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Original Research

Molded soft meals in creating positive mealtime experiences for nursing home residents in Singapore

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Abstract

Background: Dysphagia affects an estimated 58,000 to 174,000 older adults—approximately one in seven individuals aged 65 and above. This condition poses significant physical, psychological, and social challenges that can compromise the quality of life in Singapore, which is projected to become a super-aged society this year. In nursing homes, mealtimes contribute significantly to nutritional intake, physical functioning, emotional comfort, and social connection. Hence, improving mealtime care is crucial to supporting older adults' nutrition, dignity, and overall well-being.

Objectives: This study explores nursing home staff perspectives on how molded soft meals influence older adults' meal experiences, focusing specifically on comfort, dignity, autonomy, and social connection. By examining these staff insights, this study aims to understand how care providers interpret and support these vital aspects of older adults' well-being during mealtimes.

Methods: A qualitative, phenomenological approach was used, employing semi-structured interviews and thematic analysis. In-depth, semi-structured interviews were conducted with 13 staff members from a single nursing home, including 8 care staff (2 senior nursing aides, 3 nursing aides, and 3 healthcare assistants), 4 support staff (1 senior staff nurse, 1 staff nurse, and 2 enrolled nurses), and 1 management staff member (a nurse manager). The findings are limited by the reliance on staff-reported data, as direct interviews with older adults and objective mealtime observations were not conducted.

Results: Staff identified three key factors shaping meal experiences: (1) the significance of food presentation, (2) communal dining dynamics, and (3) the physical environment. According to staff reports, molded IDDSI Level 4 (pureed) diets supported the dignity of older adults and improved intake by easing chewing and swallowing while retaining a familiar food appearance. Staff also observed that positive social interactions, such as family-style dining and a homelike atmosphere, enhanced older adults' moods and appetites. Furthermore, staff perceived that welcoming, flexible dining spaces actively promoted independence, reduced anxiety, and encouraged conversation among the older adults.

Conclusion: Staff perspectives suggest that the integration of thoughtful food design, social dining practices, and a supportive environment can collectively enhance older adults' meal experiences by addressing both their physical and psychosocial needs. These insights offer practical, frontline-identified strategies to optimize care. Future research should expand to multiple nursing homes to include firsthand perspectives from older adults themselves and to evaluate the longitudinal effectiveness of these diverse dining approaches.

Keywords: Dysphagia, Texture-modified diet, Dining styles, Environment, Meal experience, Dignity, Autonomy, Social interaction

Introduction

Dysphagia is increasingly recognized as a significant health concern among older adults in Singapore, affecting approximately 15% of this population [1]. Its association with age-related conditions such as dementia, stroke, cancer, and muscular decline contributes to prolonged oral

transit times, reduced tongue strength, and delayed swallow reflexes, which collectively lead to malnutrition, dehydration, and a poorer quality of life [2]. Although the International Dysphagia Diet Standardization Initiative (IDDSI) framework provides standardized texture-modified diet levels to support safe swallowing [3], such diets are often reported as unappealing, nutritionally diluted, and labor-intensive to prepare. These limitations can directly reduce dietary intake and undermine older adults' dignity [4].

Improving meal experiences remains a critical challenge in Singapore's nursing homes, where institutional dining practices and task-focused routines frequently persist. Prior research demonstrates that appealing food presentation, supportive dining styles, and positive social interactions play key roles in enhancing resident nutrition, autonomy, and overall emotional well-being [5–8].

This study aligns with national healthcare mandates by examining how safety compliance can be balanced with person-centered care. Specifically, it operates at the intersection of IDDSI—the global, clinically validated framework of objective texture descriptors (Levels 0–7) [3]—and EatSafe SG, the Ministry of Health's localized national initiative that enforces the IDDSI framework as a regulatory licensing standard across Singapore's care continuum [9]. While EatSafe SG establishes the legal and operational guidelines for safe swallowing and cross-institutional communication, this study evaluates how that mandatory safety levels can be paired with dignity-driven innovations, such as molded IDDSI Level 4 (pureed) local dishes, to enhance the psychosocial dining experience for older adults [10].

While earlier studies highlight the distinct benefits of food shaping, dining style, and environmental design, limited research has explored their combined impact within multicultural Asian care settings. Much of the existing evidence emerges from controlled environments that overlook the real-world complexities, cultural variations, and language barriers relevant to Singapore's diverse population [11,12].

To address these gaps, this study explores nursing home staff perspectives on how molded soft meals influence older adults' meal experiences, with specific attention to comfort, dignity, autonomy, and social connection. The specific objectives are (1) to examine staff perceptions on the impact of texture-modified molded soft food on older adults' nutrition, choice, and enjoyment; (2) to investigate staff perceptions on how varying dining styles and environmental modifications shape older adults' autonomy and social connection; and (3) to identify staff-driven recommendations for holistically improving the mealtime environment.

Materials & Methods

Study design

This study adopted a qualitative, phenomenological approach to explore how nursing home staff perceive older adults' meal experiences, focusing specifically on comfort, dignity, autonomy, and social connection. A phenomenological design was chosen for its ability to elicit the deep meanings that staff attribute to these experiences [13], such as having choices, feeling comfortable, or connecting with others during meals. Semi-structured interviews with 13 staff members provided comprehensive perspectives on how molded soft meals may support these vital aspects of care.

Sampling strategy

Purposive sampling was employed to recruit participants with direct, meal-related care experience with older adults. Recruitment was facilitated by the nursing home's management, which may have influenced participant candor and introduced potential social desirability bias [14]. Institutional permission to conduct the study was obtained from the Director of Nursing, who also assisted in overseeing recruitment in line with predefined inclusion and exclusion criteria. Ethical approval was granted by the University Institutional Review Board (IRB), ensuring compliance with established research ethics standards. While the absence of direct interviews with older adults limits explicit claims about their lived experiences, thematic saturation was rigorously achieved across the diverse staff roles. The final sample comprised 13 participants, stratified across distinct professional categories to capture a comprehensive organizational perspective. Saturation was reached by the ninth interview, specifically following the fifth care staff, third support staff, and first management staff interviews, at which point subsequent transcripts yielded informational redundancy and no new codes emerged. To ensure trustworthiness, insights were systematically cross-checked and triangulated across roles, confirming that the identified themes reflected shared institutional realities rather than isolated viewpoints [14].

Interviews were conducted by the author, who works in a different department within the same organization. This role provided useful contextual familiarity while maintaining an appropriate professional distance, although the author's positionality may still have shaped staff narratives. Consequently, findings from this single site should be interpreted cautiously regarding their transferability to other settings [15]. Analytical rigor was ensured through iterative coding sessions with temporal intervals to monitor consistency, alongside repeated transcript reviews to prevent misinterpretation. Finally, credibility was enhanced by actively seeking disconfirming evidence to challenge and refine emerging themes [15].

Reliability checks were conducted systematically throughout the data collection process [15]. At the conclusion of each interview, the author summarized key points from the handwritten field notes, and participants were invited to confirm or clarify these preliminary interpretations. This real-time member-checking technique is widely recognized as a robust strategy for enhancing trustworthiness in phenomenological studies [15]. These initial reflections were subsequently cross-checked against the final transcripts to ensure interpretive accuracy and data consistency [15].

Additionally, the author maintained a reflexive journal to document personal biases, emotions, and preconceptions, thereby maximizing transparency and minimizing subjective influence on the phenomenological findings [15]. Interviews were audio-recorded using a secure mobile voice-memo application, with handwritten field notes taken during each session to capture non-verbal cues, emotional expressions, and contextual observations. Immediately after each interview, the author manually transcribed the recordings to ensure accuracy and maintain close familiarity with the data—a practice highly recommended in qualitative research for enhancing data immersion and analytic depth [15].

Participants

Eligibility criteria required participants to be staff members working in a nursing home that provides texture-modified diets.

Specifically, the inclusion criteria targeted care staff supporting older adults with dementia, stroke, or swallowing difficulties; support staff involved in daily operations and caregiver coordination; and management staff overseeing older adults' care, food services, or mealtime quality. All participants were required to communicate fluently in basic English or Mandarin.

Conversely, exclusion criteria applied to staff from senior care centers, kitchen assistants involved only in back-end food preparation, allied health professionals focusing on physical or therapeutic activities, and management staff responsible solely for corporate or social service functions.

The final sample comprised 13 staff members: 8 care staff (2 senior nursing aides, 3 nursing aides, and 3 healthcare assistants), 4 support staff (1 senior staff nurse, 1 staff nurse, and 2 enrolled nurses), and 1 management staff member (a nurse manager). This professional mix provided diverse, comprehensive perspectives from individuals directly involved in hands-on feeding assistance, clinical supervision, and overall mealtime operations.

Data collection

Data were collected through semi-structured, in-depth interviews, which is an ideal method for capturing rich, contextualized personal accounts. A total of thirteen interviews were conducted over two consecutive days within a private meeting room. The semi-structured interview guide (**Table 1**) consisted of 17 open-ended questions addressing texture-modified diets, dining practices, and environmental features that directly influence older adults' independence, autonomy, and social interaction.

Data analysis

Thematic analysis was employed to identify patterns and meanings within the interview data. Using an inductive approach, themes could emerge directly from the participants' narratives without the imposition of predetermined categories, consistent with Braun and Clarke's framework [16]. Transcripts were read multiple times, and initial codes were generated by highlighting meaningful excerpts. To support iterative comparison and refinement, these codes were visually clustered using colored Post-it notes. They were then grouped into broader categories and developed into final themes and sub-themes, which were reviewed repeatedly to ensure internal coherence. Finally, representative quotations were selected to illustrate each theme, ensuring the findings accurately reflected the participants' perspectives.

Table 1. Interview guide for participants.

Research Questions	Interview Questions
Nil. [Warm up question]	1. Tell me a little bit about yourself. · To engage and build rapport with the interviewee.
Nil. [To understand the type of food older adults with difficulty swallowing eat daily.]	2. What type of food do older adults eat currently? · Soft and bite sized · Minced and moist · Pureed food 3. Based on the response in question 2, what is the current food being served during lunch and dinner?
1. What is the impact of texture-modified diet on older adults' nutrition, individual choice and enjoyment?	4. Do older adults have a choice to choose from different menus or food items? · How much of the texture-modified diet can be personalized to their preference? 5. How do you ensure their nutritional requirement given their choice of texture-modified food? 6. Do older adults enjoy the texture-modified diet being served? · Why do you think this does or does not improve their appetite?
2. How can dining styles and environmental features influence older adults' autonomy, social interaction and independence?	7. What is the current way of serving food? · Pre-plated or family-style 8. Why do you think this helps them to eat better? Or why not? 9. Does the current way of serving food helps the older adults to eat by themselves? 10. Which mode of food serving is preferred? Why?
3. In what ways can older adult's mealtime be improved through texture-modified diet, dining style and environmental features?	11. Do older adults sit together with other fellow older adults during mealtimes? How do they interact? 12. What do you think of an open concept dining space where you can see what is being served? 13. Do the wheelchair friendly tables help older adults in sitting with others to have meals together? 14. What do you think of the dining place? Do you feel the space is conducive for older adults to have their meals? 15. What are the local foods that older adults would like to be offered as texture-modified diet? Why would they like to try them? 16. What do you think of the current dining style? Are there any areas for improvement? 17. How do you find the current dining area? What do you think can be improved?

Analytic rigor was strengthened through several mechanisms, first, conducting repeated coding sessions with time intervals to check consistency, second, systematically moving between the raw data and evolving codes [16] and last, paying deliberate attention to disconfirming evidence that challenged emerging interpretations. Reflexivity was maintained through a research journal where the author recorded personal biases and preconceptions, thereby enhancing the transparency and trustworthiness of the analysis. Collectively, these practices align with established recommendations for ensuring credibility, dependability, and confirmability in qualitative research [16,17].

Results

The older adults ranged from 60 to over 100 years old, with many living with stroke, Parkinson's disease, dementia, and varying mobility and feeding needs. Consequently, most required texture-modified diets, assisted feeding, or tube-feeding support. Despite these challenges, staff actively facilitated communal dining by transferring even bed-bound older adults to shared spaces, underscoring the profound institutional importance placed on social inclusion. Across the interviews, food presentation, communal dining dynamics, and the physical environment jointly shaped older adults' dignity, comfort, and nutritional well-being, directly reflecting the core principles of person-centered care.

Significance of food and appetite

Boosting appetite through condiments

Older adults ate better when meals matched their cultural and personal taste preferences. Staff frequently enhanced flavors using familiar condiments such as soy sauce, sesame oil, chili, or blended belacan (shrimp paste). One care staff member explained: *"Usually for porridge… some of them always ask for sauce… The Malay [older adults] will ask for belacan, [so we] must blend [it] until very fine."* These small flavor adjustments often directly improved food consumption, with a support staff member noting: *"We put a bit of soya sauce or sesame oil… oh, they can finish [their meal]."*

Visual–taste alignment

Older adults' appetite decreased when texture-modified foods looked unappealing or did not match expected flavors. Care staff expressed concern about visual inconsistencies in presentation, with one noting: *"[The] chicken… [is] sometimes very, very brown… [and] sometimes [a] light colour."* While familiar shapes and colours encouraged a willingness to eat, taste remained essential. As one management staff member emphasized: *"Even though it is appealing, the taste must be good."*

Choice through menu diversity

Choice was highly valued, particularly during tea breaks that featured culturally familiar options such as malted cocoa, barley-based drinks, mung bean sweet soup, and adzuki bean sweet soup. As one support staff member observed: *"They really like the tea break… way more than the lunches."* Offering these preferred options gave older adults a renewed sense of independence and dignity.

Mood shapes enjoyment

An older adult's emotional state strongly influenced their eating behavior. As a management staff member described: *"[They have a] more happy face during eating [and] tend to talk and joke."* Conversely, a poor mood significantly reduced cooperation and dietary intake, with a support staff member explaining: *"When [they are in a] bad mood, everything doesn't work."*

Choice as a driver of meal satisfaction

A lack of choice within fixed menus contributed significantly to older adults' frustration and food refusal. For instance, one older adult asked: *"Why can't we just make a change? Just tell the caterer to change."* Staff similarly noted that limited autonomy directly undermined appetite, with one sharing: *"She [would] say [it is the] same food, so she doesn't want to eat… [she] doesn't want to open [her] mouth."*

Visual appeal as a driver of appetite

Attractive presentations such as vibrant color contrast, neat plating, and simple garnishes, significantly enhanced older adults' appetite. As one support staff member shared: *"Visual is important. [The] number one factor, you add a bit of garnish on top of a soup."* Similarly, texture-modified foods shaped to resemble familiar items encouraged interest and curiosity, with another adding: *"If you have the shape right, [and it] look[s] like a carrot, maybe you can improve their appetite."*

Communal dining and interaction

Social interaction as an eating motivator

Communal dining fostered belonging and was described as one of the most enjoyable parts of daily routines. Sitting with familiar peers enabled conversation: *"They like to talk… we bring them to sit together so they can talk in their own language."* Social presence encouraged eating, particularly among those with low appetite: *"It's about social interaction, able to see one another."*

Home-like atmosphere through communal dining

Shared meals contributed significantly to a home-like atmosphere, helping the nursing home feel welcoming and familiar. Support staff explained their approach, noting: *"[We] put them all together… we do plating for them like a family."* Concurrently, management staff highlighted ongoing efforts to include older adults in self-serving options where possible, stating: *"They scoop the food themselves."* Ultimately, eating together enhanced social connection and supported more consistent dietary intake among the older adults.

Dining spaces as environmental enhancers

Television as an environmental enhancer

Television provided comfort and predictability, helping older adults remain engaged and emotionally settled during mealtimes. As one care staff member observed: *"They just enjoy watching while eating… they always sit together and watch the TV and eat together."* This shared viewing experience effectively created organic opportunities for conversation and community bonding among the older adults.

Well-designed dining spaces enhance the experience

Dining space design supported comfort and interaction. Appropriate spacing, seating arrangements, and lighting enabled older adults to engage more naturally. Support staff actively adapted layouts to facilitate connection, with one noting: *"We will put all the cardiac tables altogether [to] let people interact."* Furthermore,

adequate lighting reduced anxiety and improved visibility, as another staff member shared: *"I will probably want to put more lights… so older adults can see what is being served."*

Staff narratives revealed how food presentation, choice, mood, communal dining, and environmental design collectively shaped older adults' mealtime dignity, comfort, autonomy, and social connection. These accounts conveyed the profound meanings staff attached to everyday practices, such as adding condiments, plating meals attractively, fostering conversation, or intentionally arranging dining spaces, which they perceived as central to enhancing older adults' quality of life. Consistent with a phenomenological approach, these findings highlight mealtimes not merely as routine tasks, but as lived experiences rich with social and emotional significance.

Discussion

This study shows that staff perceived older adults' meal experiences in nursing homes as shaped by three interrelated factors, namely, the significance of food presentation, communal dining dynamics, and the physical environment. Each factor influenced mood, dignity, and well-being, thereby affecting nutritional intake, emotional health, and daily social life. These findings highlight the value of person-centered dining practices, which is consistent with prior research on the psychosocial dimensions of eating [18].

Staff consistently identified mood as a key determinant of appetite. Emotional distress, such as sadness or anxiety, was linked to reduced food intake, echoing evidence that psychological discomfort undermines nutrition in nursing homes [18]. This study emphasizes the need for care teams to look beyond surface-level food refusal and actively address underlying distress, aligning with research on the connection between the meal experience, emotional well-being, and social engagement [19,20]. Furthermore, brief pre-meal engagement was reported to improve older adults' readiness to eat, supporting findings that individualized interaction enhances overall intake [21,22]. Expanding such practices systematically and embedding them into routine staff training could strengthen consistency in person-centered care.

At a systems level, staff accounts reflected how Singapore's national initiatives, particularly the EatSafe SG framework, have reinforced governance, safety, and cultural relevance in texture-modified diets. Consolidated terminology, standardized documentation, and national training pathways aim to reduce choking risks among older adults with dysphagia [9]. Furthermore, the compulsory adoption of IDDSI under the Healthcare Services Act in 2024 ensures consistency in meal classification [9]. Ultimately, staff perspectives suggest that these frameworks have improved nutritional safety, menu standardization, and communication across multidisciplinary care teams.

Cultural familiarity was also seen as central to older adults' dignity and well-being. EatSafe SG resources, including hawker-style, dysphagia-friendly dishes, were valued for maintaining cultural significance across IDDSI Levels 4 to 6 [9]. Emerging approaches, such as molded purees and 3D-printed foods, were noted for improving the recognizability of dishes and enhancing eating pleasure [23–27]. Consequently, staff highlighted the need for greater collaboration between nursing homes, chefs, and external food providers to deliver safe, culturally meaningful meals that preserve older adults' dignity.

Food presentation was consistently described as central to enjoyment, especially for older adults on pureed diets. Meals with limited color contrast or unidentifiable shapes were unappealing, whereas recognizable forms and varied colors successfully increased oral intake [28–33]. Additionally, the participating nursing home has initiatives such as "Home Within Home," which utilize traditional tiffin boxes and homelike plating, were perceived as highly feasible, low-cost strategies to enhance appetite and dining satisfaction.

Mealtimes were also valued as social occasions. Family-style dining fostered companionship, reduced loneliness, and supported autonomy, which is consistent with evidence that social engagement improves nutrition and psychological well-being [34]. The "Home Within Home" program illustrates this shift by allowing older adults to choose what, where, and with whom they eat. Opportunities for choice, such as selecting condiments, beverages, or seating, were vital for maintaining dignity and reducing anxiety. Furthermore, staff emphasized flavor enhancement through herbs and spices, aligning with national sodium-reduction guidance [35,36].

Television use during meals was described as comforting, as it reduced loneliness and distracted older adults from unappealing food, thereby indirectly encouraging oral intake. This aligns with evidence that screen use can improve food consumption in care settings [37,38]. More broadly, macro-environmental features such as seating configurations, adjusted lighting, and open spatial design were observed to promote social interaction and reduce stress, reinforcing the overall psychosocial benefits of family-style dining [39,40].

Limitations

This study has several limitations. First, because it was conducted at a single nursing home, the findings may not transfer to other settings with different institutional cultures or populations [41]. Second, the sample comprised solely staff without direct interviews or observations of the older adults themselves. Consequently, the results reflect proxy perspectives rather than the older adults' direct lived experiences. This limits our insights into the older adults' internal emotional states, authentic preferences, and cultural meanings, which aligns with established critiques of proxy-based research [42]. Finally, the qualitative design and single-site scope restrict the ability to draw causal or comparative inferences. Future research should incorporate multi-site designs, direct accounts from older adults, and objective mealtime observations to validate effectiveness and ensure interventions genuinely reflect the diverse experiences of older adults.

Conclusion

This study shows how nursing home staff play an important role in turning safety rules into a meaningful, dignified meal experience for older adults. National frameworks like EatSafe SG and IDDSI help ensure meals are safe, but their success depends on small, everyday adjustments. Staff highlighted that interventions like molded texture-modified foods, flexible family-style dining, and a supportive environment can make meals both safe and enjoyable.

At the same time, this study points out several challenges. Staff shortages and an uneven readiness to prepare meals according to IDDSI standards often prevent teams from moving beyond routine, task-focused food service. For innovations like molded purees or open dining spaces to work long-term, nursing home management needs to invest in training, better workflows, and the necessary resources.

Ultimately, mealtimes should not be treated merely as a clinical task of delivering nutrition. Even though these findings come from staff perspectives at a single site, they provide practical, low-cost ideas for improvement. Future research should expand to multiple nursing homes to include direct input from older adults themselves, and to evaluate the effectiveness of these diverse dining approaches.

Conflicts of Interest

There are no conflicts of interest.

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