



## KEY POINT SUMMARY

### OBJECTIVES

The purpose of this study is to assess resident, staff, and environmental characteristics that are associated with low food and fluid intake and to contextualize these factors across different facility settings, including both nursing homes and RC/AL facilities.

## Characteristics Associated with Low Food and Fluid Intake in Long-Term Care Residents with Dementia

Reed, P.S., Zimmerman, S., Sloane, P.D, Williams, C. S., Boustani, M. 2005 | *The Gerontologist Volume 45, Issue 1, Pages 74-80*

### Key Concepts/Context

Research conducted on residents of different nursing homes shows that the older people who had been suffering with impaired mobility and cognition face serious malnutrition resulting from insufficient food intake and dehydration problems due to less consumption of fluid intake. The resident characteristics that contribute to food and fluid intake include cognitive status, ability to drink independently, and physical limitations such as difficulty swallowing. Care provision such as monitoring, verbal encouragement, and physical assistance also encourage food and fluid intake. In addition, environmental characteristics contributing to adequate intake include food quality, absence of environmental distraction, and non-institutional features such as tablecloths, etc., and social interaction. Research shows that the observed proportion of food and fluid consumption is commonly used to identify problematic eating and drinking. However little is known about factors associated with low food and fluid intake among cognitively impaired residents of residential care or assisted living (RC/AL) facilities.

### Methods

- The study used the Structured Meal Observation (SMO) method, consisting of 28 items of observation for data collection.
- 45 facilities across four states including 35 RC/AL facilities and 10 nursing homes participated in this study.
- A total of 421 residents aged 65 and older with diagnosed dementia participated in this study. Among them, 21% were males, 11% were non-white, 37% had severe cognitive impairment, 27% had moderate cognitive impairment, 25% had moderate cognitive impairment and 12% had mild cognitive impairment.



### DESIGN IMPLICATIONS

The design of RC/AL facilities that are small in size may encourage better food intake among cognitively impaired residents.

The design of RC/AL facilities that are newly modeled may encourage better fluid intake.

The dining area designed with more non-institutional features may encourage more food and fluid intake.

The low noise level of dining room area may encourage more food and fluid intake.

- The observation was administered by observing up to five residents during the course of a single meal to document the amount of food intake that was less than 75% and fluid intake that was less than 8 ounces.
- Resident characteristics observed by SMO include alertness (low/high), utensil use (low/high), postural stability, and movement.
- Other residents' characteristics reported by care supervisors include residents' mouth and throat problems, residents' affects, behavior, activity involvement, and pain.
- Staff assistance variables observed by SMO include staff monitoring, talking to the resident, offering physical assistance, and the number of staff per resident.
- Environmental features observed by SMO include place of taking food; noise level; food texture; thickness of fluids; the number of non-institutional features present (e.g., not eating off a tray); the number of people grouped with the resident; and presence of the resident's family.
- The resident's cognitive status assessed by using either the resident's Mini-Mental State Exam score or the supervisor-reported Minimum Data Set Cognition Scale.
- Care factors assessed in this study include assessment of residents' difficulty eating and drinking, staff's perceived current status of residents' eating and drinking difficulties, treatment strategies employed by the staff to address eating and drinking difficulties, and the staff's perception of the success of the treatment provided.
- Facility characteristics reported by administrators include the proportion of direct care and supervisory staff with formal training in care of resident nutrition and hydration problems, facility ownership, and facility type.
- For analysis the study used bivariate linear and logistic regression models to assess differences between facility settings (i.e., RC/AL facility versus nursing home).
- For analysis the study used logistic regression models to estimate odds ratios and 95% confidence intervals for the association between resident and facility characteristics and each intake outcome.
- The study used multivariable models to estimate the correlation according to gender, race, age, cognitive status, comorbidities, and impairments in activities of daily living.
- All analyses were adjusted for facility clustering effects using generalized estimating equations (GEEs), and an exchangeable correlation structure.
- The study also tested the interactions of predictors with facility setting to confirm that factors' associations with food and fluid intake did not differ between nursing homes and RC/ALs.



## Findings

- The occurrence of low intake observed in this study was 54.1% for food and 51.3% for fluid.
- RC/AL residents had low food (50.4% vs. 61.8%), and fluid (45.8% vs. 63.4%) intake relative to those living in nursing homes.
- Several components of assessment and resident status differed by setting.
- RC/AL residents had fewer eating and drinking difficulties, received less treatment for eating difficulties by professionals (7.1% vs. 30.2%) and informally (15.6% vs. 34.9%), received less physical assistance from staff (26.7% vs. 44.3%), had more meals in dining area (96.7% vs. 81.5%), higher proportion of residents living in low-noise environment (51.6% vs. 35.1), lower proportion of residents received pureed food (6.9% vs. 26.7%), compared to nursing home residents.
- The nursing homes had fewer number of residents per staff (4.7 residents/staff vs. 8.2 residents/staff); had more trained staff to assess and treat eating difficulties (97.8% vs. 71.9%) compared to RC/AL facilities.
- Resident characteristics such as age, gender, race, and cognitive status did not show any correlation with low intake.
- Resident characteristics (being non-alert) were associated with low food and fluid intake.
- Residents of living in small RC/ALs had better food intake, and residents living in new-model RC/AL facilities better low fluid intake.
- Residents of for-profit facilities had better low food and fluid intake.
- Residents monitored by staff were less likely to have low food and fluid intake.
- Having a higher number of residents per staff member was associated with low fluid intake.
- Supervisor reports of treatment success were related to better fluid intake.
- Residents having meal in the facility dining area rather than their bedroom had better fluid and food intake.
- Residents having meal in dining area with more non-institutional features had better food and fluid intake.

## Limitations

Limitations identified by author include:

This study only considered food and fluid intake; no nutrition information was used to evaluate food quality and food appropriateness relative to residents' nutritional need.

The study only recorded food and fluid intake during a single meal instead of overall resident intake throughout the day.



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The reviewer identified additional limitations in the study including:

- The study suggested that residents having meal in dining area with more non-institutional features (like tablecloth) were less likely to have low food and fluid intake. But the study did not clearly describe the non-institutional feature.
- The study did not mention the physical condition of the dining room that might be associated with low food and fluid intake such as lighting condition, ambient temperature, air quality, furniture layouts and details, exposure to natural view, and overall quality of dining room area.