Nutrition and Hydration for the older adults living with dementia in care

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Undernutrition and dehydration in older adults is of concern for healthcare professionals as well as the individuals and their families. The consequences of undernutrition, which are serious in all ages, however they are especially prominent in the older population. Being generally more vulnerable as well as not being able to recover promptly, older people are at higher risk of falls, more frequent and longer hospital stays, increased infections as well as increased risk of dying. Reduced appetite and thirst along with physical and cognitive impairments can make it difficult for older people to consume sufficient amount of food and fluids. The subsequent adverse events such as falls or infections can further influence nutritional status, creating a vicious cycle of undernutrition and disease. Once established, the cycle is almost impossible to escape. This is a major public concern, not only because quality of life is compromised for those affected but also due to the economic impact that these events have on society.

Due to numerous functional and physiological alterations associated with age, older people frequently do not consume sufficient amounts of food and fluid and the diet is usually of poor quality. As a result, the prevalence of macro- and micronutrient undernutrition is high in both free-living and institutionalised older adults. It is estimated that prevalence of protein energy malnutrition may be as high as 15% in community dwelling older people, 25-65% in care home residents and 35-65% in older hospital patients. Early detection of undernutrition may be difficult because it cannot rely solely on anthropometric measurements and needs consideration of other factors. BMI for instance, is an established marker for nutritional status in younger populations but is not useful when assessing nutritional status in older persons. Sarcopenic obesity, which is a common problem within clinical setting and is especially prevalent in older patients, gives the impression that the person is over-nourished due to increased amount of fat mass but is in fact a type of undernutrition arising from an extensive muscle wastage caused by protein deficiency. This type of undernutrition usually occurs as a result of an acute decrease in food intake e.g., due to a sudden illness or food withdrawal. Recovering the muscle mass in older people is difficult, if not impossible in some circumstances. Chronic undernutrition on the other hand depletes all energy stores, leaving a person with little fat and muscle reserves. At this stage, micronutrient deficiencies are also common. People with dementia are particularly vulnerable to chronic undernutrition because they may forget to eat or they may lose the skills necessary for feeding, e.g. how to use the eating utensils.

Over many years, different strategies have been used to help older people maintain or improve their nutritional status. These are usually individual-focused and aim to address the underlying conditions. The strategies may include assistance with feeding, proving preferable foods, sensory stimulation, providing modified-consistency diet, food fortification and food supplementation. These interventions have been shown to be effective in the research context but are difficult to sustain in healthcare settings because they are extremely time consuming. Food fortification may be the easiest and cheapest option to improve nutritional status. In the study by Odlund et al,[1] nursing home residents received either regular diet provided by a facility, or the same meals fortified with energy-dense ingredients. The study reported that the residents in the treatment group tended to consume more calories and experienced less infectious episodes than those in the control group. Despite its effectiveness and relative ease of implementation, this strategy is not commonly used in healthcare settings. On the other hand, Oral Nutritional Supplements (ONS), in a form of milk or juice-based

fortified drinks, are still a predominant method for managing nutritional status used in hospitals and nursing homes. They have been found to be clinically effective in maintaining nutritional status when used as intended. These supplements aim to provide additional nutrition between the meals, but in practice, there are many older people who get their nutrition almost exclusively from ONS. The supplements are well-accepted by healthcare staff because they do not require any preparation or equipment and often require little assistance to be consumed. However, because of the frequent overuse of these products, ONS were coined as "McDonald's of the nursing homes". Some residents seem to like or even prefer ONS to consuming regular foods, but they are generally not well accepted and the compliance with consumption is generally low, ranging from 50% to 94%. ONS are also frequently used to substitute rather than supplement the main meals, therefore not providing sufficient nutrition for those who consume them. While it may be easy to criticise the healthcare institutions for not providing adequate nutrition for their patients or residents, it is also worth remembering that these facilities usually have limited financial resources. One study undertaken by the researchers at UWL, where a Catering Manager and a Catering Assistant from the dementia unit in the nursing home in London were interviewed to identify the barriers in providing a nutritious diet, reported that the cost of ingredients and the challenges of planning menus that fit different cultural and physiological requirements were the most important reasons for inadequate nutrition. The preliminary data from this study also indicated that most of the residents did not meet the daily energy requirements recommended by the British Nutritional Foundation (Table 1). The amount consumed was closely linked with the residents' functional status (categories described in Table 2) with the residents who were eating independently consuming the highest average calories. The residents who were able to eat independently but needed prompting to do so consumed less but those residents who needed physical assistance with feeding consumed the lowest number of calories. Neither of these residents consumed the recommended daily minimum requirement. This is consistent with the findings from another study which reported that the average food intake in nursing home residents was only 1205kcal a day, despite the majority of the participants being able to eat independently (10).

Table 1: Average energy requirements per day for older adults; values based on moderate activity, which represents a typical resident walking around the dementia unit.

Age	Males	Females
65-74	2342 kcal	1912 kcal
75+	2294 kcal	1840 kcal

Rates similar to those observed for undernutrition have also been reported for hydration status. As many as 20% of older patients admitted to hospital show symptoms of dehydration while in long-term care facilities this figure can be as high as 33%. Fluid intakes in care homes have been reported to be very low, with up to 99% of the residents not meeting the minimum recommended amount of 1500ml and most consuming less than 1000ml (8). Strategies for improving hydration care for care home residents have been proposed by the researchers at the University of West London, and the feasibility of these interventions was tested in the 'real-world' setting using the improvement science methodology.(2-8) This project demonstrated that there were virtually no residents who managed to consume 1500ml of the minimum recommended fluids, with those in the "needs assistance" group drinking the smallest amounts. Additionally, the researchers showed that the majority of these residents were given less than 1500ml of fluids a day, with the most dependent residents receiving the smallest amount. There were other factors that prevented these residents from drinking. The participants reported that they did not like the drinks they wanted and that the inadequate design of the drinking vessels prevented them from drinking. Successful strategies to increase fluid intakes included an introduction of protected drink times, introduction of the drinks menu, providing additional drinks before breakfast and an introduction of drinking vessels better designed for older

people. However, as with the nutritional support, these interventions were difficult to sustain once the research project was finished.

Table 2: Description of resident categories based on the ability to eat and drink (developed for I-Hydrate project conducted by researchers in UWL[7])

Level of assistance required	Description of typology
Independent	A resident who is physically and cognitively able to eat and drink unassisted, i.e. is able to pick up a eating/drinking equipment and use them to feed themselves without the need for assistance or encouragement from staff.
Needs prompting	A resident who is physically able to eat unassisted but needs the eating/drinking equipment to be placed in their hands or needs verbal encouragement/reminders from others to be able to consume their food or drink.
Needs assistance	A resident who is physically unable to pick up, manoeuvre or hold the eating/drinking equipment and needs full assistance from staff to consume food or fluids.

Another part of the research in UWL was focused on the fluid and food waste in the dementia units. The study found that the waste was highest for residents who needed prompting, followed by those who needed full assistance and was lowest in the independent residents. Although residents were served differing amounts of foods and fluids, this suggests that those who needed prompting did not receive appropriate assistance to enable them to drink adequate amounts. Similar assumption can be made about the fully-dependent residents who clearly did not receive appropriate assistance. However, even those who were considered fully independent left high amounts of foods and fluids unconsumed which signifies that they either did not like what they were being given or they may have been inappropriately categorised as independent by the staff when in fact they should have been in the "needs prompting" category. Another very interesting finding was the relatively high amount of food and fluid provided to all residents. Considering the previous study, which reported that the amounts served to the residents were often below the recommended 1500 that they are meant to consume (1), it demonstrates that serving sufficient amounts of food and fluid is essential but is not the only factor which consists of adequate nutritional care. Other factors include appropriate assistance and providing foods and fluids that are well-accepted by the residents. Additionally, considering the amount of food wastage observed, there is a need for these facilities to provide smaller but energy-dense foods.

The above evidence emphasizes the importance of further research with the focus on improving nutritional and fluid intakes of the older adults living with dementia. Some possible interventions could include serving smaller but nutritionally dense food portions and ensuring that residents' needs and preferences are met on individual basis. These could help to reduce the food waste while giving the flexibility to invest in higher quality ingredients, balancing the cost. This could be achieved by creating new meal recipes which take into consideration not only the portion sizes but also focus on

sensory presentation to make the meals tasty and visually appealing. Currently, the London Geller College of Hospitality and Tourism, which is a part of UWL, is working to improve the nutritional provision of baked goods and drinks to tailor them to the needs of older adults.

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