eating is a normal and familiar activity essential to sustaining life and maintaining health and wellbeing. Nourishment also promotes healing and recovery of hospitalized people. Patients value hospital food and its provision (Johns, Hartwell, & Morgan, 2010; Stanga *et al.*, 2003), yet inadequate food intake is a common and complex problem in hospitals globally (Agarwal *et al.*, 2013; Dupertuis *et al.*, 2003; Hiesmayr *et al.*, 2009). Research has identified individual, organizational and environmental factors that can have an impact on nutritional intake (Collins, Huggins, Porter, & Palermo, 2017; Kondrup *et al.*, 2002; Ross, Mudge, Young, & Banks, 2011; Walton *et al.*, 2013). Malnutrition is a consequence of poor nutritional intake and has been associated with increased morbidity, mortality, length of stay and healthcare costs (Correia & Waitzberg, 2003; Elia, Stratton, Russell, Green, & Pang, 2006; Watterson *et al.*, 2009; White, Guenter, Jensen, Malone, & Schofield, 2012).

Mealtime strategies and interventions designed to improve food intake and nutritional status have been investigated in hospital settings (Porter, Haines, & Truby, 2017; Roberts *et al.*, 2014; Wright, Hickson, & Frost, 2006). However, published reviews have found limited success (Cheung, Pizzola, & Keller, 2013; Green, Martin, Roberts, & Sayer, 2011; Porter, Ottrey, & Huggins, 2017; Whitelock & Aromataris, 2013). Paying more attention to mealtime environment and practice may identify opportunities for innovation in nutritional care.

Background

Mealtime environment and practice has been explored in elderly care settings, like nursing homes. Small studies have found improved mealtime ambiance and individualized nutritional care is associated with better patient outcomes, including body weight (Mamhidir, Karlsson, Norberg, & Mona, 2007; Mathey, Vanneste, de Graaf, de Groot, & van Staveren, 2001). “Family-style” meal service was found to be associated with increased food intake and nutritional status in a randomized controlled trial (Nijs *et al.*, 2006). Other studies have identified mealtime rituals and routines can influence nutritional care and promote structure and order (Chuang & Abbey, 2009; Palacios-Ceña *et al.*, 2013; Philpin, Merrell, Warring, Hobby, & Gregory, 2014; Sidenvall, Fjellström, & Ek, 1996).

Few have explored the mealtime situation in subacute care, like geriatric and rehabilitation wards. Frequent negative interruptions and insufficient mealtime assistance has been reported (Porter, Wilton, & Collins, 2016; Walton *et al.*, 2013). Positive social interaction at mealtimes has been associated with food intake (Paquet *et al.*, 2008). Changing nursing practice to prioritize nutritional care and increase mealtime engagement through an action research approach has been shown to have a positive impact on mealtime experience (Dickinson, Welch, & Ager, 2008). To our knowledge, there has been no in-depth investigation into mealtime environment and practice in subacute care. This comprehensive perspective is needed to understand mealtime complexity and organizational structures and processes that influence nutritional care to more effectively address inadequate food intake in hospital.

THE STUDY

Aim

This study aimed to explore and understand patterns of mealtime culture, environment and social practice from the perspective of staff, volunteers and visitors on the hospital ward.

Design

This qualitative study adopted an ethnographic approach (Angrosino, 2007; Fetterman, 2010). Qualitative research supported the need to understand and explain social phenomena around mealtimes, as occurring in the ‘real world’. The ethnographic approach allowed complete immersion and provided access to participants’ experiences and interactions, promoting a comprehensive understanding of their perspective and way of life.

Sample and participants

One ward each from two sites in a publicly funded healthcare network in Melbourne, Australia were purposively selected for this study. Both wards had a common subacute care focus (geriatric or rehabilitation, i.e. patients post stroke or fracture; length of stay approximately 17 days (Collins, Porter, Truby, & Huggins, 2016)) and ward size (32 beds; single, double or four-bed rooms), with

similar organizational structures, staff employed and foodservice systems. Foodservice staff delivered meals to patients in their rooms or the dining room if patients wished. Nutritional screening was conducted on admission and one ward hosted a volunteer program. However, there were no dedicated nutrition support nurses or protected mealtimes (Jefferies, Johnson, & Ravens, 2010).

Participants were staff, volunteers and visitors present on the study wards at mealtimes. All those meeting this criteria were eligible to be observed and interviewed. A purposive sample of leaders from key professions involved in nutritional care were also invited via email to be interviewed. Interview eligibility criteria included spoken English and the provision of verbal informed consent. Consent to be observed was not sought to reduce risk of participants changing their practice. The direct patient perspective was considered beyond the scope of this study.

Data collection

Sixty-seven hours of fieldwork was conducted August-October 2015 by the first author. The first author was a researcher with previous experience in qualitative research and interest in improving nutritional care. The first author was not employed on either study ward. Data collection techniques were observation and interview, which occurred concurrently during fieldwork.

Observation was used to learn about and describe mealtime environment and practice. The focus of observation began broadly, then narrowed until no new variations were seen. Observation was conducted at breakfast, lunch and dinner across seven days of the week, reflecting diversity in people, interactions and activities. Observation began up to 40min prior to meal service, usually lasting until meal trays were collected. More than 150 staff, volunteers and visitors were observed across 35 observation episodes. Observations were recorded as hand-written fieldnotes, informed by a published framework (Spradley, 1980). Fieldnotes were fully reconstructed as soon as practicable after each observation, generating 112 pages of single-spaced typed fieldnotes.

Interview was used to explore participants' perspectives and experiences and contextualize observed mealtime practices. Topics of discussion centred on hospital and mealtime role, mealtime environment and things that help or hinder mealtime involvement. Participants were identified through observation (i.e. the healthcare professional seen facilitating breakfast group) and by nomination from other participants and approached face-to-face. Interviews with staff, volunteers and visitors were opportunistic, conversational and open-ended in nature, occurred on the study ward before, during or after participants' shift or visitation period, audio-recorded where possible and transcribed verbatim. Not all were audio-recorded at the participant's request or as a result of interview spontaneity, where case data were documented as literally as possible as hand-written fieldnotes. Interviews with leaders were semi-structured (see Table 1), occurred on the study ward or

in their office, lasted 16-83min (average 42min), audio-recorded and transcribed verbatim. In total, 61 unique participants, including six leaders, were interviewed in 75 interviews.

Ethical considerations

Support was given by healthcare network directors of nursing, allied health and support services. The first author displayed posters and conducted staff information sessions prior to data collection. The first author explained the nature and purpose of attending to anyone requesting this information, supporting overt data collection. Participants were assigned unique codes to enable identification whilst preserving anonymity. Ethical approval was obtained from healthcare network (LR76/2015) and university (CF15/2929 - 2015001205) ethics committees.

Data analysis

Data analysis followed an inductive, thematic approach, informed by systems and complexity theory (Adam & de Savigny, 2012; Ison, 2010; Jordon, Lanham anderson, & McDaniel Jr, 2010; Martin & Sturmberg, 2009; Plsek & Greenhalgh, 2001). Systems and complexity theory support the need to consider various stakeholders, their roles and interactions and mealtime processes, by exploring these in context, potentially identifying ways forward for nutritional care in hospital.

Data analysis commenced during fieldwork, where the first author searched for patterns in what was seen and heard (Fetterman, 2010). The first and last authors independently coded a sample of interview transcripts and fieldnotes, then cross-checked code lists to reach consensus on the coding framework. This framework was applied to code remaining interview transcripts and fieldnotes, evolving as data analysis progressed. Analysis of observation data assisted interpretation of interview data, enriching understanding through confirmation or contradiction. Codes were categorized and summarized, with thematic maps drawn to identify and analyse patterns (Braun & Clarke, 2006). Meaning behind emerging themes was discussed amongst the research team (Angrosino, 2007). NVivo data management software and memos supported data analysis.

Rigour

Trustworthiness was promoted by adopting several strategies (Tuckett, 2005). Data triangulation, interview audio-recordings and an audit trail of coding decisions supported credibility and dependability. Thick description promoted transferability (Geertz, 1973). The first author maintained a reflective journal, supporting dependability through reflexivity. Prolonged engagement in the field reduced the likelihood of unintended observer effects (Angrosino, 2007) and enabled research questions to be answered.

FINDINGS

More than 150 staff, volunteers and visitors were involved. Staff were from diverse professional groups, including nursing, medical, allied health, food and support services and administration. Staff level of experience ranged from student to pre-retirement. Leaders were nurse unit and associate nurse unit managers, dietetic and facility services managers. Visitors were patients' family, friends and carers. Participants were aged 18 to 80+ years, with both genders represented. Length of time participants had spent on the study ward varied from minutes to decades.

Findings describe mealtime culture, environment and social practice in subacute care. Staff, volunteers and visitors tried to promote patient centredness at mealtimes. The routine and structured nature of the meal and care systems was constantly in tension with providing patients the care they needed. These findings are explored through themes of "patient centredness" and "system" and their disharmonious interrelationship (Figure 1).

Theme 1: Patient centredness

Goals of care

Staff, volunteers and visitors described the purpose of their role, framed in what they desired for patients. Patient-oriented goals of care reported by participants included helping patients to restore health, achieve normal routine and become independent. Adequate nutrition, eating hospital meals and self-feeding were mentioned as demonstrating progress towards and attaining these goals of care. Supporting patients' psychosocial health was also important, where participants described wanting to improve patients' quality of life:

I really hope the patients can be independent on their own and make their lives more meaningful. It's really meaningful for me. That's what I'm doing here. (EL, nurse)

Foodservice staff acknowledged their role in patients' recovery, however this took a more service-oriented view. These participants expressed their role purpose as providing a timely and safe meal service, without worsening patients' condition.

Staff, volunteers and visitors acknowledged the importance of taking a "team approach" to achieve goals of care. Examples provided by participants demonstrating this included discussing goals of care in team and family meetings and referring to other professions.

Knowing the patients

Staff and volunteers described becoming familiar with patients, developing a relationship with them to learn about and understand their individual preferences and needs. At mealtimes, patient

centredness was shown by learning what patients liked to eat and drink and appreciating the time, effort and assistance that patients needed:

There's a couple of them [foodservice staff], they'll call the patients by their first name and they will know exactly what the patient drinks. And it makes it quite homely and comfortable for the patients. (CB, nurse)

Caring for the same patients each day, conceptualized by participants as “continuity of care”, was identified as helpful in getting to know patients. Nurses described having a better idea of what was normal for patients, thus they were better able to recognize changes in patients’ condition and food intake. Foodservice staff talked about having usual ward allocations, enabling repeated interactions with patients at mealtimes. Participants explained how this helped them to get close to patients, where a “soft spot” could develop for some. Examples of the caring staff-patient relationship were frequently observed:

[The nurse] walks into the dining room, strikes up a friendly conversation with a patient: “How was it [lunch]?! Am I a good cook?! Now I have to go and do the dishes!” (Light-hearted, joking with patients; Fieldnote extract, 30th August 2015, 12:40pm)

Mealtimes were observed and reported by staff to be an opportunity to learn more about the patients they cared for. For medical staff, this included gathering clinical information on side effects and symptoms having an impact on food intake and for dietitians, quantifying food intake and identifying barriers to eating. This information helped guide healthcare treatment and management decisions:

[The dietitian] continues around the ward, checking on patients eating their lunch. To the patient in Bed 10: “Can you reach? Can I move that closer?” The patient is reaching right across his meal tray for each spoonful of dessert. [The dietitian] picks up the dessert container, shuffles a few items aside to fit it on the near side of the meal tray. She moves into Room 2, [to the patient], “Hello, are you ok? Do you like the meat? Do you prefer fish or chicken?” Attentive, pleasant tone... She moves into Room 3, introduces herself, asks [the patient], “How’s lunch? How’s the nutrition drink? Good? Ok.” Across to the patient in the next bed, “Do you want the next [meal] size up?” The patient nods. (Fieldnote extract, 19th August 2015, 12:15pm)

Approach to treating patients

“Doing their best” for patients was frequently mentioned by staff and volunteers as driving their approach to work. “Doing their best” encompassed putting the patient first, meeting patients’ needs,

resolving issues in a timely manner and also equipping patients with knowledge, nutrition and skills required to achieve goals of care.

Participants spoke about the importance of applying a positive attitude and showing respect towards patients. Staff and volunteers described how they achieved this, by acknowledging patients were human beings, offering mealtime assistance, creating a conducive mealtime atmosphere, being patient and empathic. Foodservice staff also reported trying to treat patients how they would like to be treated, or as a loved one.

Participants described feeling frustrated and disappointed when they saw others failing to employ what they considered the “best” approach when interacting with patients. What constituted the “best” approach differed, depending on participants’ professional background and values, thus how tasks were prioritized and carried out. For example, medication administration at mealtimes was reported by some participants as helpful in controlling symptoms and an unnecessary interruption by others. Similarly, opening packets was seen as providing necessary mealtime assistance by some participants and hampering patients’ independence by others. Conflict was also observed and reported in situations where visitors’ social interactions distracted patients from eating and staff neglected to greet patients when entering the room or attempt to rectify foodservice issues:

If you say, “Such and such hasn’t got a coffee,” they’ll [foodservice staff] say, “Well it wasn’t on their tray.” They won’t say, “I’ll go and make one.” They’ve got their job to do and that’s what they focus on. They won’t go out of their way and do anything else. (TK, nurse)

Recruiting others to assist

Participants reported and were observed to actively seek engagement of others in nutritional care. Recruitment of other healthcare professionals was reported to be carried out formally in team meetings and via electronic referrals. For example, input was sought from dietitians for nutrition support, speech pathologists for dysphagia management, occupational therapists for equipment to enable self-feeding and physiotherapists for appropriate mealtime positioning:

Rehab’s good in that you do often think more about the team environment and how the patient fits in with the team and how we fit in with the patient, as a team. (DT1, dietitian)

Informal conversations were also reported and observed, where staff encouraged visitors to attend at mealtimes and be involved in a supportive or functional capacity:

Peoples from the outside, like families and relatives and friends, they come, they bring the foods and actually bring the joy and the experience... Patients need that kind of environment. It's better. (AJ, nurse)

Staff described the importance of helping visitors and other staff to understand goals of care, so they could enable their attainment, rather than impede progress.

Theme 2: System

Structure

Participants described a structured hospital system, with the number and types of staff and volunteers present at mealtimes depending on staff rosters, ratios and break schedules and patient therapy timetables. On days that team meetings were held, noticeably fewer staff were present at lunchtime. The structured nature of the hospital system was also observed to influence the types of activities completed around mealtimes, including medication administration and clinical observations. Participants emphasized the need for teamwork, communication and problem solving when coordinating multiple timetables and schedules:

You've got physios at 9 o'clock, you've got aqua[therapy] at 9 o'clock, you've got breakfast group at half past eight, you've got appointments that might go out... You need to know who's having- we call it ADL assessments, which is the OT's [Occupational Therapist's] assessment- because there's only one shower for five patients. So you've got to work out what timeframe they want the shower, who you can do before breakfast and who you can do after breakfast. (SH, nurse)

The foodservice system was also identified by participants as being tightly controlled. This was reflected in many aspects of and processes in the foodservice system, including the contract, menu management and schedules for meal ordering, preparation, plating, delivery and collection. Nurses reported being aware of "cut-off" times for ordering early breakfasts and late dinners. Similarly, therapists and support service staff reported being mindful of promptly returning patients after morning therapy, in time for lunch.

Structure in hospital and foodservice systems promoted patient safety and supported quality of care and service delivery. Participants explained how audits were conducted to monitor meal temperatures, with results discussed and actioned in committee meetings. Charts were completed to record patients' food intake and weight, triggering referrals and prompting changes to nutritional care. Organizational policies, procedures and practice guidelines were identified by staff to support individual accountability and responsibility. Staff and volunteers described how orientation, induction and staff

training ensured awareness of rules and expectations that influenced their conduct, including at mealtimes.

Routines and rounds

Staff involved at mealtimes explained how they applied a systematic approach to work. Foodservice staff admitted tackling meal delivery and collection in a “regimented” way and highlighted the importance of finding “rhythm” to complete tasks within the designated timeframe. Observed behaviours confirmed this approach, where foodservice staff were seen to “follow the same flight path” around the ward when delivering meals. Volunteers described “separate parts” to their shift, which included preparing patients for and helping them eat their meal. Nurses explained how they moved “back and forth” between patients, at first to ensure that lights were on, patients were set up and ready to receive their meal, then “double back” to check on patients, whilst administering medications.

“Rounds” were a common concept for staff and volunteers. Some rounds were reported to be strategically conducted during mealtimes, like meal rounds by the dietitian to quantify food intake and identify barriers to eating. Volunteers were observed to move through the ward ahead of the meal trolley, delivering napkins and positioning tray tables in readiness for meal delivery, then rounding once more behind the meal trolley, helping patients open packets and cut up food. Other rounds commenced before mealtimes, but were frequently seen to extend over mealtimes, such as doctors’ ward rounds:

Senior doctor walks down the corridor, closely followed by two younger doctors, one pushing a trolley of [patient] folders. They enter Room 6 where a patient is sitting in front of his tray table, the meal tray just delivered. The lid still covers the plate. The patient has not yet started eating. The pale yellow curtain is drawn around the bed as the senior doctor sits down on the patient’s bed to chat. (Fieldnote extract, 6th August 2015, 12:14pm)

Theme 3: Disharmonious interrelationship between patient centredness and system

Time

Participants described how time had an impact on mealtimes. When the meal trolley arrived earlier or later than expected to the ward, this was frequently seen to have an impact on other schedules. For example, patients were not yet out of bed and ready for breakfast, or patients were rushed to finish lunch before afternoon therapy. The same was true for patients returning late from morning therapy, where nurses described feeling a “step behind”, still needing to complete several tasks before the patient could start lunch. Visitors noticed mealtime delays and interruptions, describing mealtimes as a “disjointed experience” for patients:

[The foodservice assistant] has already started delivering meal trays. She is up to Room 8 where [the nurse] and student nurse are still doing medications. [The foodservice assistant] collects the meal tray for Bed 23 and walks into the room. She notices the curtains are closed [around the patient's bed], asks [the nurse] where she should leave the meal tray. [The nurse] advises that she can go in. [The foodservice assistant] pokes her head through the gap in the curtain, hesitates, then steps in and places the meal tray on the patient's bed. She emerges from behind the curtain looking exasperated, exclaims, "There's nowhere to leave it [the meal tray]! She's [the patient's] got no chair to put the [meal] tray on and she's in the middle of a wash!" (Fieldnote extract, 15th September 2015, 7:55am)

Busyness within staff role, work shift and day affected how well staff felt they managed to complete tasks and provide quality patient care. Participants admitted being unable to provide the level of care they aspired to when things were "hectic", "full on" and "stressful", which tended to be in the morning, on weekdays and when there had been multiple discharges or bed moves. The sense of busyness was reported and observed to be exacerbated by interruptions to staffs' workflow, such as needing to answer call bells, manage "heavier" patients and resolve foodservice issues:

You're dealing with patients that are elderly and they need time to do things... It's not just, "Let's quickly do this, brush your teeth and off you go." It takes time and the time's not there. So things get rushed and then people are late. You've got to allow for patients that walk slow that need more time. That's what patient care is. (FSM2, facility services manager)

You've got medications, people still getting out of bed, nurses showering, OTs [Occupational Therapists] doing showering assessments, breakfast trying to happen at the same time, Allied Health staff start to arrive on the ward. So you've got nursing doing duties, you've got the patients trying to eat, you've got therapists starting to arrive on the ward. It's very busy at breakfast time. (DT1, dietitian)

Volunteers were aware of the time pressures that staff were under, describing how they did "little things" to promote patient centredness, like retrieving cutlery, books and clothing.

Awareness

Lack of mealtime awareness by staff was perceived to influence patients' mealtime experience. Participants recounted situations where consultations delayed patients from eating, thus meals went cold. This was described by participants as staff having their "blinkers up", being focused on their own role and not the bigger picture and as a manifestation of "meal realities" in hospital.

Underappreciation of others' mealtime work practices and pressures also had an impact on patients' mealtime experience. Foodservice staff described how they needed to negotiate an "obstacle course" of corridor clutter, which presented risk to personal safety and delayed meal delivery. Common obstacles were seen to include people and equipment, like wheelchairs, laundry skips and computers on wheels. Delivery schedules were also set back by interruptions, for example to work out bed moves and resolve foodservice issues. Participants described how this affected morale and meal temperatures, having an impact on the service they provided:

Lunch is the worst as far as that goes, the interruptions. Just shocking. And you know, it's not on. It's not fair. It's not fair on us. It's not fair on the patient. The whole purpose of them being here is to build 'em up so they can go back home or go into a facility. When you're interrupting 'em and, you know... I don't understand the logic in that. (LR, foodservice assistant)

Accountability and responsibility

Staff described how the need to document information influenced their mealtime involvement. This included meal-related activities, such as completing food and fluid charts and other clinical activities, like conducting and recording clinical observations and medication administration. When these activities interrupted the patients' mealtime, participants who observed the person carrying out the task reported this as undermining patient centredness:

To be honest, what's probably happened to hospitals is that with everyone being so focused on accountability and checklists and such like, that holistic nursing care has disappeared again. It came in for sort of 10 years in the [19]80s and now it's really been deconstructed again by administrators. (V3, visitor)

Controls in the foodservice system to define responsibility and promote patient centredness were paradoxically seen to detract from patient care. To illustrate, although the contract specified foodservice staff were to remove lids and open packets, some participants explained how this denied patients the therapeutic opportunity to practise these skills. Foodservice staff described being encouraged by leaders to "go by the paperwork", providing food and drink to patients in accordance with the diet code entered into the system. This approach was reported by foodservice staff to be problematic and compromised patient care, for example, when the need for a modified diet had not been communicated to the kitchen in a timely manner.

DISCUSSION

This study is first to provide an in-depth description of mealtime culture, environment and social practice in subacute care. We found that staff, volunteers and visitors strive for patient centredness, but are challenged by complexity in healthcare and foodservice systems to achieve this. These findings shed light on why mealtime interventions have met with limited success to date.

The concept of patient centredness is not new in healthcare. Healthcare professionals are trained to engage and empower patients in their healthcare treatment and management and support patients' best interests (Epstein & Street, 2011; Richardson *et al.*, 2001). Healthcare organizations promote collective efforts to achieve best possible outcomes for patients via their staffing profiles and governance structures (Fay, Borrill, Amir, Haward, & West, 2006; Tappenden *et al.*, 2013; Taylor *et al.*, 2010). What was surprising in this study was the diversity in what staff considered goals of care and the different views that staff, volunteers and visitors held about what was best for patients. The same mealtime task, such as medication administration or opening packets, was considered both advantageous and disadvantageous to patient centredness, depending on professional background and values. Difference in opinion may cause friction and impair team functioning, thus identifying the need for collective action at mealtimes.

The findings of this study highlight how healthcare and foodservice systems are constructed and thought about as complicated systems (Glouberman & Zimmerman, 2002). For example, feeding patients requires numerous steps, yet if the pathway of diet code entry, meal ordering, plating and delivery is followed, patients can expect to receive a meal. Moreover, foodservice systems are operationally-driven, constrained by time and temperature control (Buccheri *et al.*, 2007; Hartwell, Edwards, & Beavis, 2007). Preparing patients to eat may require another sequence of events; rousing, toileting, clinical observations, medication administration and positioning.

In practice, healthcare and foodservice systems are complex, comprising different and interconnected components, with interactions occurring at multiple levels in the system, influenced through feedback loops (Plsek & Greenhalgh, 2001; Sturmberg & Martin, 2009). Complex systems are emergent and dynamic in nature, open to the environment and change over time (Plsek & Greenhalgh, 2001; Sturmberg & Martin, 2009). Complexity in the hospital setting can be seen in workforce turnover, adoption of new technology, team functioning and adaptation to better meet consumer expectations. This study identified complexity at mealtimes, with variability in patients' need for assistance, unexpected workflow interruptions to answer call bells and bed moves requiring communication to enable meal delivery. Although patient centred care is desired at mealtimes, the challenge of applying patient centredness in a complex system reveals the limitations of taking a linear, complicated view of care and meal systems.

Novel foodservice approaches putting patients at the centre of the foodservice system have been implemented, such as room service and bedside meal ordering systems (Doorduijn, van Gameren, Vasse, & de Roos, 2016; Maunder *et al.*, 2015). Although positive outcomes have been reported, systems and complexity thinking indicates the need to consider how the foodservice system interacts and integrates with the healthcare system more broadly. Each system cannot be viewed in isolation, rather needs consideration as a whole.

This study facilitates a better understanding of why inadequate food intake is so difficult to address in hospital. There are many factors that influence mealtimes, conceptualized for the first time in this paper by a mealtime complexity model. Opportunities exist to strengthen healthcare team and visitor awareness, engagement and skills in nutritional care and to address system-related barriers and constraints that potentially undermine positive mealtime experiences. Efforts to address inadequate food intake in hospital need to move away from strategies that approach foodservice processes and nutritional care as complicated and linear. Healthcare and foodservice systems need to be seen as complex and interconnected to better support patient centred care. New approaches that recognize and embrace mealtime complexity are required to more effectively address inadequate food intake in hospital. Further research on implementing and navigating system changes that have an impact on mealtimes is warranted, as is role confusion and effect on food intake. Research designs that adopt a qualitative approach may best illuminate complex processes.

Limitations

A limitation is that data were collected by the first author only. Although this is not uncommon in qualitative research, trustworthiness was promoted by audio-recording interviews where possible and co-coding transcripts and fieldnotes. Rigour was also supported by undertaking an extensive period of fieldwork and employing multiple data collection techniques. Preliminary findings were discussed amongst the research team and examined in light of theory to aid understanding. Transferability of the findings is limited by sampling subacute wards in one healthcare network. However, existing published literature suggests the themes identified transcend this particular healthcare network and country.

CONCLUSION

This study provided an in-depth description of mealtime culture, environment and social practice in subacute care. The findings reveal mealtime complexity and expose the challenges that staff, volunteers and visitors experience when trying to maintain patient centredness in complex healthcare and foodservice systems. Efforts to address inadequate food intake in hospital may need to diverge from strategies that approach foodservice processes and nutritional care as complicated and linear and acknowledge the complex interactions that occur at mealtimes for nutritional intake to improve.

Author Contributions:

All authors have agreed on the final version and meet at least one of the following criteria (recommended by the ICMJE*):

- 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- 2) drafting the article or revising it critically for important intellectual content.

* <http://www.icmje.org/recommendations/>

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Table 1 Interview guide for semi-structured interviews with leaders

Question	Question logic
Can you tell me about your role and your role at mealtimes? Prompts: Profession, nutritional care/tasks, other care/tasks.	Elicit background information. Identify the ways in which leaders are involved at mealtimes.
How would you describe the environment on the ward during meals? Prompts: Activities, people, noises.	Explore leaders' perspectives of mealtime environment.
Can you tell me about the interaction your staff members have with others on the ward at mealtimes? How would you like them to interact? What makes it hard for them to achieve what you would see as best practice?	Identify how staff interact at mealtimes. Ascertain factors that influence mealtimes.
In your opinion, do any policies, procedures or training influence mealtimes? Prompts: Staff actions/behaviours, work processes.	Ascertain factors that influence mealtimes.

Figure 1 Mealtime complexity model illustrating tension between “patient centredness” and “system”; an interrelationship that influences mealtimes in subacute care. “Patient centredness” represents the way that staff, volunteers and visitors interact with and care for patients at mealtimes. “System” represents the hospital and foodservice systems, systematic approaches to work, and system expectations and performance. The six factors positioned above the rope impact upon and challenge the interrelationship between “patient centredness” and “system”. Teamwork, communication and problem solving underscore the actions and interactions of staff, volunteers and visitors at mealtimes.

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