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Mealtime Assistance by Family and Professional Caregivers: An Observational Study of Cognitively Impaired Older Adults in Hospital and Nursing Homes

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Mealtime Assistance by Family and Professional Caregivers: An Observational Study of Cognitively Impaired Older Adults in Hospital and Nursing Homes

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Abstract

Background: Malnutrition is highly prevalent among older adults with cognitive impairment, contributing to frailty, reduced immunity, and poorer health outcomes. The majority of people with dementia require eating assistance during mealtime to maintain adequate nutritional intake (Tang, et al., 2025). While the role of professional caregivers in nursing homes is well documented, the contribution of family caregivers in hospital settings remains underexplored. **Aim:** To explore the distinct mealtime assistance practices provided by family caregivers in hospitals and professional caregivers in nursing homes for cognitively impaired older adults. **Methods:** A cross-sectional observational study was conducted in New South Wales, Australia, including 82 older adults (≥65 years) with cognitive impairment: 31 hospital patients assisted by family caregivers and 51 nursing home residents assisted by professional caregivers. Nutritional status was assessed using the Mini Nutritional Assessment–Short Form (MNA-SF), feeding difficulties with the Feeding Difficulty Index (FDI), and caregiver practices with observational checklists of encouragement and technical skills. Independent t-tests were performed, with significance set at $p<0.05$. **Results:** Nursing home residents consumed a greater proportion of meals (76% vs. 56%) and displayed fewer feeding difficulties than hospital patients. Professional caregivers demonstrated broader technical skills, such as mouth opening (27.5% vs. 0%, $p<0.001$), lip-opening techniques (31.4% vs. 0%, $p<0.001$) and choking management (78.4% vs. 25.8%, $p=0.004$). In contrast, family caregivers provided stronger relational support, including sitting facing the patient (90.3% vs. 31.4%, $p<0.001$), using verbal cueing (100% vs. 68.6%, $p=0.001$), and engaging in conversation (100% vs. 64.7%, $p=0.003$). Consequently, the mean nutritional status (MNA-SF score) was significantly poorer in the hospital group (6.03 vs. 10.24, $p<0.001$). **Conclusions:** Family and professional caregivers demonstrate complementary strengths in mealtime care. Integrating the relational engagement of family caregivers with the technical expertise of staff through targeted training and policy initiatives may improve nutritional outcomes and reduce malnutrition in cognitively impaired older adults across hospital and nursing home settings.

Keywords: cognitive impairment; dementia; malnutrition; mealtime assistance; feeding difficulties; family caregivers; nursing homes

Background

Malnutrition is a major public health concern among older adults, contributing to frailty, diminished muscle strength, impaired immunity, higher susceptibility to infections, and increased morbidity and mortality [1,2]. The problem is particularly pronounced among individuals with cognitive impairments such as dementia, who face additional barriers including reduced self-feeding ability, behavioural symptoms such as food refusal, and declining executive function, all of which

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limit adequate nutritional intake [3]. In Residential Aged Care Facilities (RACFs), approximately one-third of residents are malnourished [1], while in hospitals prevalence is even higher, with one observational study reporting that over 70% of geriatric inpatients were malnourished [4]. These figures highlight the urgency of addressing malnutrition across both acute and long-term care settings.

The hospital environment poses distinct challenges. Acute wards are characterised by constant interruptions, time pressures, and competing demands from medical and nursing interventions, often coinciding with mealtimes [5]. Such circumstances frequently deprioritise nutritional care, leaving patients especially those with dementia—at risk of insufficient intake. Although RACFs strive to maintain quality of life, staff in these settings also contend with limited time and competing responsibilities, affecting their ability to provide sustained mealtime assistance [5]. Exploring these context-specific barriers is therefore crucial to improving nutritional care in both hospitals and nursing homes.

Person-centred care (PCC) is a recognised cornerstone of effective nutritional support, emphasising care that is tailored to individual histories, preferences, and cultural backgrounds. PCC has been linked to improved eating behaviours, greater autonomy, and better nutritional outcomes [8,10]. However, staff often encounter difficulties in implementing PCC at mealtimes due to patient variability, time pressure, and lack of confidence in adapting feeding strategies [11]. Educational interventions have shown promise in addressing these challenges. Training programs that focus on mealtime practices and social interaction skills can reduce malnutrition, increase staff confidence, and improve nutritional outcomes [9,17,18]. For example, observational feedback in dementia care units has reduced unintentional weight loss to below national averages, demonstrating the tangible benefits of targeted training [17]. These findings highlight the importance of advancing the knowledge, skills, and attitudes of nursing staff to strengthen mealtime care.

Survey data from Australian RACFs reinforce this need. One study found staff scored an average of only 4.67 out of 10 on nutritional knowledge, with 44% reporting insufficient understanding of nutritional assessment and many unaware of residents' specific feeding difficulties [2]. Such findings point to the necessity of structured, evidence-based training programs. Without adequate preparation, staff may rely on task-focused approaches that prioritise efficiency over engagement, inadvertently undermining both mealtime experience and intake.

While the central role of professional caregivers is well recognised, the contribution of family caregivers during mealtimes remains underexplored. Family members often remain involved in hospital care, motivated by responsibility, cultural expectations, and intimate knowledge of their loved one's preferences [12]. Their presence can enrich the mealtime environment by providing emotional support, reducing anxiety, and promoting intake through familiar routines [12]. This aligns with principles of patient- and family-centred care, which are associated with better quality of care, stronger patient–provider trust, and greater staff satisfaction [13]. Yet despite their potential value, little research has examined family caregiver-provided feeding assistance in hospital settings, representing a critical knowledge gap. Given the rising healthcare burden and limited workforce capacity, family caregivers may represent an underutilised resource in supporting mealtime care [12,13].

Cultural appropriateness is another essential dimension of mealtime care. Food carries not only nutritional but also cultural, social, and emotional significance. Dietary practices, religious observances, and mealtime traditions shape acceptance and intake [15]. Failure to provide culturally appropriate meals may lead to refusal, diminished intake, and unintentional weight loss, thereby increasing risks of frailty, falls, and functional decline [16]. Conversely, culturally tailored meals are linked to higher satisfaction, stronger trust in caregivers, and better nutritional outcomes [16]. Cultural competency and awareness are therefore critical components of PCC, ensuring that mealtime care is both effective and respectful.

Taken together, the high prevalence of malnutrition in both hospitals and RACFs, the challenges faced by nursing staff, the understudied role of family caregivers, and the importance of cultural

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sensitivity highlight the urgent need for more comprehensive research into mealtime assistance for older adults with cognitive impairment. Such research can identify context-specific strengths and weaknesses, inform tailored interventions, and guide training programs that integrate the complementary contributions of family and professional caregiving.

This study aimed to address these gaps by conducting a comparative observational analysis of feeding assistance for cognitively impaired older adults in hospital and nursing home settings. Specifically, the objectives were:

1. To compare caregiver behaviours, including eating encouragement and technical feeding skills, between family caregivers in hospitals and nursing staff in nursing homes.
2. To compare patient outcomes, including feeding difficulties and nutritional status, between cognitively impaired older adults in hospitals and those in nursing homes.

By addressing these aims, the study provides evidence to inform future training programs, policy development, and culturally responsive care models that enhance mealtime experiences and reduce malnutrition in this vulnerable population.

Methods

Study Design and Setting

A cross-sectional observational study was conducted to compare mealtime care in two care environments in New South Wales, Australia: one sub-acute public hospital ward and one Residential Aged Care Facility (RACF, hereafter referred to as a nursing home). The study aimed to capture mealtime assistance as it naturally occurred, without intervention. Caregiver type was inherently linked to the setting: in the hospital, assistance was provided primarily by family members, while in the nursing home, assistance was provided exclusively by nursing staff (Assistants in Nursing, AINs). Therefore, differences between groups should be interpreted as reflective of these combined contexts—hospital/family caregivers versus nursing home/professional caregivers—rather than attributable to caregiver or setting in isolation.

Participants

Two participant groups were included:

1. Older adults: Patients or residents aged ≥65 years with cognitive impairment who required mealtime assistance.
2. Caregivers: Family caregivers in the hospital and professional caregivers refer to assistant in nursing (AINs) in the nursing home who directly provided mealtime assistance.

Inclusion criteria:

- Older adults: (i) aged ≥65 years; (ii) receiving oral feeding; and (iii) with either a dementia diagnosis, a Montreal Cognitive Assessment (MoCA) score indicating cognitive impairment, or observed behavioural signs of impairment.
- Caregivers: Individuals providing primary feeding assistance during a scheduled mealtime (family caregivers in hospital, AINs in nursing home).

Exclusion criteria:

Patients who were comatose or receiving artificial feeding (e.g., enteral or parenteral nutrition) were excluded.

In this study, *family caregivers* refers to mealtime assistance provided by family members, while *professional care* refers to assistance provided by trained AINs. Initially, all eligible hospital patients were considered, regardless of whether staff or family provided assistance. However, because 31 of 42 hospital patients were assisted by family members and all 51 nursing home residents were assisted by staff, the 11 hospital patients assisted by staff were excluded to establish two clearly defined comparison groups.

Sampling and Recruitment

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Purposive sampling ensured participants met eligibility criteria and reflected typical mealtime practices. Recruitment was coordinated with the Clinical Nurse Educator (CNE) and Nursing Unit Manager (NUM), who applied a standardised protocol to identify eligible participants. A trained research assistant approached patients and/or their substitute decision-makers to provide study information and obtain consent.

Consent was also obtained from caregivers: family members in hospitals and AINs in nursing homes. Written informed consent was obtained separately from both patient/resident participants (or proxies) and their caregivers.

Sample size was estimated using G*Power version 3.0.10, based on a two-tailed independent samples t-test (difference between two means). With $\alpha = 0.05$, $1–\beta = 0.95$, and a large effect size (d = 0.80) derived from pilot data, a minimum of 70 participants was recommended. The final sample of 82 exceeded this requirement, providing adequate power.

Instruments and Measures

- Nutritional status: Assessed using the *Mini Nutritional Assessment–Short Form (MNA-SF)*, a validated 6-item tool for older adults [19]. Items cover food intake, recent weight loss, mobility, psychological stress/acute illness, neuropsychological problems, and either body mass index or calf circumference. Scores range from 0–14 and are categorised as: normal nutritional status [12–14], at risk of malnutrition [8–11], or malnourished (0–7).
- Feeding difficulty: Measured with the *Feeding Difficulty Index (FDI)*, a 19-item tool for older adults with dementia [20]. It assesses four domains: condition/distractibility, difficulty getting food, food refusal, and motor difficulties. Each behaviour is scored 0 (not observed) to 3 (>6 times observed), yielding a total score of 0–72. Higher scores indicate greater feeding difficulty. In this study, the FDI is used to observe the participants' mealtime difficulties during the observed mealtimes.

Caregiver feeding skills: Two observational checklists were developed by the research team, informed by prior literature and studies [11,21–23]. These tools were used to assess the **caregiver participants** (family and AINs) who provide the eating assistance during mealtime.

- *Eating Encouragement Checklist (11 items):* Ten positive relational behaviours (e.g., verbal cueing, reassurance, facing the patient) scored as 1 (Yes) or 0 (No/Not applicable). A single negative item (use of infantilisation/intimidation) led to subtraction of 1 point. Higher totals indicated stronger encouragement skills.
- *Feeding Skills Checklist (12 items):* Technical skills (e.g., task simplification, multisensory cueing, mouth- or lip-opening techniques, choking management) scored as 1 (Yes) or 0 (No/Not applicable). Higher totals reflected greater technical skill use.

- Demographic and mealtime data: A demographic form was used to collect information on older adult participants (age, gender, length of stay, cognition status, level of assistance, portion of meal consumed) and caregiver participants (role, gender, qualifications, years of experience). Data for hospital patients were collected via consultation with nurses, while MNA-SF data were provided by ward dietitians or the trained research assistant. Caregiver demographic data were collected directly from the nursing staff; this data was not collected from family caregivers.

Data Collection Process

Data were collected between June 2020 and April 2022. A trained research assistant conducted all observations after structured training in the use of MNA-SF, FDI, and the checklists, with pilot sessions used to refine consistency.

During routine mealtimes, the research assistant discreetly observed interactions (e.g., from across the room or outside the doorway) to minimise bias. Each observation focused on one mealtime episode. Instruments were completed for both patients (MNA-SF, FDI) and caregivers (feeding skill

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checklists). Supplementary notes recorded contextual factors such as interruptions, environmental distractions, or unusual behaviours.

Demographic and clinical data were obtained from medical records and clinical staff, with MNA-SF scores confirmed by dietitians or assessed directly by the research assistant when necessary. Caregiver data were collected directly from staff.

Ethics Clearance

The study was approved by the Human Research Ethics Committee of Western Sydney University (Approval number: H15406). Written informed consent was obtained from all participants or their legally authorised substitute decision-makers. Caregivers provided separate written consent. All data were anonymised at collection and securely stored in line with institutional and ethical standards.

Data Analysis

Data were analysed using the *Statistical Package for the Social Sciences (SPSS)* for Windows, version 25. Statistical significance was set at an alpha level of 0.05 for all tests.

Descriptive statistics were used to summarise participant characteristics. For older adults, variables included age, gender, duration of stay, level of assistance required, cognitive status, total feeding time, portion of food consumed, and medication use. For caregivers, variables included role (family caregiver vs. AIN), gender, educational background, and years of experience.

Frequencies and proportions were calculated for each item on the Eating Encouragement Checklist, Feeding Skills Checklist, and Feeding Difficulty Index (FDI) to compare observed caregiver behaviours and patient feeding difficulties between groups. Mean scores and standard deviations were reported for continuous variables.

For inferential analysis, independent samples *t*-tests were conducted to compare mean scores for caregiver behaviours (encouragement and technical skills), feeding difficulties (FDI), and nutritional outcomes (MNA-SF scores) between hospital/family caregivers and nursing home/professional caregivers. Two-tailed *p*-values were reported, with equal variance assumed, and results were interpreted at a 95% confidence interval.

Results

Participant Characteristics

A total of 82 older adults were included in the study: 31 hospital patients assisted by family caregivers and 51 nursing home residents assisted by nursing staff (AINs). Table 1 presents the demographic and clinical characteristics of both groups.

The two groups were similar in age and mealtime duration. The mean age of hospital patients was 88.35 years (SD = 5.30) compared to 87.8 years (SD = 6.32) for nursing home residents. Average mealtime duration was approximately 23 minutes in both settings (hospital: 23.9 minutes; nursing home: 23.25 minutes).

Differences emerged in gender distribution. The hospital cohort was predominantly male (61.3%), whereas the nursing home cohort was predominantly female (68.6%). Cognitive status also differed by setting. In the hospital, most patients had a formal dementia diagnosis (n = 23, 74.2%), while in the nursing home, cognition was assessed using the Montreal Cognitive Assessment (MoCA), with an average score of 14.39 (SD = 8.73), reflecting moderate-to-severe impairment.

Marked differences were observed in meal consumption. Hospital patients consumed a significantly smaller portion of their meals on average (56%) compared to nursing home residents (76%). Notably, 41.9% of hospital patients consumed only one-quarter of their meal, compared with just 1.9% of nursing home residents, highlighting a substantial disparity in nutritional intake.

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All mealtime assistance in the nursing home was provided by female AINs, each holding a diploma qualification, with an average of 3.76 years of experience.

Table 1. Demographic and clinical characteristics of older adult participants and caregiver profiles across hospital and nursing home settings.

Characteristic	Hospital (n = 31)	Nursing Home (n = 51)
Gender, n (%)	Female: 12 (38.7) Male: 19 (61.3)	Female: 35 (68.6) Male: 16 (31.4)
Age, mean (SD)	88.35 (5.30)	87.8 (6.32)
Duration of stay	6.77 days (4.49)	3.54 years (2.71)
Ethnicity, n (%)	English speaking: 22 (71.0) non-English background: 9 (29.0)	Chinese speaking: 50 (98.0) non-Chinese background: 1 (2.0)
Education level, n (%)	Primary: 12 (38.7) High school: 10 (32.3) Higher education: 8 (25.8) Not stated: 1 (3.2)	Primary: 12 (23.5) High school: 18 (35.3) Higher education: 19 (37.3) Not stated: 2 (3.9)
Cognition	Dementia diagnosis: 23 (74.2) No formal diagnosis: 8 (25.8)	MoCA score: 14.39 (8.73)
Antipsychotic medication, n (%)	Yes: 10 (32.3) No: 21 (67.7)	Yes: 16 (31.4) No: 35 (68.6)
Level of assistance, n (%)	Partial: 19 (61.3) Total: 12 (38.7)	Self-feeding: 18 (35.3) Partial: 18 (35.3) Total: 15 (29.4)
Feeding time, mean (SD)	23.9 (8.44) min	23.25 (5.52) min
Portion of meal consumed n (%)	25%: 13 (41.9) 50%: 5 (16.1) 75%: 6 (19.4) 100%: 7 (22.6) Overall mean (SD): 0.56 (0.31)	25%: 1 (1.9) 50%: 6 (11.8) 75%: 34 (66.7) 100%: 10 (19.6) Overall mean (SD): 0.76 (0.16)
Caregiver characteristics	–	Female AINs: 51 (100%) Education: Diploma (100%) Mean years of experience: 3.76 (2.57)

Notes: *Results are rounded to one or two decimal places. * = Information not provided or not applicable. Percentages may not total 100% due to rounding. ***The "Overall" portion consumed was calculated as a mean proportion: 25% = 0.25, 50% = 0.50, 75% = 0.75, 100% = 1.00.*

Caregiver Feeding Practices: Relational Encouragement vs. Technical Skill

Table 2 highlights marked differences in eating encouragement behaviours between family caregivers in hospitals and professional nursing staff in nursing homes. Family caregivers consistently demonstrated stronger relational practices. They were significantly more likely to sit facing the patient (90.3% vs. 31.4%, $p < 0.001$), use verbal cueing (100% vs. 68.6%, $p = 0.001$), employ physical touch for encouragement (64.5% vs. 21.6%, $p < 0.001$), engage patients in conversation during feeding (100% vs. 64.7%, $p = 0.003$), and use reinforcement strategies such as rewards (100% vs. 23.5%, $p = 0.003$). Family caregivers also overwhelmingly adhered to feeding one patient at a time (96.8% vs. 31.4%, $p < 0.001$), suggesting a more individualised approach.

By contrast, professional staff demonstrated fewer relational behaviours, which may reflect the task-oriented nature of their roles and the demands of caring for multiple residents. Both groups,

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however, shared positive practices such as avoiding rushing patients (100% in both settings) and generally avoiding negative enhancements like infantilisation or intimidation (low in both groups).

Overall, these results may indicate that family caregivers provide richer relational and emotional support during mealtimes, while professional carers prioritise efficiency, often assisting multiple patients simultaneously. This pattern reinforces the complementary nature of the two approaches, with family members contributing more person-centred encouragement and staff providing structured, efficiency-driven care.

Table 2. Eating encouragement skills used by caregivers across hospital and nursing home settings.

Item	Hospital (%)	Nursing Home (%)	t	p
1. Washed hands before feeding	58.1	66.7	-1.164	0.248
2. Did not hurry the patient	100	100	–	–
3. Fed one patient at a time	96.8	31.4	5.923	<0.001
4. Did not interrupt feeding	90.3	82.4	0.381	0.704
5. Encouraged self-feeding	74.2	72.5	-0.290	0.773
6. Sat facing the patient	90.3	31.4	5.476	<0.001
7. Used verbal cueing	100	68.6	3.350	0.001
8. Used touch to encourage	64.5	21.6	3.932	<0.001
9. Talked to the patient	100	64.7	3.023	0.003
10. Used reinforcement (e.g., reward)	100	23.5	-3.090	0.003
11. Used negative enhancement (e.g., infantilisation)	4.0	2.0	-0.139	0.890

Note: Eating encouragement data were incomplete for some observations.

Technical Feeding Skills

Table 3 highlights important contrasts in technical feeding practices between family caregivers in hospitals and professional nursing staff (AINs) in nursing homes. Family caregivers were significantly more likely to simplify and sequence feeding tasks (61.3% vs. 19.6%, $p < 0.001$) and to use swallowing assistance techniques (29.0% vs. 2.0%, $p = 0.002$). These approaches suggest an intuitive reliance on breaking tasks into manageable steps and providing direct support to encourage swallowing, possibly reflecting familiarity with the individual's habits and needs despite limited formal training.

By contrast, professional carers demonstrated greater use of advanced technical interventions. None of the family caregivers used mouth-opening or lip-opening techniques, compared with 27.5% and 31.4% of nursing staff respectively (both $p < 0.001$). Nursing staff were also significantly more capable of recognising signs of choking (78.4% vs. 25.8%, $p = 0.004$), underscoring the impact of clinical training on safety and risk management. Although differences in the use of hand-over-hand support, chaining, and bridging techniques did not reach statistical significance, these practices appeared more in the nursing home cohort, indicating their exposure to broader, structured strategies.

Both groups demonstrated comparable use of multisensory cueing (77.4% vs. 68.6%, $p = 0.396$) and oral stimulation techniques such as providing water before eating (87.1% vs. 92.2%, $p = 0.460$), showing that some basic supportive strategies were common across settings.

Overall, these findings show two distinct but complementary care models: family caregivers providing practical, relationally grounded facilitation and professional carers applying clinically trained technical skills and vigilance. Together, they emphasise the potential benefit of integrating

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intuitive family strategies with the professional expertise of trained staff to optimise safe and effective mealtime care.

Table 3 shows that family carers may have relied more on intuitive facilitation, whereas professional staff demonstrated superior technical interventions and safety monitoring, reflecting the complementary strengths of each group.

Table 3. Feeding Skills used by assisting person across hospital and nursing home settings.

Item	Hospital (%)	Nursing Home (%)	t	p
1. Multisensory cueing - Utilising any of the five sense to help the patient eat	77.4	68.6	0.853	0.396
2. Task simplification and sequencing - Breaking the feeding task and performing one step at a time	61.3	19.6	3.864	<0.001
3. Mirroring - Teaching patients to observe what someone else is doing and do the reflection	3.2	9.8	-1.126	0.263
4. The hand-over-hand approach - Holding the patients' hand and steers it	25.8	3.9	1.94	0.058
5. Chaining and end-chaining - Observing chaining and end-chaining sign	0	2	-1.919	0.063
6. Bridging - Using an object to be a symbol of feeding	0	3.9	-1.122	0.265
7. Using mouth-open techniques	0	27.5	-5.201	<0.001
8. Using lip-open techniques	0	31.4	-6.215	<0.001
9. Using swallowing assistances techniques	29	2	3.291	0.002
10. Increasing oral stimulation techniques - Giving water before eating	87.1	92.2	-0.742	0.46
11. Observed the choking sign (or answer at least two signs correctly)	25.8	78.4	-2.979	0.004
12. Dealt with choking correctly (or answer at least two ways to deal with correctly)	9.7	41.2	0.407	0.685

Feeding Difficulties

Table 4 highlights significant differences in feeding difficulties experienced by cognitively impaired older adults across hospital and nursing home settings. Overall, hospital patients exhibited more disruptive mealtime behaviours and oral-motor challenges, whereas nursing home residents showed a higher prevalence of resistance-related behaviours.

Hospital patients were significantly more likely to display distractibility during meals (80.6% vs. 62.7%, $p < 0.001$), to use their hands for self-feeding (45.2% vs. 7.8%, $p < 0.001$), and to experience food dribbling from the mouth once food was ingested (61.3% vs. 13.7%, $p < 0.001$). These behaviours point

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to greater cognitive or functional impairment interfering with coordinated feeding and swallowing, as well as less structured environmental support compared with nursing homes.

Conversely, nursing home residents showed a higher prevalence of refusal or resistance behaviours. For example, over half failed to open their mouths or bit utensils when food was offered (51% vs. 19.4%, p = 0.003), while one-third pushed away food or resisted feeding (33.4% vs. 12.9%), although the latter did not reach statistical significance. These patterns may reflect the structured environment of residential care, where residents are routinely exposed to mealtimes and may assert autonomy through resistance.

Other behaviours such as turning the head away, spitting food, prolonged chewing, or gagging occurred in both groups but did not differ significantly. Both groups also displayed high rates of pausing or discontinuing eating for over one minute (hospital 71% vs. nursing home 74.5%), suggesting a shared difficulty with sustained engagement during meals.

In general, hospital patients demonstrated greater distractibility, functional self-feeding challenges, and oral-motor difficulties, while nursing home residents showed more active resistance behaviours such as mouth closure and food refusal. These contrasting patterns reinforce the importance of tailoring interventions: hospital strategies may need to focus on minimising distractions and managing oral-motor difficulties, whereas nursing home interventions should address resistance and promote acceptance of feeding assistance.

Table 4. Incidence of Feeding Difficulties Among Cognitively Impaired Older Adults in Hospital and Nursing Home Settings.

Item	Hospital (%)	Nursing Home (%)	t	p
1. Pushes or resists food offered by hand	12.9	33.4	-1.32	0.191
2. Negative behaviour toward feeder: pushes, hits, kicks or throws objects at feeder	0	2	-0.78	0.439
3. Inappropriate verbal statement toward feeder: negative statements about feeder, such as swearing at feeder	3.2	9.8	-1.1	0.273
4. Turns head away or tilts head backward	41.9	29.4	0.74	0.461
5. Spits out the food	12.9	9.8	0.76	0.45
6. Does not open the mouth or bites the utensils when food is offered	19.4	51	-3.04	0.003
7. Leaves the table	3.2	9.8	-1.1	0.273
8. Cannot sit still: slipping or twisting body to affect eating	9.7	2	0.88	0.383
9. Does not start to eat for at least 1 minute when invited to do so	61.3	60.8	-1.53	0.131
10. Becomes drowsy or falls asleep	29	15.7	1.66	0.1
11. Discontinues eating for over 1 minute	71	74.5	1.36	0.178
12. Distracted from eating by talking, looking around, or watching TV	80.6	62.7	5.04	<0.001
13. Plays with food: does something with food but does not eat it	9.7	3.9	1.05	0.297
14. Unable to successfully pick up food with utensil	29	23.5	-0.44	0.664

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15. Once food is on an eating utensil, unable to get the food effectively into the mouth	45.2	25.5	0.71	0.483
16. Uses hand to feed self	45.2	7.8	4.07	<0.001
17. Once food is in the mouth, food dribbles out from the mouth	61.3	13.7	4.74	<0.001
18. Continuously chews food or holds it in mouth but does not initiate swallowing	32.3	21.6	0.6	0.547
19. Chokes or gags on food	9.7	11.8	0.14	0.892

Nutritional Status and Caregiver Practices

Table 5 shows striking contrasts in nutritional status and caregiver practices between hospital and nursing home groups. Nutritional outcomes were significantly poorer in the hospital cohort, where over three-quarters of patients were malnourished (77.4%) and none had normal nutritional status. By comparison, only 13.7% of nursing home residents were malnourished, with nearly 40% classified as normal. This disparity was also reflected in mean MNA-SF scores, which were markedly lower in hospitals than in nursing homes (6.03 vs. 10.24, $p < 0.001$).

In terms of caregiver practices, family caregivers in hospitals demonstrated significantly greater eating encouragement than professional careers in nursing homes (7.74 vs. 6.61, $p = 0.002$), reflecting stronger relational and emotional engagement. Conversely, professional careers in nursing homes tended to employ more technical feeding skills, although this difference approached but did not reach statistical significance (3.80 vs. 3.19, $p = 0.082$).

Feeding difficulties were also higher among hospital patients, who recorded borderline significantly higher FDI scores compared with nursing home residents (7.65 vs. 5.96, $p = 0.085$). This suggests that hospital patients faced greater mealtime challenges, likely exacerbated by environmental disruptions and acute illness.

Taken together, these results may indicate that while family caregivers excelled in relational encouragement, hospital patients remained at greater nutritional risk. By contrast, the technical expertise and structured environment of nursing homes appeared to support more favourable nutritional outcomes.

Table 5. Nutritional Status Classifications and Mean Scores for Caregiver Practices, Feeding Difficulties, and Nutritional Outcomes in Hospital and Nursing Home Settings.

Measure	Hospital	Nursing Home	t	p
MNA-SF Classification				
Malnourished (0–7)	24 (77.4%)	7 (13.7%)	–	–
At Risk (8–11)	7 (22.6%)	24 (47.1%)	–	–
Normal (12–14)	0 (0%)	20 (39.2%)	–	–
Mean Scores (SD)				
Eating Encouragement	7.74 (1.03)	6.61 (1.71)	3.28	0.002
Feeding Skills	3.19 (1.25)	3.80 (1.66)	-1.76	0.082
Feeding Difficulty Index (FDI)	7.65 (2.14)	5.96 (5.10)	1.74	0.085
MNA-SF Total Score	6.03 (1.78)	10.24 (2.44)	-8.33	<0.001

Discussion

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This study provides a novel comparative analysis of mealtime care for cognitively impaired older adults, revealing two contrasting yet complementary models of assistance: a relationally driven approach delivered by family caregivers in hospitals and a technically skilled approach delivered by nursing staff in nursing homes. Together, the findings underscore the need to integrate both relational and technical competencies to optimise mealtime care and address malnutrition in this vulnerable population.

Family caregivers in hospitals demonstrated significantly more encouragement behaviours, such as verbal cueing, touch, and conversational engagement. These relational strengths are grounded in the emotional bonds, life history knowledge, and cultural familiarity that families bring to the care interaction [12,14]. Such behaviours align closely with principles of person-centred care, which emphasise dignity, comfort, and individualised support. Cultural considerations further amplify this role: families often possess nuanced knowledge of dietary traditions, religious practices, and symbolic meanings of food, which can increase acceptance and satisfaction during mealtimes [15,16]. However, despite these strengths, hospital patients assisted by family caregivers consumed smaller portions and had markedly poorer nutritional outcomes. This indicates that relational engagement alone cannot offset the complex barriers of the acute hospital environment, including illness severity, interruptions, noise, and inadequate food presentation [25–27].

By contrast, nursing staff in residential aged care facilities demonstrated a wider repertoire of technical skills, such as mouth- and lip-opening techniques, swallowing support, and heightened vigilance for choking risks. These competencies are linked to structured training and professional experience in dementia care [24]. Technical proficiency is critical for ensuring safety and facilitating adequate intake, especially in residents with advanced oral-motor difficulties. Yet, professional carers were less likely to use relational strategies, such as sustained conversation or physical touch, reflecting both task-oriented priorities and limited time in routine care. This imbalance highlights the need for training programs that extend beyond technical proficiency to include relational and cultural care skills.

Nutritional outcomes differed significantly between the two settings. Residents in nursing homes showed better nutritional status, supported by structured environments, stable health conditions, routine mealtimes, and communal dining that fosters social engagement [27]. Conversely, hospital patients faced multiple barriers—bedside eating, medical interruptions, acute illness, and packaging difficulties—that contributed to feeding challenges and elevated malnutrition prevalence [25–28]. Malnutrition itself then exacerbates frailty, impairs wound healing, increases fall risk, prolongs hospitalisation, and raises mortality [27,28]. These findings highlight the cyclical relationship between feeding difficulties and poor nutrition in hospitalised older adults.

This study also underscores the pivotal role of training and cultural competence in strengthening mealtime care. Family caregivers often lack knowledge of safe feeding practices, aspiration risk management, and positioning, explaining their lower technical scores. Structured education and guidance could enable them to translate their relational and cultural strengths into better nutritional outcomes [9,17,18]. Conversely, professional carers would benefit from training that emphasises relational engagement, cultural sensitivity, and sustained communication, ensuring that technical care is delivered within a framework of trust and dignity [15,16]. Evidence from intervention studies shows that integrated training programs improve mealtime practices, reduce malnutrition rates, and increase staff confidence [9,17].

The findings indicate that the distinction between family and professional caregiving should not be seen as one model being superior to the other, but rather as complementary strengths that together enhance mealtime care. Family caregivers excel in relational and culturally attuned support, offering emotional connection, familiarity, and sensitivity to cultural preferences. Professional carers, in contrast, contribute technical expertise and safety oversight gained through formal training. An integrated, person-centred model that deliberately combines these competencies represents the most effective pathway to improving outcomes. To achieve this, healthcare systems should prioritise cross-

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training strategies, equipping family caregivers with practical skills in safe feeding and swallowing management while also training professional staff in relational and cultural aspects of mealtime care.

Addressing malnutrition in cognitively impaired older adults therefore requires more than technical interventions alone. A holistic framework that combines technical proficiency, relational engagement, and cultural responsiveness within structured systems of care is essential to reduce malnutrition prevalence, enrich mealtime experiences, and improve health outcomes. Clinically, this study calls for moving beyond viewing family and professional caregiving as competing models. Instead, it advocates for a collaborative and integrated approach that draws on the distinct strengths of both groups. Embedding these complementary skills into structured training, interdisciplinary collaboration, and supportive policy initiatives offers the potential to build a unified model of care that addresses the psychosocial, cultural, and nutritional needs of this vulnerable population.

Strengths and Limitations

This study offers several important strengths. To our knowledge, it is the first to conduct a structured observational analysis of mealtime assistance for cognitively impaired older adults across both hospital and nursing home settings. By moving beyond single-site investigations, the study captured the contrasting realities of acute and long-term care. Direct, real-time observations provided a detailed account of caregiver practices and patient feeding behaviours, offering robust evidence that moves beyond assumptions or self-reports. This design highlights the mechanisms underlying inadequate nutritional intake, particularly in hospital settings, and generates an evidence base to inform training, policy, and practice.

Several limitations must also be noted. Caregiver type (family vs. professional) was confounded with setting (hospital vs. nursing home), meaning differences observed reflect their combined influence. Future research should compare both caregiver groups within the same environment to clarify their independent effects. The absence of randomisation further limits causal inference, as unmeasured factors such as disease severity or functional decline may have contributed to differences between groups. Additionally, only a single mealtime episode was observed for each participant, which may not reflect daily variability in behaviours and routines; repeated observations would provide a fuller picture. Finally, nutrition in older adults is shaped by multiple biological, psychosocial, cultural, and environmental factors [27], many of which were beyond the scope of this study.

While limited by design, this study provides novel evidence on the relational and technical dimensions of feeding assistance, offering a foundation for training and culturally sensitive interventions to improve mealtime care and nutritional outcomes.

Conclusions

This study demonstrated distinct differences in mealtime care for cognitively impaired older adults across hospital and nursing home settings. Family caregivers in hospitals provided stronger relational encouragement, while professional carers in nursing homes demonstrated greater technical feeding skills. Despite this relational support, hospital patients showed more feeding difficulties and poorer nutritional outcomes, whereas nursing home residents benefited from structured routines and skilled professional care.

The findings emphasise the complementary strengths of both caregiver groups. Family carers enhance emotional engagement and cultural familiarity, while professional carers contribute safety, technical expertise, and clinical oversight. Rather than positioning one model as superior, this study advocates for an integrated approach that combines relational and technical competencies. Embedding these elements through targeted training, interdisciplinary collaboration, and supportive policies offers a practical pathway to reducing malnutrition, enriching mealtime experiences, and improving outcomes for cognitively impaired older adults.

Implications for Clinical Practice

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The findings of this study highlight that mealtime care for cognitively impaired older adults must extend beyond technical feeding interventions. Family caregivers bring relational and emotional support, while professional carers contribute technical expertise and safety oversight. Clinical practice should therefore aim to integrate these complementary strengths into a unified approach.

In hospital settings, structured education and support for family caregivers are critical. Training in safe feeding techniques, positioning, and recognition of aspiration risks can help families translate their relational skills into improved nutritional outcomes. In nursing homes, professional staff development should extend beyond technical care to emphasise relational engagement, cultural sensitivity, and sustained communication, ensuring that mealtimes are both safe and person-centred.

At a broader systems level, policies should actively promote family involvement in mealtime care where appropriate, recognising their value as partners in nutritional support. Embedding culturally tailored mealtime practices that respect individual food preferences and traditions can further improve acceptance, satisfaction, and trust in care. Integrating both relational and technical competencies into training, clinical guidelines, and organisational routines offers a practical pathway to reducing malnutrition, enriching mealtime experiences, and enhancing overall health outcomes for cognitively impaired older adults across hospital and residential aged care settings.

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