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Resident Complaints About the Nursing Home Food Service: Relationship to Cognitive Status

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Most nursing home (NH) residents are not interviewed about their satisfaction with the food service due to cognitive impairment. The purpose of this study was to determine the proportion of NH residents able to complete a structured interview to assess food complaints when no cognitive status criteria were used to exclude residents from interview. Eighty-nine percent of 163 residents were able and willing to complete the interview, and 65% expressed complaints about the NH food service. Residents who expressed complaints ate less of their meals, had less cognitive impairment, and had more depressive symptoms than those who did not. This study shows that the majority of NH residents are able to reliably answer questions about their satisfaction with the food service, regardless of cognitive status, and the presence of complaints is related to poor meal intake and depressive symptoms.

Key Words: Cognitive status—Food service—Nutrition—Satisfaction.

As older adults live longer in nursing homes (NHs), there is a growing emphasis on resident-centered care and quality of life. A key component of resident-centered care is offering choice, and choice is important to quality of life (Kane et al., 1997; Saliba & Schnelle, 2002). One aspect of residents' daily lives wherein choice is important to quality of life is mealtime (Crogan, Evans, & Velasquez, 2004; Kane et al., 1997).

A report by the National Citizens' Coalition for Nursing Home Reform showed food service as one of the most common complaints from 1996 to 2005 (Administration on Aging, 2005). NHs are required to routinely assess residents' food complaints using the Minimum Data Set (MDS; Health Care Financing Administration, 1999). A study with 75 residents due an MDS assessment showed that 47% expressed stable complaints about some aspect of the NH food service in response to a structured interview, but none had food complaints documented on their MDS (Simmons, Lim, & Schnelle, 2002).

Other studies have shown that NH residents who report satisfaction with the food service based on interview have a better nutritional status than those who report dissatisfaction. However, these comparison studies included only NH residents who were cognitively intact or subjectively rated by NH staff as capable of interview (Crogan et al., 2004; Evans & Crogan, 2005; Feinberg & Whitlatch, 2001; Keller, 2004). The purpose of this study was to determine the following:

1. What proportion of NH residents are able and willing to report their satisfaction with the NH food service when no cognitive status criteria are used to exclude residents from a standardized interview?
2. What characteristics differentiate residents who express food service complaints from those who do not?

Methods

Setting and Recruitment

Participants were recruited from four community NHs (two for profit) with 433 (85%) occupied beds. They were part of a larger clinical intervention trial designed to affect nutrition and weight status. Eligibility criteria for the larger trial required participants to be long-stay (non-Medicare), free of a feeding tube, not receiving hospice, and not on a planned weight loss diet: 310 (72%) residents met eligibility criteria. Consent procedures were approved by the university-affiliated institutional review board, and consent was obtained for 173 (56%) eligible residents. Ten participants were lost from the study due to death, transfer, or consent withdrawal. The remaining 163 participants comprised the study sample ($M = 41 \pm 5$ participants per NH site) using only baseline data collected prior to intervention.

Measures

Participant characteristics were retrieved from the medical record along with the most recent MDS (Table 1). An MDS recall score ≥ 2 indicates a resident's ability to report accurately if he or she has received specific aspects of daily care (Simmons & Schnelle, 2001). Research staff assessed cognitive functioning using the Mini-Mental State Examination (MMSE; Molloy, Alemayehu, & Roberts, 1991) and depressive symptoms using the Geriatric Depression Scale short form (GDS-short; Sheikh & Yesavage, 1986). Only participants with MMSE ≥ 15 were interviewed with the GDS-short (McGivney, Mulvihill, & Taylor, 1994). Research staff used a standardized protocol to assess participants' body weight, calculate body mass index (BMI), and estimate resting energy expenditure (Alix et al., 2007). BMI <21 kg/m^2 indicated undernutrition (Fiaterone Singh & Rosenberg, 1998).

Table 1. Characteristics of Participants ($N = 163$)

Measure	Percent (n) or M ($\pm$ SD)
Demographic	
Female	77 (125)
White	80 (130)
Age, years	82.35 ($\pm$ 11.71)
Length of stay, years	2.45 ($\pm$ 2.94)
Medical	
Dementia diagnosis	37 (60)
MMSE total score (0–30)[a]	14.76 ($\pm$ 9.23)
Depression diagnosis	41 (67)
GDS total score >5[b]	29 (40/138)
Dysphagia diagnosis	10 (16)
MDS	
MDS recall scale score $\geq$ 2[c]	66 (107)
MDS Eating Dependency rating $\geq$ 1[d]	43 (70)
Food complaints	0 (0)
Nutritional	
Special diet order[e]	88 (143)
Oral liquid nutrition supplement order	52 (84)
Body mass index < 21	28 (45)
Estimated resting energy expenditure[f]	1204.91 ($\pm$ 279.62)
Average total percent eaten during meals	64 ($\pm$ 20)

Notes: GDS-short = Geriatric Depression Scale short form; NH = nursing home; MDS = Minimum Data Set; MMSE = Mini-Mental State Examination.

[a]MMSE: score range from 0 (*severely impaired*) to 30 (*cognitively intact*).

[b]GDS-short: ranges from 0 to 15 where a score greater than 5 is indicative of probable depression. Only participants with an MMSE total score of 15 or higher were interviewed with the GDS-short.

[c]MDS (Section B3. Memory/Recall Ability, Items a–d): rated by NH staff as able to accurately recall (a) current season, (b) location of own room, (c) staff names/faces, and (d) that he or she is in a. Score range from 0 to 4 (rated by staff as capable of accurately recalling all four items).

[d]MDS Eating Dependency Scale score (Section G. Physical Functioning, Item 1h) rated (0) *completely independent, no help, or oversight needed*; (1) *supervision*; (2) *limited assistance*; (3) *extensive assistance*, and (4) *completely dependent, full physical assistance*.

[e]Special diets included any restrictions (no added salt, no concentrated sugars) or altered texture (ground, mechanical soft, puree, thickened liquids).

[f]Harris–Benedict equations for Resting Energy Expenditure Needs Estimation: Male = 66.5 + 13.75 weight in kilograms + 5.0 height in centimeters – 6.78 age; female = 655.1 + 9.56 weight in kilograms + 1.85 height in centimeters – 4.68 age.

Meal Satisfaction Interview

All the 163 participants were approached for interview by research staff in a private area using five standardized questions (Table 2). A response of "no" indicated the presence of a complaint. Participants who completed the first interview were approached for a second interview by a different interviewer blind to the resident's responses on the first interview to assess stability (test–retest reliability). The interviews were conducted on the same days as meal observations.

Oral Food and Fluid Intake of Meals

Research staff conducted meal observations on two randomly selected consecutive week days (six meals) for each participant and estimated total percent consumed of all served foods and fluids. Research staff different from the meal observer estimated total percent eaten based on pre–post meal tray photographs to assess interrater reliability (Pearson $r = .944$, $p < .001$ based on 80 pairs). Previous studies have demonstrated the reliability and validity of both observations and photographs and a 2–3 days' assessment period to estimate total percent eaten for NH residents (Simmons & Reuben, 2000; Simmons & Schnelle, 2004).

Analyses

The presence or absence of food complaints was compared across interviews to assess stability of residents' responses using the Kappa agreement statistic. A paired-samples t test was conducted to compare the average number of complaints expressed by participants across the two interviews (range 0–5 for each interview). These same stability analyses were conducted for the subgroup of participants with an MDS recall $\geq$2 who also completed both interviews.

Group comparisons were conducted between participants who expressed complaints and those who did not using t tests for independent samples for continuous variables and chi-square analyses for categorical variables. An exploratory correlational analysis was conducted to identify variables associated with complaints. Then, the following independent variables that were significantly correlated with food service complaints but not significantly intercorrelated at a level $\geq$80 were entered into a logistic regression analysis with 95% confidence intervals to predict membership in the complaint group: MMSE, MDS recall, dementia diagnosis, Geriatric Depression Scale (GDS), depression diagnosis, and average total percent eaten. A second logistic regression included dementia diagnosis, MDS recall, average total percent eaten, and depression diagnosis in the model that retained all participants in the analysis, as opposed to only those with MMSE $\geq$15.

Results

Meal Satisfaction Interview

The interview required an average of 6 ($\pm$ 4) min per person to complete. The majority of the 163 approached for interview (88%) were able and willing to complete the interview (i.e., "yes," "no," or "don't know" response to $\geq$3 questions). The remaining 12% ($n = 19$) did not complete the interview (i.e., "no response/refused to answer" most questions). They were significantly more cognitively impaired than participants who completed the first interview ($n = 144$) as measured by dementia diagnoses (58% vs. 34%, respectively; $\chi^2 = 4.11$, $df = 1$, $p < .05$), MMSE (4.25 $\pm$ 5.33 vs. 16.54 $\pm$ 8.34, respectively; $t = 7.25$, $df = 16.17$, $p < .001$), and MDS recall (0.63 $\pm$ 0.90 vs. 2.54 $\pm$1.32, respectively; $t = 8.20$, $df = 29.54$, $p < .001$). These differences suggest that severe cognitive impairment precluded this group of residents from being able to answer the interview questions, as opposed to refusal.

Based on the first interview, 65% (94) expressed one or more complaints about some aspect of the NH food service, with an average of 1.20 ($\pm$ 1.25) complaints per person (range

Table 2. Resident Responses to Interview Questions (n = 144)

Question	Response, n (%)			
	Yes	No	Don't Know	No Response
Do you like the food here?	93 (64.6)	49 (34.1)	2 (1.4)	0
Do you feel there is enough variety?	97 (67.4)	35 (24.3)	10 (6.9)	2 (1.4)
Does the food look good (appetizing) to you?	107 (74.3)	35 (24.3)	0	2 (1.4)
Is the food served at the right temperature?	106 (74.1)	33 (23.1)	2 (1.4)	3 (2.1)
If you don't like the food you are given, can you get something else instead?	91 (64.1)	25 (17.6)	22 (15.5)	6 (4.2)

0–5, n = 144). None (N = 163) had NH staff documentation of food complaints on their most recent MDS (Section K. Item 4a. Presence/absence of food complaints, e.g., taste).

Of the 144 participants who completed the first interview, 125 (87%) completed a second interview. The others either overtly refused (n = 6) or provided "no response" to most questions (n = 13). The presence or absence of complaints was compared between interviews to assess stability of residents' responses, without excluding residents based on cognitive status, and the overall Kappa for the group was .39 (n = 125; $p < .001$). The Kappa was higher for the subgroup with an MDS recall ≥2 (n = 95; Kappa = .47, $p < .001$). The average number of complaints expressed by the participants across the two interviews remained comparable, regardless of cognitive status (1.25 ± 1.29 vs. 1.18 ± 1.28 for Interviews 1 and 2, respectively, n = 125). Perfect agreement between interviews was not expected due to variability in residents' satisfaction with the NH food service and menu choices across different days.

Interview 1 results were used to compare all Table 1 characteristics between participants who expressed one or more complaints (n = 94) and those who expressed no complaints (n = 50). Participants with complaints had more symptoms of depression according to depression diagnosis (50% vs. 32%, respectively; $\chi^2 = 4.30$, $df = 1$, $p = .038$) and GDS (n = 133, 48% vs. 17%, respectively; $\chi^2 = 12.27$, $df = 1$, $p = .000$). Those who expressed complaints also were significantly less cognitively impaired according to dementia diagnosis (25% vs. 52%, respectively; $\chi^2 = 11.02$, $df = 1$, $p = .001$), MMSE (17.82 ± 8.45 vs. 13.93 ± 7.55, respectively; $t = -2.61$, $df = 135$, $p = .01$), and MDS recall ≥2 (82% vs. 56%, respectively; $\chi^2 = 11.10$, $df = 1$, $p = .001$). The only nutritional characteristic that significantly differentiated the two groups was average total percent eaten during meals, which was lower for those with complaints (60% ± 21% per person per meal vs. 68% ± 17%, $t = 2.34$, $df = 142$, $p = .021$).

The logistic regression analysis showed that the model was significant ($\chi^2 = 33.62$, $df = 6$, $p = .000$) but only GDS (beta coefficient = .235, $SE = .088$, $df = 1$, $p = .008$) was a significant predictor, indicating that a higher GDS score (more symptoms of depression) was associated with the presence of complaints. The comparison between observed and predicted values for the presence or absence of complaints showed an overall 73.8% agreement (84.4% sensitivity and 55.6% specificity) for this model. Only 122 cases were included in this model because participants with an MMSE <15 were not assessed with the GDS. When depression diagnosis was entered into the model instead of GDS (to include the entire sample) and MMSE was removed, leaving only dementia diagnosis and MDS recall as cognitive status measures, the overall model was again significant ($\chi^2 = 22.80$, $df = 4$, $p = .000$), with dementia diagnosis (beta coefficient = –.921, $SE = .405$, $df = 1$, $p = .023$), MDS recall (beta coefficient = .939, $SE = .434$, $df = 1$, $p = .030$), and average total percent eaten (beta coefficient = –.026, $SE = .011$, $df = 1$, $p = .017$) emerging as significant predictors of complaints, with depression diagnosis not significant. In this second model, the coefficients for dementia diagnosis and average total percent eaten were both negative, indicating that the absence of a dementia diagnosis and lower intake were associated with presence of complaints.

Discussion

The results of this study showed that most NH residents were able and willing to answer questions about their satisfaction with the NH food service when no cognitive status criteria were used to exclude residents from interview. The brief, structured interview revealed a substantial proportion of residents with complaints about one or more aspects of the NH food service. In contrast, the most recent MDS assessment revealed no complaints for any study participants. The absence of complaints on the MDS is consistent with the results of a previous study that compared resident interview with MDS documentation for food complaints (Simmons et al., 2002). One reason for these discrepancies is lack of standardization in how the MDS is completed by NH staff who typically do not use structured resident interview questions, such as those used in this study.

This study also showed that residents who expressed complaints had less cognitive impairment, more symptoms of depression, and lower food and fluid intake than those who did not. Depression is associated with poor oral intake and unintentional weight loss (Morley & Kruenzle, 1994; Simmons, Keeler, Xiaohui, & Schnelle, 2008). Although the quality of the NH food service is important to all residents, these results suggest that it may be more salient to residents with less cognitive impairment. However, it also could be that residents with less cognitive impairment are better able to express their complaints and preferences. An alternative assessment approach

for more severely impaired residents unable to respond to interview questions is to conduct observations during meals. A standardized, validated mealtime observation protocol is available for ongoing quality improvement related to nutritional care, including the duration and quality of assistance and whether or not staff make alternatives to the served meal available (Simmons, Babinou, Garcia, & Schnelle, 2002).

There are a few important limitations to this study. Participants were predominantly female and White, and this cross-sectional study was limited to four community NHs in one geographic region. Results may not be generalizable to NH resident populations in other geographic areas or those with characteristics substantially different from study participants. Also, this study did not evaluate the stability of food complaints over time (e.g., weeks, months) or the impact of food complaints on nutritional health outcomes (e.g., weight loss). Future research studies should evaluate further the reliability of food complaints among cognitively impaired NH residents through an evaluation of the sensitivity of residents' complaints to improvements in the NH food service. Although residents' satisfaction with the food service always will be a subjective opinion, the sensitivity of residents' complaints or weight loss outcomes to food service improvement interventions would provide additional support to the reliability of their self-report.

Based on the results of this study, most residents should be approached for interview, with the exception of those with severe cognitive impairment. An MDS recall ≥2 could be used to select residents for interview (Simmons & Schnelle, 2001). In addition, standardized resident interview protocols should be used for routine MDS assessments as well as ongoing quality improvement activities related to the NH food service. The assessment of residents' satisfaction with the food service can improve their quality of life and possibly their food and fluid intake.

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Conflict of interest

There are no financial conflicts of interest for any of the authors. Each author contributed to study concept, data analysis, interpretation of data, and/or manuscript preparation.

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