Review title

Assistance at mealtimes in hospital settings and rehabilitation units for older adults from the perspective of patients, families and healthcare professionals: a mixed methods systematic review protocol

Reviewers
Deborah Edwards[1]
Judith Carrier[1]
Jane Hopkinson[2]

1. The Wales Centre for Evidence-Based Care: a Collaborating Center of the Joanna Briggs Institute

2. School of Healthcare Sciences, College of Biomedical and Life Sciences, Cardiff University, United Kingdom

Corresponding author:
Deborah Edwards
edwardsdj@cardiff.ac.uk

Review question/objectives

The review question is: Assistance at mealtimes for older adults in hospital settings and rehabilitation units: what goes on, what works and what do patients, families and healthcare professionals think about it?

The specific objectives are:

- To determine the effectiveness of meal time assistance initiatives for improving nutritional intake and nutritional status for older adult patients in hospital settings and rehabilitation units
- To identify and explore the perceptions and experiences of older adult patients and those involved with their care with regard to assistance at mealtimes in hospital settings and rehabilitation units

This mixed methods review seeks to develop an aggregated synthesis of quantitative and qualitative data on assistance at mealtimes for older adults in hospital settings and rehabilitation units in order to derive conclusions and recommendations useful for clinical practice and policy decision making.

Background

Worldwide, it is estimated that between 20% and 50% of all adult patients admitted to hospital wards are malnourished.[1-4] Reported prevalence occurs, depending on the specific patient group of interest, type of healthcare setting, disease state and criteria used to assess malnutrition.[1, 2, 4-6] For older adults in hospital (over 65 years) the prevalence of malnutrition has been reported as being as high as 60%[6] and can continue to deteriorate during the hospital stay.[7] This is an area of concern as it is associated with prolonged hospital stays and increased morbidity (pressure ulcers, infections and falls) and mortality, especially for those with chronic conditions.[4]

Malnutrition in adults in developed countries is frequently associated with disease and may occur because of reduced dietary intake, malabsorption, increased nutrient losses or altered metabolic demands, with reduced dietary intake being considered the single most important aetiological factor.[8] For the hospitalized older adult patient with pre-existing malnutrition, further nutritional problems are often encountered due to a reduced dietary intake. Poor food intake for older patients in hospital may be due to the effects of acute illness, poor appetite, nausea or vomiting, “nil by mouth” orders,

medication side effects, catering limitations, swallowing and/or oral problems, difficulty with vision and opening containers, the placement of food out of the patients' reach, limited access to snacks, and cultural or religious food preferences.[9-11]

In the UK, national reports have shown some older patients with good appetites were not receiving sufficient nourishment because of inadequate feeding assistance.[12-14] An initial search of literature has found that this problem has also been identified in Australia,[15-16] New Zealand,[17] Sweden,[18] and the USA.[19-20]

A variety of initiatives have been developed to try to ensure that patients receive mealtime assistance if required, and include, for example:

- Providing meals on red trays for “at risk” patients[21] – this acts as a signal to staff that those patients eating from a red tray should receive support in eating their food.
- Protected mealtimes[22] – where patients are able to eat undisturbed at mealtimes and do not have any unnecessary or avoidable interruptions during this time and nursing staff are available to assist with feeding.
- Supervised dining rooms[23] – where social interaction and verbal encouragement is provided.
- Employment of personnel at mealtimes to assist with mealtime activities[24-25] (carers, relatives, paid employers or volunteers).

Mealtime assistance has the potential to enhance nutritional intake, clinical outcomes,[26-29] and patient experience.[26,30] Four reviews[26-29] and one scoping review[31] have previously been conducted in this area. All of the reviews included adult patients over 18 years of age. The focus of the systematic review by Green et al.[6] was volunteers providing feeding assistance in any institutional setting; it included a narrative analysis of 10 empirical studies from a limited number of database searches. Weekes et al.[28] conducted a structured literature review focusing on improving nutritional care for patients in any healthcare setting, with specific emphasis on feeding assistance and the dining environment. The review was limited to quantitative study designs (randomized controlled trials, controlled trials and observational studies and audits). A systematic review by Wade et al.[29] investigated nutritional models of care (feeding assistance, protected mealtimes, red tray initiative and communal dining) for hospitalized and rehabilitation inpatients. This review focused on data from trials only and only three databases were searched. A Joanna Briggs Institute (JBI) systematic review[27] has also been published on the topic of mealtime assistance. A comprehensive search strategy was outlined and the review included six randomized controlled trials and quasi experimental designs covering a range of outcomes, but was limited to inpatients in acute care hospitals. The scoping review by Cheung et al.[31] included intervention studies published from 2001 to 2012 from across three databases. The focus was on the evidence for dietary, food service and mealtime interventions in the acute care setting.

In this proposed mixed methods review, the quantitative component will seek to incorporate a wider range of study designs, including but not limited to, cohort studies (with control), case-controlled studies, descriptive and case series designs. A qualitative component will also be incorporated to help understand why initiatives do or do not work. Combining both quantitative and qualitative studies in the same review will make this the first mixed methods systematic review which considers assistance at mealtimes for older adults over 65 years of age in both hospital settings and rehabilitation units. For the purposes of this review mealtime assistance is defined as receiving help from another person to eat or complete the eating process when a meal or snack is served.[32] This may include, for example, making sure that suitable cutlery is available; taking lids off food products; cutting food into smaller pieces; providing verbal encouragement; or physically feeding a patient by transferring food from the plate to the person’s mouth, either at the bedside or in a separate dining room.

The review will seek to investigate the feasibility, acceptability and effectiveness of initiatives for improving assistance at mealtimes for older adults in hospital settings and rehabilitation units, and will ask these questions: what goes on, what works and what do patients, families and healthcare professionals think about it?

Keywords

Mealtime assistance, feeding assistance, mealtimes, hospitals, older adults, elderly, volunteers, protected mealtimes, supervised dining rooms, red trays, facilitators, barriers, rehabilitation units, carers, family members, nutritional status, nutritional intake

Inclusion criteria

Types of participants

For the first objective, studies that include older adults (65 years and over) from any ethnic background in hospital settings including rehabilitation units, with any diagnosis, will be considered.

For the second objective, studies that include older adults (65 years and over) from any ethnic background in hospital settings including rehabilitation units, with any diagnosis, will be considered. In addition studies including or focusing on carers, family members, volunteers and healthcare professionals perspectives that relate to this age group will also be included.

Exclusion criteria:

- Patients under 65 years of age.
- Artificial feeding such as patients obtaining their nutrition exclusively by enteral or parenteral means.
- Patients residing in other healthcare settings such as nursing homes or long term care facilities.

Types of intervention(s)

For the quantitative component of this review, interventions may include but will not be limited to:

Mealtime assistance practices (healthcare professionals, volunteers, family/carers), for example:

Mealtime assistance initiatives – where patients are provided with feeding assistance by healthcare professional staff, volunteers or family members or carers.

Organizational practices, for example:

Protected mealtimes – where patients are able to eat undisturbed at mealtimes and do not have any unnecessary or avoidable interruptions during this time and nursing staff are available to assist with feeding.

Supervised dining rooms – where social interaction and verbal encouragement is provided

Food service practices, for example:

Providing meals on coloured trays for “at risk” patients – this acts as a signal to staff that those patients eating from a red tray should receive support in eating their food.

Other initiatives that aim to improve assistance at mealtimes in hospital settings including rehabilitation units as determined by the literature in the area will also be incorporated, as necessary. However, intervention strategies that focus on promoting the identification of malnutrition, e.g. nutritional screening that investigates meal delivery systems, availability of food, 24-hour access of meals/snacks, will not be included in this review. Comparators of interest for those included interventions will be usual care, where applicable.

Phenomena of interest

The qualitative component of this review will consider studies that identify and explore the perceptions and experiences of older adults in hospital settings including rehabilitation units and those involved with their care with regard to assistance at mealtimes.

Types of outcomes

For the first objective, in order to determine the effectiveness of mealtime assistance initiatives, the primary outcomes of interest will be measures of improved nutritional intake and/or nutritional status. For nutritional intake these may include energy intake, protein intake as assessed by actual or

subjective measures of plate intake or documented food intake. For nutritional status these may include the anthropometric measures of patient weight, body mass index, mid-arm circumference, mid-arm muscle circumference, hand grip dynamometry, triceps skinfold thickness and biochemical markers (for example, serum albumin). Secondary outcome measures will be length of stay, postoperative complications and all-cause mortality.

For the second objective, studies will be considered that identify or describe assistance at mealtimes from the perspective of the patient, healthcare professional, carer or family member. It is anticipated that descriptive surveys using questionnaires will be the methods employed in the majority of studies.

Context

The review will seek to investigate the feasibility, acceptability and effectiveness of initiatives for improving assistance at mealtimes for older adults in hospital settings and rehabilitation units and will ask the question what goes on, what works and what do patients, families and healthcare professionals think about it?

Types of studies

To address the first objective, the quantitative component will consider all experimental quantitative study designs including but not limited to non-randomized controlled trials, clinical trials, cohort studies and before and after studies.

To address the second objective, the quantitative component will consider all non-experimental study designs including but not limited to observational studies and descriptive studies and the qualitative component of the review will consider studies that focus on qualitative data including, but not limited to, designs such as phenomenology, grounded theory and ethnography, action research and feminist research.

Search strategy

The search strategy aims to find published studies. A three-step search strategy will be utilized for each component of this review. An initial limited search of MEDLINE and CINAHL will be undertaken followed by an analysis of the text words contained in the title and abstract, and of the index terms used to describe the article. Candidate preliminary keywords include 'hospital*', *with* 'adult*', 'patient*' *with* 'meal*' *with* 'assist*', 'help*', 'support*', 'food assistance' and 'feed*.

A second search using all identified keywords and index terms will then be undertaken across all included databases. Thirdly, the reference list of all identified reports and articles will be searched for additional studies.

Only studies published in the English language will be considered for inclusion in this review. Studies published from 1998 to 2015 will be considered for inclusion in this review. The initial search of the literature and studies retrieved from the previous qualitative or quantitative reviews in the subject area did not find any relevant literature prior to this date.

For the quantitative and qualitative component of the review:

The databases to be searched for published material include:

- CINAHL
- MEDLINE
- British Nursing Index
- Cochrane Central Register of Controlled Trials
- EMBASE
- PsycINFO
- Web of Science.

Assessment of methodological quality

Quantitative papers will be assessed by two independent reviewers for methodological validity prior to inclusion in the review using standardized critical appraisal instruments from the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) (Appendix I). Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer.

Qualitative papers will be assessed by two independent reviewers for methodological validity prior to inclusion in the review using standardized critical appraisal instruments from the Joanna Briggs Institute Qualitative Assessment and Review Instrument (JBI-QARI) (Appendix II). Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer.

Data extraction

Quantitative data will be extracted from papers included in the review using the standardized data extraction tool from JBI-MAStARI (Appendix III). The data extracted will include specific details about the interventions, populations, study methods and outcomes of significance to the review question and specific objectives

Qualitative data will be extracted from papers included in the review using the standardized data extraction tool from JBI-QARI (Appendix IV). The data extracted will include specific details about the problem explored, populations, study methods and outcomes of significance to the review question and specific objectives.

Authors of primary studies will be contacted for missing information or to clarify unclear data.

Data analysis/synthesis

Quantitative data will be, where possible, pooled in statistical meta-analysis using JBI-MAStARI. All results will be subject to double data entry. Effect sizes expressed as odds ratio (for categorical data) and weighted mean differences (for continuous data) and their 95% confidence intervals will be calculated for analysis. Heterogeneity will be assessed statistically using the standard Chi-square. Where statistical pooling is not possible the findings will be presented in narrative form including tables and figures to aid in data presentation where appropriate.

Qualitative research findings will be, where possible, pooled using JBI-QARI. This involves the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings (Level 1 findings) rating according to their quality, and categorizing these findings on the basis of similarity in meaning (Level 2 findings). These categories will then be subjected to a meta-synthesis in order to produce a single comprehensive set of synthesized findings (Level 3 findings) that can be used as a basis for evidence-based practice. Where textual pooling is not possible, the findings will be presented in narrative form.

The findings of each single-method synthesis included in this review will be aggregated as set out in the specific JBI Reviewers Manual for JBI mixed methods reviews.[34] This will involve the configuration of the findings to generate a set of statements that represent that aggregation through coding any quantitative to attribute a thematic description to all quantitative data, assembling all of the resulting themes from quantitative and qualitative syntheses, and the configuration of these themes to produce a set of synthesized findings in the form of a set of recommendations or conclusions.

Conflicts of interest

Jane Hopkinson is a member of the Scientific Board, Cachexia Hub, Helsinn Healthcare.

Acknowledgments

References

1 Norman K, Pichard C, Lochs H, Pirlich M. Prognostic impact of disease-related malnutrition. Clin Nutr. 2008;27:5-15.

2 Barker LA, Gout BS, Crowe TC. Hospital malnutrition: prevalence, identification and impact on patients and the healthcare system. Interntional Journal of Environmental Research and Public Health. 2011;8:514-27.

3 Kirkland L, Kashiwagi D, Brantley S, Scheurer D, Varkley P. Nutrition in the hospitalised patient. Journal of Hospital Medicine. 2012;8(1):52-8.

4 Correia M, Hegazi R, Higashiguchi T, Mitchel JP, Uyar M, Muscaritoli M. Evidence-based recommendations for addressing malnutrition in health care: an updated strategy from feedM.E. global study group. Journal of the Americal Medical Directors Association. 2014;15:544-50.

5 Kaiser M, Bauer J, Ramsch C et al. Frequency of malnutrition in older adults: a multinational perspective using mini nutritinal assessment. Journal of the American Geriatric Society. 2010;58(9):1734-8.

6 Agarwal E, Miller M, Yaxley A, Isenring E. Malnutrition in the elderly: A narrative review. Maturitas. 2013;76:293-302.

7 Teo YK, Wynne HA. Malnutrition of the elderly patient in hospital: risk factors, detection and management. Rev Clin Gerontology. 2001;11:229-36.

8 Saunders J. Malnutrition: causes and consequences. Clin Med. 2010; 10:624-7.

9. Milne AC, Potter J, Avenell A. Protein and energy supplementation in elderly people at risk from malnutrition. CDSRs. 2005; 2: CD003288.

10. Patel MD, Martin FC. Why don't elderly hospital inpatients eat adequately?J Nutr Health Aging. 2008; 227-31.

11. Vanderweek K, Clays E, Bocquaert I, Gobert M, Folens B, Defloor T. Malnutrition and associated factors in the elderly hospital patients: A Belgian cross-sectional, multi-national centre study. Clin Nutr. 2010: 29:469-76.

12. Age Concern England. Hungry to be Heard. Age Concern, London; 2006 [Internet]. [cited 2015 May 30]. Available from www.scie.org.uk/publications/guides/guide15/files/ Department of Health, London.hungrytobeheard.pdf.

13. Age UK, Still Hungry to be heard, Age UK, London; 2010 [Internet]. [cited 2015 May 30]. Available from www.ageuk.org.uk/.../londonvpp/.../still_hungry_to_be_heard_report.pdf.

14. Francis R. Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry. Executive summary. Department of Health, London; 2013.

15. Tsang M. Is there adequate feeding assistance for the hospitalised elderly who are unable to feed themselves? Nutr Dietetics. 2008;65:222-8.

16. Xia C, McCutcheon H. Mealtimes in hospital – who does what? J Clin Nurs. 2006; 15:1221-7.

17. Wong A, Burford S, Wyles CL, Mundy H, Sainsbury R. Evaluation of strategies to improve nutrition in people with dementia in an assessment unit. J Nutr Health Aging. 2008;12: 309-12.

18. Westergen A, Karlsson S, Andersson P, Ohlsson O, Hallberg IR**.** Eating difficulties, need for assisted eating, nutritional status and pressure ulcers in patients admitted for stroke rehabilitation. J Clin Nutr. 2001;10: 257-69.

19. Buys DR, Flood KL, Real K, Chang M, Locher JL. Use of Volunteers for Mealtime Assistance to Hospitalized Older Adults: A Report on the SPOONS Program. J Gerontol Nurs. 2013;39: 18-22.

20. Robinson S, Clump D, Weitzel T, Hendersen L, Lee K, Schwartz C, et al.. The Memorial Meal Mates: A program to improve nutrition in hospitalized older adults. Geriatr Nurs. 2002; 23:332-5.

21 Bradley L, Rees C. Reducing the risk in hospital: the red tray. Nurs Standard. 2003;17:33-7.

22. Hospital Caterers Association. Protected Mealtimes Policy. London; 2004 [cited 2015 May 30]. Available from www.hospitalcaterers.org/documents/pmd.pdf

23 Wright L, Hickson M, Frost G. Eating together is important: using a dining room in an acute elderly medical ward increases energy intake. J Nutr Dietetics. 2006; 19:23-6.

24 Hickson M, Bulpitt C, Nunes M, Peters R, Cooke J, Nicholl C, et al. Does additional feeding support provided by health care assistants improve nutritional outcome in acutely ill older patients? A randomised control trial. Clin Nutr. 2004;23:69-77.

25 Walton K, Williams P, Bracks J, Zhang Q, Pond L, Smoothy R. et al. A volunteers feeding assistance program can improve dietary intakes of elderly patients – a pilot study. Appetite. 2008; 51:244-8.

26 Green SM, Martin HJ, Roberts HC, Sayer AA. A systematic review of the use of volunteers to improve mealtime care of adult patients or residents in institutional settings. J Clin Nurs. . 2011; 20:1810-23.

27 Whitelock G, Aromataris E. Effectiveness of mealtime interventions to improve nutritional intake of adult patients in the acute care setting: a systematic review. JBI Database of Systematic Reviews & Implementation Reports.2013;11:263– 305.

28 Weekes C, Spiro A, Baldwin C, Whelan K, Thomas E, Parkin D, et al.. A review of the evidence for the impact of improving nutritional care on nutritional and clinical outcomes. J Hum Nutr Dietetics. 2009; 22:324-35.

29 Wade K, Flett M. Which 'nutritional models-of-care' improve energy and protein intake, clinical outcomes and malnutrition in hospitalised patients? Nutr Dietetics. 2012;70(1):7-15.

30 Robison J, Pilgrim A, Rood G, Diaper N, Elia M, Jackson AA, et al.. Can trained volunteers make a difference at mealtimes for older people in hospital? A qualitative study of the views and experience of nurses, patients, relatives and volunteers in the Southampton Mealtime Assistance Study. Int J Older People Nurs. 2015; 10:136-46.

31 Cheung G, Pizzola L, Keller H. Dietary, food service, and mealtime interventions to promote food intake in acute care adult patients. J Nutr Gerontol Geriatrics. 2013;32:175-212.

32 Westergren A, Karlsson S, Andersson p, Ohlsson O, Hallberg IR. Eating difficulties, need for assisted eating, nutritional status and pressure ulcers in patients admitted for stroke rehabilitation. J Clin Nutr.. 2001; 10:257-69.

33. Pearson A, White H, Bath-Hextall F, Apostolo J, Salmond S, Kirkpatrick P. Methodology for JBI Mixed Methods Systematic Reviews. In: Aromataris E, editor. The Joanna Briggs Institute Reviewers' Manual 2014. Adelaide (Australia): The Joanna Briggs Institute 2014 [Internet]. [cited 2015 30th July]. 2015 1-34. Available from: http://joannabriggs.org/assets/docs/sumari/ReviewersManual_Mixed-Methods-Review-Methods-2014-ch1.pdf

Appendix I: MAStARI appraisal instrument

JBI Critical Appraisal Checklist for Randomised Control / Pseudo-randomised Trial

Reviewer _____ Date _____

Author _____ Year _____ Record Number _____

	Yes	No	Unclear	Not Applicable
1. Was the assignment to treatment groups truly random?	☐	☐	☐	☐
2. Were participants blinded to treatment allocation?	☐	☐	☐	☐
3. Was allocation to treatment groups concealed from the allocator?	☐	☐	☐	☐
4. Were the outcomes of people who withdrew described and included in the analysis?	☐	☐	☐	☐
5. Were those assessing outcomes blind to the treatment allocation?	☐	☐	☐	☐
6. Were the control and treatment groups comparable at entry?	☐	☐	☐	☐
7. Were groups treated identically other than for the named interventions	☐	☐	☐	☐
8. Were outcomes measured in the same way for all groups?	☐	☐	☐	☐
9. Were outcomes measured in a reliable way?	☐	☐	☐	☐
10. Was appropriate statistical analysis used?	☐	☐	☐	☐
	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info. ☐

Comments (Including reason for exclusion)

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JBI Critical Appraisal Checklist for Descriptive / Case Series

Reviewer _____ Date _____

Author _____ Year _____ Record Number _____

	Yes	No	Unclear	Not Applicable
1. Was study based on a random or pseudo-random sample?	☐	☐	☐	☐
2. Were the criteria for inclusion in the sample clearly defined?	☐	☐	☐	☐
3. Were confounding factors identified and strategies to deal with them stated?	☐	☐	☐	☐
4. Were outcomes assessed using objective criteria?	☐	☐	☐	☐
5. If comparisons are being made, was there sufficient descriptions of the groups?	☐	☐	☐	☐
6. Was follow up carried out over a sufficient time period?	☐	☐	☐	☐
7. Were the outcomes of people who withdrew described and included in the analysis?	☐	☐	☐	☐
8. Were outcomes measured in a reliable way?	☐	☐	☐	☐
9. Was appropriate statistical analysis used?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

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Appendix II: QARI appraisal instrument

JBI QARI Critical Appraisal Checklist for Interpretive & Critical Research

Reviewer _____ Date _____

Author _____ Year _____ Record Number _____

	Yes	No	Unclear	Not Applicable
1. Is there congruity between the stated philosophical perspective and the research methodology?	☐	☐	☐	☐
2. Is there congruity between the research methodology and the research question or objectives?	☐	☐	☐	☐
3. Is there congruity between the research methodology and the methods used to collect data?	☐	☐	☐	☐
4. Is there congruity between the research methodology and the representation and analysis of data?	☐	☐	☐	☐
5. Is there congruity between the research methodology and the interpretation of results?	☐	☐	☐	☐
6. Is there a statement locating the researcher culturally or theoretically?	☐	☐	☐	☐
7. Is the influence of the researcher on the research, and vice- versa, addressed?	☐	☐	☐	☐
8. Are participants, and their voices, adequately represented?	☐	☐	☐	☐
9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?	☐	☐	☐	☐
10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	☐	☐	☐	☐

Overall appraisal: ☐ Include ☐ Exclude ☐ Seek further info. ☐

Comments (Including reason for exclusion)

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Appendix III: MAStARI extraction instrument

JBI Data Extraction Form for Experimental / Observational Studies

Reviewer _____ Date _____

Author _____ Year _____

Journal _____ Record Number _____

Study Method

RCT	☐	Quasi-RCT	☐	Longitudinal	☐
Retrospective	☐	Observational	☐	Other	☐

Participants

Setting

Population

Sample size

Group A _____ Group B _____

Interventions

Intervention A

Intervention B

Authors Conclusions:

Reviewers Conclusions:

Study results

Dichotomous data

Outcome	Intervention ( ) number / total number	Intervention ( ) number / total number

Continuous data

Outcome	Intervention ( ) number / total number	Intervention ( ) number / total number

Appendix IV: QARI data extraction instrument

JBI QARI Data Extraction Form for Interpretive & Critical Research

Reviewer _____ Date _____

Author _____ Year _____

Journal _____ Record Number _____

Study Description

Methodology

Method

Phenomena of interest

Setting

Geographical

Cultural

Participants

Data analysis

Authors Conclusions

Comments

Complete Yes ☐ No ☐

Findings	Illustration from Publication (page number)	Evidence		
		Unequivocal	Credible	Unsupported

Extraction of findings complete Yes ☐ No ☐