

**Food Intake of Hospitalized Older Adults after Exposure to Volunteer Feeding
Program**

A thesis presented by
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Abstract

Context: Malnutrition proves to be a significant issue for hospitalized older adults. The number of physiological, social, and psychological problems they experience increases their risk for malnourishment, only worsening their admitting diagnoses. Research shows that social interaction is crucial to food intake. Many geriatric patients do not receive the interaction or encouragement they need while they eat. A hospital in Northwest Arkansas desired to prevent this negative cycle by implementing a volunteer program assisting older adults during meals. **Objective:** The purpose of this study was to evaluate this type of program for its effectiveness, determining if food intake increases with volunteer assistance. **Design:** A non-experimental, descriptive exploratory study design using a retrospective medical chart review was conducted to look at the differences in food intake of patients before and after their exposure to the program, as well as differences in food intake between patients receiving volunteer aid and those who did not. **Setting:** The study was conducted in a unit of a hospital specifically designed to care for older adults. **Participants:** The study utilized a convenience sample of all patients admitted to the same unit at the hospital. All were at least 65 years of age with no known swallowing difficulties and had the ability to cognitively interact with volunteers. **Interventions:** In this program, volunteers spent one uninterrupted hour with the patient providing any assistance needed and providing verbal encouragement to eat that is usually not received. **Outcome Measures:** Data was examined using descriptive statistics, specifically means. The data used in this study was nurse estimation of food intake in percentages. Since data was an estimate and because the sample size was expected to be small, a qualitative approach to exploring differences was utilized in lieu of quantitative data analysis. **Results:** Descriptive statistics showed an average increase of patient food intake by 15% after exposure to the program. Unaided patients average intake percentage only increased by 10%. These results show that not only do patients increase their food intake with a volunteer, but they also consumed more food on average than those who did not receive assistance. **Conclusion:** The results of this study support previous research showing the increase of food intake with socialization provided by volunteers. Further study should be conducted utilizing a larger sample size and multiple clinical settings to extend the research, making it applicable to a larger body of people. In the meantime, medical professionals should support the process of assisting older adults during their mealtimes, and they should take steps to provide this kind of assistance to their patients.

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Introduction

Malnutrition has been defined as “a state of nutrition in which a deficiency or excess (or imbalance) of energy, protein and other nutrients causes measurable adverse effects on tissue/body form (body shape, size and composition) and function, and clinical outcome.”(5) Malnutrition specifically in the older adult population proves to be a significant issue. This is especially true in hospital settings, where 39-47% of hospitalized elders are malnourished or at risk for malnourishment (10). Feeding difficulties, comorbidities, and caregiver burdens contribute to this statistic. Frail older adults require significantly more time to eat a meal than the average hospitalized patient. The increasing workload of health care providers does not allow the amount of time needed to help feed these patients (3). Malnourished patients also affect hospitals in terms of cost and length of stay. On average, nutritionally at risk patients incur 19% higher hospital costs than the average of those not at risk with a similar diagnosis (1).

The average food intake decreases by about 25% from 40 to 70 years of age. Researchers identify the causes of malnutrition as physical, psychological, or social difficulties. Older adults are at risk for aspiration; often have swallowing difficulties, chronic conditions that affect intake, and poor oral health. Loss of taste and olfaction are common because of functional changes in taste bud number and structure, dry mouth and throat, disease states associated with aging, medications, surgical interventions and environmental exposure (14). Older adults often have a lower salivary response and dissatisfaction with the ability to taste food, which is associated with dry mouth during

chewing (16). Malnutrition leads to muscle wasting, continues to increase immunodeficiency already found in older adults, and increases complication rates (1).

The hospital environment takes away familiarity and traditional feeding routines. The anxiety, and in some cases depression, that results from being in a different environment may affect the amount of food older adults consume. In nursing home patients, psychiatric disorders, including depression, account for 58% of the cases of involuntary weight loss (8). These statistics have significant meaning for hospitalized patients as well since many older adults admitted to the hospital come from a long-term care setting. Socially, eating is a major source of pleasure. Health care providers struggle to help older adults maintain this enjoyment due to increased workloads and time demands (6). Many patients need encouragement to eat, and eating alone diminishes food consumption and dietary quality in older adults (9). Factors as small as difficulties in opening food packaging can determine whether or not an older adult decides to keep eating while alone (15). See Appendix A to view other factors.

The requirements for a healthy older adult are 30 calories per kilogram/day and 0.8-1.0 gram per kilogram of protein/day (3). Many older adults do not achieve these basic nutritional goals in order to meet the needs of daily living and also to support healthy living in spite of comorbidities. On average, older adults eat more slowly, are less hungry, less thirsty, have lower sensory acuity, consume smaller meals, snack less between meals, and have lower energy intakes than younger adults (13).

At the NICHE (Nurses Improving Care for Healthsystem Elders) conference in 2012, the University of Alabama at Birmingham Hospital presented their recently implemented volunteer program that assists older adults in mealtime activities. An evaluation of their

study showed mean intake of meals to be significantly higher in volunteer fed patients as compared to hospital staff fed patients- 58.9% versus 32.4%, $p < 0.001$ (2). A hospital in Northwest Arkansas has also recognized the harmful effects of malnutrition and seeks to increase the nutritional status of their patients by implementing a similar volunteer program to aid in the feeding of older adults. The purpose of this study is to evaluate the program effectiveness for increasing nutritional status.

Aims

The aim of this study is twofold: 1) to determine whether the volunteer program, SPOONS (Support For And Promotion of Optimal Nutritional Status), at a hospital in Northwest Arkansas increases the percentage of food intake of hospitalized patients greater than 65 years of age after their exposure to the program, and 2) to determine if patients who participate in the SPOONS program consume a larger percentage of food in comparison to patients who do not receive aid from SPOONS. The researcher hypothesized that an increase in the percentage of food intake will be seen in both these scenarios.

Methodology

To determine whether food intake increases with volunteer feeding assistance, a non-experimental design was used to conduct this study. Specifically, a retrospective chart review was used to collect data. This study was conducted following University of Arkansas Institutional Review Board (IRB) approval and the study facility's approval.

Participants

The total sample for this study included 18 hospitalized older adults in an age specific unit at a Northwest Arkansas hospital. All patients participating in the program were admitted to the same unit and were at least 65 years of age. The sample was a

convenience sample of all patients participating in the SPOONS program between August and November of 2013. The researcher collected demographic information on patients who were selected to participate in the program including age, gender, medical diagnosis, ethnicity, number of previous hospital admissions, diet restrictions (heart healthy, etc.), and DNR status. Eleven participants qualified for SPOONS. The mean age of SPOONS participants was 80. A control group (n = 7) was comprised of participants who did not experience the SPOONS program. The mean age for the control group was 77. All participants in this study were Caucasian.

Before participating in the program, volunteers completed the SPOONS Program Training Session taught by a nurse or speech therapist, observed a CNA feed a patient, were observed by a nurse or speech therapist, and passed a competency validation test. Volunteers spent approximately one hour of uninterrupted time during a meal with an older adult selected by the nursing staff. Volunteers completed tracking forms describing the activities completed with the patient (assisting with tray, feeding, verbal encouragement, etc) and the percentage of food the patient eats. An example of a volunteer tracking form can be found in Appendix B.

Proposed Procedure

A retrospective chart review was performed examining the percentage of food intake for each patient participating in the study. Percentages reflected the nurse's estimate of the portions eaten at mealtimes (25%, 50%, 75%, etc.). These values were not exact. Patients admitted to the unit were monitored by the program director for the first 24 hours to determine if they were candidates for the program through specific criteria. Some criteria included: those who require feeding but do not have swallowing difficulties,

cognitively able to interact with a volunteer, those who have the most need for socialization (those experiencing delirium, diagnosed with a failure to thrive, or do not have many visitors), and those who may require assistance with tray set-up. Patients who required food restrictions for surgery or other procedures were not allowed to participate in the program. If they met criteria, they received assistance with one meal (Breakfast at 0700, Lunch at 1200, or Dinner at 1700) within the next 24 hours.

Once a week, for the duration of the data collection period, the researcher went to the unit to identify which patients received aid and for what meal. The researcher recorded the nurse-reported percentage of food intake for the aided meal. This data was compared to the recorded percentage of food intake located in the patient's chart for an unaided meal in their first 24 hours of admission. The same meal times were compared to each other (lunch in first 24 hours to lunch in second 24 hours). Next, the researcher collected data about patients who met SPOONS criteria, but did not receive aid in the first or second 24 hours. The percentage of intake for the meal in the first 24-hour time period was compared to the percentage of intake for the same mealtime in the second 24 hours. All information obtained from the medical record was deidentified according to HIPAA regulations. All collected data was kept on a password protected computer file.

Revised Procedure

Due to unforeseen complications, parts of the proposed procedure changed to keep the study moving. The researcher was unable to collect data from patients in the first 24 hours of their admission in order to utilize a larger number of participants. In the hospital setting, patients are on diet restrictions for different tests or for surgical reasons upon admission, which restricted them from receiving SPOONS in the first 24 hours of their stay.

With a small volunteer base, hardly any patients would have qualified for SPOONS *and* received aid. Meals were still compared within 24 hours of each other, just not within the 24 hours of admission. To compensate for this change, the researcher took the average number of days that passed before a patient had help from SPOONS. This averaged five days.

Data Analysis

Data was examined using descriptive statistics, specifically means. The data used in this study was nurse estimation of food intake in percentages. Since the collected data was an estimate and because the sample size was expected to be small, a qualitative approach to exploring differences was utilized in lieu of quantitative data analysis.

In this study, the patients who participated in the SPOONS program served as the treatment group, whereas, those who did not receive aid from SPOONS served as the control group. The outcome variable studied was the mean increased food percentage. To find this, the estimated percentage of food intake for each patient in the treatment group was collected for meals before and after exposure to SPOONS. For each patient in the control group, the estimated percentage of food intake for two meals within 24 hours of each other was collected. Both sets of data were aggregated and the mean food intake percentage increase was calculated for both the control group and the treatment group.

To answer question 1, data was collected before and after participation in SPOONS to calculate pre- and post-SPOONS mean increased food intake percentage for the treatment group. These scores were examined to determine if there was an increase of food intake after exposure to SPOONS. To answer question 2, the mean increased food intake percentage of SPOONS participants was compared to the mean increased food intake

percentage of the non-SPOONS participants to see if the treatment group had greater food intake than the control group.

Results

Results were obtained using descriptive statistics of nurse recorded food intake percentages located in the patient's electronic chart. In response to research question one, patients receiving SPOONS aid indicated a total average percentage increase of **15%**. Two patients received aid with breakfast and increased their percentage by 35%. Three patients received aid with lunch and increased their percentage by 15%. Finally, six patients received aid with dinner and increased their percentage by 7%. Two of the 11 participants ate less when receiving aid than compared to the previous 24 hours. Of these, both were women and had varying diagnoses.

In response to research question two, patients who did not receive aid indicated a total average percentage increase of **10%** from the first 24 hours to the second. Two patients experienced a 25% increase at breakfast. One patient experienced a 30% decrease at lunch. Lastly, four patients experiences a 12% increase at dinner. Two of the seven participants ate less than in their previous recorded 24 hours.

Discussion

The average percent increase of food intake for SPOONS participants was 15% as compared to the 10% increase of non-SPOONS participants. SPOONS participants ate an average of 15% more food than without aid. They also, on average, ate more food than patients not receiving SPOONS aid. The data analysis of this study supported the hypothesis stating that there would be an increase in food intake after exposure to aid and in comparison to those who did not receive aid.

Improving care for patients and increasing their quality of life relies heavily on research gathered in the hospital setting. Nurses need to know what issues are currently impeding patients from getting better and staying better. This quality improvement project adds to current research as well as creates pathways for further research attempting to solve the issue of malnutrition in older adults. Nurses and other health professionals alike should be aware of the impact socialization and communication with patients has on their nutritional status and eating habits. This awareness has the potential to change the standard of practice for hospitals, physicians, and nurses.

Volunteer programs like SPOONS counteract much of the known research about why older adults are one of the most at risk populations for malnourishment. Eating is a major source of pleasure which older adults often lose in the hospital setting because healthcare workers do not have the time to spend with them during their meal (6). In addition to desiring people to share a meal with, some patients will not eat if they don't have encouragement. They may suffer from depression, dementia, or other disorders that decrease focus during meal times (8). Volunteers provide pleasure through socialization, preventing patients from having to eat on their own, and they can prompt patients to eat when normally no one else would. This socialization and encouragement not only improve the psychosocial well-being of patients, but increase their food intake as well.

Nutrition in older adults is not a newly researched topic. Several past studies serve to identify the causes of malnutrition and what can be done to solve them. The Journal of Gerontological Nursing published an article reviewing mealtime assistance for hospitalized older adults. This study took place at the University of Alabama at Birmingham Hospital documenting 236 patient-volunteer encounters with hospitalized older adults over the

course of 36 months (2). The study revealed that patients ate a larger portion of their meal with assistance than without (59% versus 32%). It also showed that no patients experienced any adverse effects from receiving aid from volunteers, and that an estimated \$11.94 was saved per encounter by utilizing volunteers instead of nursing staff (2).

The Geriatric Nursing Journal also published a study similar to the one in Birmingham and the SPOONS program. The Memorial Meal Mates program utilized volunteers that had gone through a training program to assist hospitalized older adults during their meal times. Over a two-month period, the program assisted 34 patients. Their results showed a mean intake of 58.88% for Meal Mate fed patients compared to the intake of 32.45% intake for nursing staff patients (12). The results on the unit where the study was conducted were so significant that other units in the hospital started requesting the Meal Mate program to come to them to support their patients as well. This would be a long-term goal for the SPOONS program, that other units, such as telemetry, ICU, and general Med-Surg, would have the nutritional support available for the older adults staying there. These studies further provide evidence that SPOONS and meal programs like it may increase food intake, however further research needs to be done.

Since this study piloted the progress of the first volunteer feeding assistance program in this particular hospital, the results give insight not only to the success of the program, but also to improvements that could make the program more efficient and effective. The results indicated that a greater amount of food was eaten when a volunteer assisted a patient at breakfast hour. The percentages gradually decreased as the day went on, with dinner being the meal least increased. This data could result from the number of family members present at meal times. At this hospital, breakfast is served at 0700 when

visitors are very few. As the day goes on, people get off from work or take a lunch break to see their loved ones. The usual lack of socialization at breakfast could have contributed to the significant increase at breakfast time after exposure to SPOONS. Since the researcher found a greater percentage increase in food intake at breakfast time, a change in the program may be needed to require more volunteers at breakfast

The researcher reviewed the tracking forms required by volunteers to complete during each encounter with patients. Some of the common comments made by volunteers about their patients mentioned a decreased ability to chew due to a lack of denture assistance, dislike of food being served, and a dementia diagnosis. By looking at these comments, the researcher was made aware not only of the statistics, but also reasons contributing to why the statistics were what they were. Improvements can be made and protocols adjusted to address these issues. Some might include doing a needs assessment to order only soft foods for those that do not have dentures, offering meal preferences, and requiring all patients with a dementia diagnosis to have feeding assistance.

Since the SPOONS program has established success through the statistics of this study, showing its effectiveness, the door for more investigations regarding specific improvements can be opened. Some of these include recording and comparing discharge dates for patients receiving SPOONS and those who did not to evaluate the impact nutrition has on extended hospital stays. Since nutritionally at risk patients on average incur 19% higher hospital costs, discharge dates could also help determine if hospital costs decrease because of shorter hospital stays (1). To ensure accurate recording of food intake by the volunteer on the tracking form, improvements might be made to include a check-off from the nurse after the volunteer finishes feeding the patient. In addition, time savings could be

evaluated to identify just how much nursing staff time is saved by volunteers feeding patients instead of themselves. This could be further evaluated to see what tasks requiring a higher skill level can be accomplished by nurses if they have less feeding responsibility. Such further studies can have limitless implications.

Limitations

This study was subject to some limitations. The researcher was only able to compare a small amount of participants as expected due to several different factors. Volunteers often did not record the food intake percentage or put patient identifier stickers on their tracking sheet. Nursing staff would not always record food intake in the electronic chart. Patients often were on “nothing by mouth precautions” (NPO) or other diet restrictions in one of the 24 hour time periods where food intake needed to be recorded. These things excluded several candidates for the study because their record of food intake for a before and after analysis was not accessible. In addition, the SPOONS program was relatively new, so the small base of volunteers utilized for participation led to a small sample size. Since the researcher collected SPOONS data from the volunteer tracking sheet, volunteer estimates of food intake may not have been as accurate as possible because of their lack of experience in healthcare.

The researcher was not able to observe whether or not the NON-SPOONS patients actually met SPOONS criteria. The program was set up to direct volunteers to the right rooms when they enter the unit. However, since the researcher only had access to the charts, it could not be determined if data collected on Non-SPOONS patients met the same criteria as the data collected for volunteer assisted patients.

Great attempts were made in the proposal to narrow the number of variables between participants, but there were still numerous factors that made each patient unique. It is impossible to know what stage of the healing process patients are in, depending on their diagnosis, their mood, their likes and dislikes. The data collected cannot be generalized due to the uniqueness of each patient's situation and the relatively homogenous sample.

Future Research

Based on some of the limitations encountered in this study, there are many steps researchers can take to overcome and reduce limitations in further studies. A main issue to resolve would be the small sample size. A more consistent influx of volunteers should be established by setting up a schedule to enable at least one patient on the unit to have assistance everyday. All of the nurses on the unit should be aware of the program and its criteria for patients qualifying for assistance to ensure that volunteers are directed to the correct patients. This would counter the issue of patients being fed one day, but having a diet restriction the previous day. Finally, future studies may need to be conducted over a longer amount of time to allow more participants be used for data collection.

It would be interesting to research the patient impact of a program like SPOONS from the patient's perspective. Volunteers were able to put comments about the patient and their meal time experience/difficulties on their tracking form; however, a survey could be distributed to the SPOONS participants to discover how having assistance during their meal either effected them positively or negatively. Further background information could be elicited about their normal eating habits and what influences those. The aggregation of

this information would improve the SPOONS program by targeting the nutritional needs of older adults even further.

Conclusion

Low food intake is a significant issue for hospitalized older adults. Due to high demands for nurses' time, many geriatric patients do not receive the interaction or encouragement they need while they eat (3). The results of this study support previous research and indicate that socialization may increase the amount of food patients consume during meal times. Further research is needed to evaluate the implications of the findings, and to further refine the existing SPOONS program. Nurses in this facility can take advantage of these findings to ensure and improve quality patient care.

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Appendix A

Factors Affecting Nutritional Intake In Older Adults (10)

	Reduces Intake	Promotes Intake
Product	Ingredients <ul style="list-style-type: none"> • High protein • High Fiber • Slow-digestible Carbs Food Attributes <ul style="list-style-type: none"> • High Viscosity • Large Volume • Monotonous Diets Culturally Inappropriate Food Presentation of too large portion size	Ingredients <ul style="list-style-type: none"> • High fat Food Attributes <ul style="list-style-type: none"> • High palatability • Appetizing appearance • High energy density • Low volume/small portion size • Liquids (between meals) • Variety in Diet
Personal	Social Changes Psychological Changes Physiological Changes Eating Process	Good Health Motivation
Environmental	Living Alone Social Isolation Meal interrupting procedures Lack of help with eating Inappropriate Mealtimes	Distraction (e.g. watching TV) Convenience/easy access to food Encouragement by Caregivers Sharing a meal with other people/ambience Eating at the same time everyday

Appendix B

SPOONS PROGRAM: Volunteer Activity Tracking Form

Room Number:

Patient's Initials:

Meal Time: Breakfast Lunch Dinner

Time entered patient's room:

Activities Performed: (check all that apply)

- Assist with passing out and/or collecting trays

- Assist with tray set-up (opening items, cutting food, buttering bread, etc.)

- Verbal encouragement/prompting to eat (ex. "Try some of your soup.")

Assist with feeding the patient

Time Spent (in minutes):

_____ % of meal consumed

_____ ml of fluid intake

Social interaction (ex. "How are you today?" "You look good today")

Time Spent (in minutes):

Other

Time Spent (in minutes):

Document patient's comments/observations about meal or meal assistance (positive or negative):

Time exited patient's room:

Total time spent on Senior's Specialty Unit (in hours and minutes):