HHS Public Access

Author manuscript

Am J Phys Med Rehabil. Author manuscript; available in PMC 2024 March 25.

Published in final edited form as:

Am J Phys Med Rehabil. 2023 February 01; 102(2): S38–S42. doi:10.1097/PHM.0000000000002123.

Socialize, Eat More, and Feel Better:

Communal Eating in Acute Neurological Care

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Abstract

Objective: Stroke commonly leads to feelings of isolation and loneliness, especially during the hospital period. The aim of the Communal Eating program was to support patient well-being through introducing opportunities for patients to eat lunch together.

Design: Patients admitted to the Brain Rescue Unit who were identified as appropriate by their attending physicians, nurses, or other clinicians were recruited to attend communal lunch. Their mood, quality of life, loneliness, communication, swallowing safety, and eating behavior were examined.

Results: Those who attended two or more sessions tended to have been lonelier and more psychosocially impaired at baseline. Patients who had one or fewer lunch showed no significant differences from baseline to posthospitalization on any measure. However, for those who ate two or more lunches, changes in loneliness and quality of life trended toward improvement. There was scant evidence of changes to communication or eating habits.

Conclusion: Implementing a communal eating program in the acute hospital setting was very feasible and widely supported by patients, families, and staff. The results thus far show modest trends toward fulfilling the goal of supporting emotional well-being, while potentially supporting increased intake and, importantly, do not evidence any measurable harm.

Keywords

Communal Eating; Acute Care; Stroke; Communication; Diet; Mental Health

Stroke is a disease with significant cognitive and physical consequences that commonly lead to feelings of isolation and loneliness, especially during the hospital period.[1] Social isolation, the state of lacking engagement with others and having minimal social contact,[2] and loneliness, the subjective feeling of isolation, are frequently associated with hospitalization.[3,4] Aphasia, common in those recovering from stroke, impedes social

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Financial disclosure statements have been obtained, and no conflicts of interest have been reported by the authors or by any individuals in control of the content of this article.

connection through communication, thus contributing to their social isolation and loneliness both during hospitalization and during recovery.[5–7] Over the long term, loneliness has measurable detrimental effects, including impaired cognitive function,[8] altered immunity,[9] and impaired metabolic[10] and cardiovascular health.[11–13]

Whereas some patients have a care partner or partners present throughout the day, many must balance in-person support of a hospitalized loved one with responsibilities to their job, family, and their own self-care, so they are not able to stay in the hospital room all day each day. Thus, patients often eat by themselves in their hospital bed, despite the fact that the deleterious impact of involuntary isolation during meals has been the focus of considerable research. Eating alone has been identified as a potential risk factor for depression.[14,15]

Beyond concerns for patients' psychosocial well-being and long-term deleterious physical effects of social isolation and loneliness, eating alone carries additional risks especially in those who are at high risk for dysphagia. Dysphagia is common in patients recovering from stroke and can influence both the safety and amount of food intake.[16] Individuals with dysphagia are often advised to sit up straight or tuck their chin to avoid aspiration or penetration of foods or liquids into the trachea.[17] These modifications may be difficult to achieve in bed and may contribute to lower swallowing safety in these individuals. Post-stroke dysphagia has been associated with changes in affect and increased depression.[18,19] Taken together, these issues conspire to increase risk of malnourishment and dehydration,[20,21] which can further influence post-stroke depression.[22,23]

The aim of the Johns Hopkins Hospital acute inpatient Brain Rescue Unit Communal Eating program was to address these and other aspects of patient mental and physical health by creating an opportunity for patients to eat with others if they chose to do so. This pilot study was conducted to demonstrate the feasibility of implementing a communal eating program in the hospital setting and to explore the relationship between communal eating and a sense of well-being at the time of hospital discharge. A secondary aim was to observe whether their communication increased over the number of sessions and whether eating with company meant patients, who may have been prescribed a modified diet or who were simply unaccustomed to the heart healthy choices available to them in the hospital, ate more appropriately (i.e., did not over- or under-eat).

METHODS

Recruitment

All work was conducted with the formal approval of the Johns Hopkins University School of Medicine Institutional Review Board in accordance with the relevant guidelines and regulations, including those enumerated in the Declaration of Helsinki. Patients admitted to the Johns Hopkins Hospital 12-bed acute stroke Brain Rescue Unit within the authors' Joint Commission–accredited Comprehensive Stroke Center, who were identified as appropriate by their attending physicians, nurses, or other clinicians were recruited to attend communal lunch and provided written consent to participate in the study. As space allowed, patients identified in the General Neurology unit also were invited. Recruited patients were English-speaking adults who were able to communicate in some way and able to follow

basic directions (for their own safety and the safety of other patients). Those who were not speakers of English, nil per os, requiring isolation for infection control, unable to communicate verbally because of neurological injury (severe global aphasia), or who were unable to reliably follow directions, as determined by the care team, were excluded from group participation. If barriers to participation were temporary (e.g., nil per os ahead of a procedure), those patients also were approached for recruitment. Patients requiring isolation were seen 1:1 in their rooms for lunch during their stay.

Procedures

Once participants consented to the study, they were asked to complete a number of tools designed to assess their current communication participation, mental health, and quality of life. The Patient Health Questionnaire-9[24] and Short Blessed Test[25] are administered as a routine part of nursing care. In addition to accessing these assessments, participants were asked to complete the University of California, Los Angeles Loneliness Scale,[26] Stroke and Aphasia Quality of Life Scale-39,[27] Functional Oral Intake Scale,[28] and Eating Assessment Tool-10.[29] These assessments were repeated on the final day before discharge as well. Ninety days after discharge, patients were recontacted and asked to complete these measures a third time in addition to the Boston University AM-PAC Applied Cognitive Outpatient Short Form.[30]

Patients participating in the communal eating group were brought to the renovated “dining room” area on the unit to eat together during mealtimes, which were observed and moderated by a speech language pathologist. This space had modifications in table, to accommodate wheelchairs and more comfortable chairs that could be easily disinfected, as well as artwork and color to mimic a restaurant setting. In addition, an emergency call device was extended into the room so that emergency assistance could be immediately summoned by the moderator. The role of the moderator was twofold: to facilitate interaction among patients with diverse language and cognitive-linguistic abilities and to monitor patients for safe swallowing behaviors, as appropriate. Sessions were video- and audio-recorded to facilitate analysis of communication and observe patients’ use of nonverbal communication. Because speech does not always progress in complete sentences, communication was analyzed by examining *utterances*. Utterances (sometimes called “conversational units”) are strings of words defined when at least one of the following three features is present: (1) followed by a pause of 1 sec or more, (2) ends with a terminal intonation contour, or (3) has a complete grammatical structure. For example, while “The dog ate the bone” is an utterance, “Yeah” can also be an utterance if it is followed by a terminal intonation and a pause. Examining the average number of words in an utterance is a common way of examining language complexity. Type-token ratio is another common method for examining language usage that expresses the relationship between the number of different words (“types”) and the number of instances of each word (“tokens”). To examine clausal structure of utterances, the number of verbs in each utterance was assessed. Two types of potential disfluency, which is common in both healthy and disordered speech, were also examined: retracing, backtracking, and restating something a different way or changing the message (e.g., “What is *the dog* uh the cat doing in that basket?”) and repetition (e.g., “*What do you think*… What do you think is going on over there?”).

Patients' trays were weighed before and after lunch and their menus documented for later use in examining dietary intake changes. Both the difference in ounces in the weight of the tray and the visually estimated percentage of the ordered food that was eaten were recorded.

Patients were able to refuse to participate in a communal meal at any time. Patients who received visitors at mealtime did not participate in that day's communal lunch, although presence of the visitor during the patient's meal was documented, as it constitutes a different and likely more valuable social engagement than mealtime engagement with acquaintances.

Lunch sessions were held from November 7, 2019, until March 6, 2020, when research operations were discontinued because of the COVID-19 pandemic. Because of the nature of the activity, the study was not permitted to resume when research reopened hospital-wide in June 2020 (because of the impossibility of following masking and social distancing requirements during communal meals) and remains suspended as of January 2022. Although no formal interim analyses were planned, several variables of interest were explored descriptively and those results are presented here.

RESULTS

Nineteen patients were seen for a total of 26 sessions. Most sessions were attended by only one patient at a time (22/26), although the session often included hospital staff (total number of people was usually three to four). Patients were widely diverse in their etiology of deficits, age, and other characteristics (Table 1). Only one patient had evidence of dysphagia on the Functional Oral Intake Scale, so this measure was removed from analysis. Six patients enrolled in the study but were unable to attend any lunches before discharge. These patients were otherwise similar to those who were able to attend lunches in all demographic factors.

To observe trends in the effect of number of sessions, patients' self-reported assessments were binned into those who attended no, one, and two or more sessions (Table 2). Although postsession data were collected at two points, data immediately before discharge were available for relatively few patients (owing to difficulties anticipating discharge and coordinating testing on discharge day). Some 90-day follow-up data also were missing, in part because of the pandemic. If fewer than three scores were available for a given measure within a given group, data were combined to maximize interpretability ("posthospitalization"). There was a main effect of loneliness at baseline ($F_{2, 14} = 5.9$, $P = 0.01$, two tailed) driven by the fact that those who stayed for two or more sessions tended to have been lonelier at baseline (one session *vs.* multiple sessions: $t_{10} = 3.8$, $P = 0.003$, two tailed). There also was a main effect of Stroke and Aphasia Quality of Life Scale-39 psychosocial factors at baseline ($F_{2, 13} = 6.6$, $P = 0.01$, two tailed), again driven by those who stayed for two or more sessions, who tended to rate their quality of life in this domain more poorly ($t_9 = 2.6$, $P = 0.03$, two tailed).

Among those who never had a lunch session or only had lunch once, the changes from baseline to posthospitalization in depression, loneliness, quality of life, and self-assessment of eating all showed no significant differences. However, for those who ate two or more

lunches with the group during hospitalization, changes in loneliness ($t_3 = 2.17$, $P = 0.06$, one tailed) and quality of life (both overall, $t_2 = 3.36$, $P = 0.04$, one tailed, and specific to psychosocial aspects, $t_2 = 3.49$, $P = 0.04$, one tailed) demonstrated trends toward improvement. Although these changes were of a predictable direction, more work is needed to determine whether they are true effects or a result from regression toward the mean.

There was scant evidence that those who had two or more sessions demonstrated quantitative or qualitative differences in communication in later sessions compared with their first session (Table 3). They used similar numbers of words in their utterances with a similar clausal complexity and degree of typical disfluency. There was some evidence that conversation in later lunches trended toward a higher ratio of different vocabulary words to number of uses of a given word (type-token ratio; $t_{27} = 1.85$, $P = 0.04$, one tailed). However, there was no directional prediction regarding this dimension of language, so its import is not clear. Although there was a trend toward those in later sessions eating a larger percentage of what they ordered, there were no significant differences in eating habits based on these measurements.

DISCUSSION

The goal of the Brain Rescue Unit Communal Eating program was to support patients' emotional, physical, and social recovery through group support during communal lunches in acute hospitalization. In this cohort, a communal eating program in a stroke hospital seems feasible and without safety issues. It was hoped that patients would be supported in three key areas: that they would feel less isolated, have richer and improved communication, and eat more. Although the group faces an indefinite suspension, the results thus far show modest trends toward fulfilling these goals (and, importantly, do not evidence that eating together with other acute patients caused any measurable harm).

Although the program was initiated with the idea of *communal* eating in mind (group size being four to five patients at a given meal on average each day was anticipated), relatively few sessions had more than one patient at a time, and the group was often rounded out instead by hospital staff and research assistants. This finding was primarily due to the fact that far more families than anticipated were able to visit patients during midday mealtimes. Even when patients were recruited to the lunch group, they were not removed from the company of their loved ones if that option was available to them. Moreover, many patients strongly preferred to eat in their rooms (some voiced that this was out of a sense of shame, but many perceived the opportunity to eat in bed with the television as a bit of a luxury), and so they elected not to consent to the study. This result was not anticipated and opens up the possibility that the group who elected to join the communal lunch may have been biased in certain ways. This bias may have been captured in the main effects of loneliness and psychosocial quality of life factors detected at baseline, particularly among those who attended a larger proportion of lunches. Finally, the number of lunches itself is difficult to interpret, as there were many reasons a patient may have had fewer or more lunches with the group (e.g., family visiting—whether anticipated or unanticipated, make-up therapy time, diet changed to nil per os, scheduled procedures, election to stay in the room, late consenting relative to the overall length of hospital stay).

Despite these limitations to interpretation, it is promising that those who had two or more sessions showed trends toward improvement in self-reported loneliness, overall quality of life, and psychosocial measures. These observations aligned with predictions about what aspects of patient experience communal eating could support, though their direct investigation may have been underpowered in this instance.

Communication is in some ways more complex to operationalize and more indirectly impacted by increased opportunities for socialization (i.e., opportunities to socialize may be taken or not taken). Clinical group “members” were careful not to overly facilitate patients’ participation but aimed for a more natural interaction that would mirror the qualities they would experience if the other group members were patients. There was scant evidence that communication during lunch made patients better communicators. However, key areas of discourse related specifically to conversation, such as question-asking and turn-taking, are associated with smaller effect sizes than the more commonly assessed dimensions of language in adults that were analyzed here and may elucidate positive effects of group participation in a larger sample.

Participants also did not show any gross differences in the amount eaten at mealtime during this study. However, in addition to amount of each meal, what patients ordered from the menu and what dietary prescriptions they had been given were documented. When able to be analyzed, these data may provide a more complex and informed look at how eating together influences food selection and consumption during acute care. From the authors’ own observations, the trend toward people who stayed for more sessions eventually eating around 10% more of what they ordered seems likely to be an underpowered observation of a true effect. Despite dietary restrictions, or perhaps because of them, the longer people stayed the more familiar they became with the menu and what they liked, leading to ordering more food that was preferred. Speech therapists, nurses, and other patients also were able to provide informal suggestions about what foods were more palatable (especially in the context of modified diets), which may have improved the intake as well.

A speech language pathologist was chosen as the moderator of the communal eating sessions in this pilot phase to oversee the process and ensure safety. However, it is possible that staff members with other roles, such as clinical technicians, may be able to serve in the role of moderator. This would increase generalizability of this process. Because of the number of participants, the authors were unable to collect data on the maximum allowable number of patients that can safely and productively participate in communal eating with one moderator.

Although it is uncertain when communal eating during acute hospitalization may be able to resume safely, future directions for investigating the utility of these programs are clear. Unfortunately, the ongoing threat of the pandemic has led to far fewer family members regularly present in patient rooms, even as restrictions on visitors have eased, leading to greater loneliness among patients and more frequent communication and dietary concerns among care teams.

Technology-supported alternatives to in-person, unmasked eating together are currently under consideration, including nursing-facilitated video calls with family members during meal times. The authors hope that this will provide a way forward for patients to socialize and eat in the company of loved ones while recovering from acute neurological injury, regardless of what the future may hold.

Funding details:

This work was supported by the Sheikh Khalifa Stroke Institute.

Data availability statement:

Anonymized data will be made available after the completion of the study upon request to the authors, subject to review by the Johns Hopkins University School of Medicine Institutional Review Board resulting in a formal data sharing agreement.

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What Is Known

- Stroke commonly leads to feelings of isolation and loneliness, especially during the hospital period.

What Is New

- The aim of the Communal Eating program at the Johns Hopkins Hospital Brain Rescue Unit was to support patient well-being through introducing opportunities for patients to eat lunch together during their acute hospitalization. Implementing a communal eating program in the acute hospital setting was very feasible and widely supported by patients, families, and staff. Changes in loneliness and quality of life trended toward improvement among those who ate two or more lunches with company, and importantly, no evidence of measurable harm was found.

TABLE 1.

Participant demographics

Code	Age	Sex	Race	Education	Diagnosis	Lunches
BWN	78	F	Black	11	Single LH stroke	0
JCX	72	M			Single RH stroke	0
JME	78	M	White	12	Aortic stenosis, dysarthria	0
RBS	69	M	Black	12	Multiple bilateral strokes	0
THN	33	F	Black	14	Transient ischemic attack	0
WBA	48	M	Black	17	Single LH stroke	0
ADY	88	F	Black	12	Single RH stroke	1
DBR	44	M	Black	12	Central retinal artery occlusion	1
DCR	32	M	White	14	Brain tumor	1
JWR	74	M	White	16	Single LH stroke	1
KWS	62	M	Black	16	Multiple bilateral strokes	1
LKG	64	M	White	12	Vitamin D deficiency	1
RRD	66	F	Black	12	Transient ischemic attack	1
RKG	58	M	Black	18	Transient ischemic attack	2
SSR	85	M	White	19	Encephalopathy	2
ALW	71	F	White	10	Multiple RH strokes	3
CWD	49	M	White	12	Single RH stroke	3
KBN	58	F	Black	16	Single LH stroke	3
KJN	58	F	White	18	Multiple bilateral strokes	8

LH, left hemisphere; RH, right hemisphere.

TABLE 2.

Sample description by number of sessions attended

	Timepoint	No Sessions	One Session	Two or More Sessions
Age		63 ± 18	61 ± 19	63 ± 13
Education		13 ± 2	13 ± 2	16 ± 4
PHQ-9 Scale	Baseline	4.6 ± 4.4	4.0 ± 5.7	4.4 ± 4.3
	Posthospitalization	4.7 ± 3.2	4.5 ± 3.8	2.4 ± 2.6
Short Blessed Test	Baseline	8.8 ± 3.3	8.0 ± 7.6	13.8 ± 9.6
UCLA Loneliness Scale	Baseline[a]	16.6 ± 17.6	5.3 ± 5.6	**34.2 ± 19.3**
	Posthospitalization	6.7 ± 6.1	2.2 ± 2.9	**18.4 ± 18.7**
SAQoL total	Baseline	4.2 ± 0.7	4.1 ± 0.9	**2.9 ± 1.0**
	Posthospitalization	4.5 ± 0.4	3.6 ± 1.3	**3.9 ± 0.2**
SAQoL psychosocial	Baseline[a]	4.7 ± 0.4	4.4 ± 0.7	**3.0 ± 1.2**
	Posthospitalization	4.8 ± 0.1	3.8 ± 1.1	**4.1 ± 0.4**
SAQoL communication	Baseline	4.6 ± 0.4	4.5 ± 1.0	4.0 ± 1.6
	Posthospitalization	4.7 ± 0.5	3.9 ± 1.7	4.9 ± 0.1
EAT-10 Scale	Baseline	0.2 ± 0.4	2.4 ± 5.6	6.3 ± 10.6
	Discharge		0.3 ± 0.6	0.7 ± 1.2
	90 days	0 ± 0	0 ± 0	0 ± 0
AMPAC	90 days	70.0 ± 4.2	65.3 ± 16.8	73.5 ± 2.1

Repeated measures trends are bolded. PHQ: 0–4 = no depression; 20–27 = severe depression. Short Blessed Test: 0–4 = normal; 10+ = impaired. UCLA Loneliness Scale: 0 = least lonely; 60 = most lonely. SAQoL: 5 = no impairment; 1 = total impairment. EAT-10 Scale: 0 = no impairment; 4 = severe impairment. AMPAC: stage 1 (most impaired), <44; stage 2 = 44–52; stage 3 = 53–64; stage 4 = 65–88; stage 5 (most recovered), >88.

[a] $P < 0.05$, two tailed.

EAT-10, Eating Assessment Tool-10; PHQ-9, Patient Health Questionnaire-9; SAQoL, Stroke and Aphasia Quality of Life Scale; UCLA, University of California, Los Angeles.

TABLE 3.

Session communication and dietary characteristics

	One Session	Two or More Sessions
Session time, minutes	35 ± 19	39 ± 15
Mean length of utterance (words)	4.6 ± 1.5	4.3 ± 1.4
Type-token ratio	0.27 ± 0.07	0.32 ± 0.07
Verbs per utterance	0.86 ± 0.30	0.78 ± 0.30
Retracing (words)	14.46 ± 17.53	6.56 ± 8.99
Repetition (words)	22.08 ± 28.60	11.56 ± 13.37
Tray weight change, oz	13.47 ± 6.87	12.38 ± 7.91
Lunch eaten, %	57 ± 31	65 ± 33