

BMJ Open Can trained volunteers improve the mealtime care of older hospital patients? An implementation study in one English hospital

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ABSTRACT

Objective Multinational studies report undernutrition among 39% older inpatients; importantly, malnutrition risk may further increase while in hospital. Contributory factors include insufficient mealtime assistance from time-pressured hospital staff. A pilot study showed trained volunteers could safely improve mealtime care. This study evaluates the wider implementation of a mealtime assistance programme.

Design Mixed methods prospective quasi-experimental study.

Setting Nine wards across Medicine for Older People (MOP), Acute Medical Unit, Orthopaedics and Adult Medicine departments in one English hospital.

Participants Patients, volunteers, ward staff.

Intervention Volunteers trained to help patients aged ≥70 years at weekday lunchtime and evening meals.

Main outcome measures The number of volunteers recruited, trained and their activity was recorded. Barriers and enablers to the intervention were explored through interviews and focus groups with patients, ward staff and volunteers. The total cost of the programme was evaluated.

Results 65 volunteers (52 female) helped at 846 meals (median eight/volunteer, range 2–109). The mix of ages (17–77 years) and employment status enabled lunch and evening mealtimes to be covered. Feeding patients was the most common activity volunteers performed, comprising 56% of volunteer interactions on MOP and 34%–35% in other departments. Patients and nurses universally valued the volunteers, who were skilled at encouraging reluctant eaters. Training was seen as essential by volunteers, patients and staff. The volunteers released potential costs of clinical time equivalent to a saving of £27.04/patient/day of healthcare assistant time or £45.04 of newly qualified nurse time above their training costs during the study.

Conclusions Patients in all departments had a high level of need for mealtime assistance. Trained volunteers were highly valued by patients and staff. The programme was cost-saving releasing valuable nursing time.

Trial registration number NCT02229019; Pre-results.

INTRODUCTION

Multinational studies report that 34%–39% of hospital inpatients aged over 65 years are at

Strengths and limitations of this study

- One of the largest studies of mealtime volunteers and the only one to formally evaluate the implementation of volunteers across four different clinical departments.
- Mixed methods design included cost analysis and evaluation of the context, barriers and enablers of the intervention from the perspective of patients, volunteers and staff.
- Limitations include that this was a single-site study, which did not include departments such as oncology or stroke units, where there may be a need for additional mealtime assistance.

risk of malnutrition.^{1 2} Further deterioration in dietary intake during a hospital admission may increase malnutrition risk, affecting up to 60% of older people.³ Malnutrition is expensive⁴ as it is associated with poor healthcare outcomes including increased hospital admissions, longer length of stay and increased mortality.⁵ Many factors contribute to low food consumption while in hospital including the effects of acute illness, loss of appetite and side effects of medication.^{6 7} However, organisational factors associated with hospital admission are recognised to contribute including mealtime interruptions and lack of help at mealtimes, with time-pressured nursing staff facing competing clinical priorities.⁸ Coloured trays to indicate which patients need additional support at mealtimes are widely used but have had little formal evaluation.⁹ Studies of protected mealtimes where clinical activity is suspended have shown no increase in dietary intake for adult patients on medical and surgical wards,¹⁰ although sitting up for meals and timely mealtime assistance have been reported to be associated with greater intake.^{11 12}

Mealtime assistance includes cleaning patients' hands and tables before meals, helping open packets, cutting up food, encouraging reluctant eaters and feeding patients as well as promoting social interaction. Two recent systematic reviews based on small studies reported that trained volunteer mealtime assistants were safe and can improve the mealtime experience for patients although evidence for an increase in dietary intake was inconsistent.^{13 14} Volunteers were perceived by patients and nurses to improve the quality of mealtime care,¹⁵ but there was limited evidence of the cost-effectiveness of a volunteer programme.¹⁴ Importantly, those patients needing feeding assistance have been shown to be at the highest risk of poor energy and protein intakes.¹⁶ However, our current understanding of how to scale up small studies into hospital-wide clinical practice is limited, and no published literature to date has described this process with respect to volunteer mealtime assistance. In England, it is estimated that up to 3 million people are involved in voluntary work within health and social care, both in the voluntary sector and within public service.¹⁷ Many hospitals have volunteers who typically fulfil roles such as serving in cafes, greeting patients and visitors and running services such as radio and books distribution. Volunteers are perceived as an integral part of the care team in hospital and play an important role in improving patient experience in hospital. Volunteering is also recognised to be beneficial for the volunteers themselves; for example, lower mortality has been described among older volunteers.¹⁸ There is growing interest in the potential of trained volunteers supporting patients in hospitals in a variety of different ways. In the Hospital Elder Life Programme (HELP), volunteers were trained in six different areas including assistance with eating and drinking, with the aim to reduce incident delirium.¹⁹

This paper reports on the implementation of trained mealtime volunteers in nine wards in four different clinical departments in one hospital: medicine for older people (MOP) wards, acute medical unit (AMU), trauma and orthopaedics (T&O) and adult medicine. The study aimed to determine the numbers of volunteers required to deliver mealtime assistance across these four departments and how best to recruit and retain volunteers; to describe and compare the activity and demographic profile of volunteers in the different clinical areas; to determine the barriers and enablers to the mealtime assistance programme from the perspectives of patients, nursing staff and the volunteers themselves and to assess the costs associated with the introduction of volunteer mealtime assistants across these hospital departments. This is the first study to report on large-scale implementation of a volunteer mealtime assistance programme and its cost implications.

METHODS

Study design

This was a mixed methods quasi-experimental prospective study with quantitative, qualitative and economic

data analysis. As an evaluation of a complex intervention, this study follows the Medical Research Council (MRC) guidance for developing and evaluating complex interventions²⁰ and builds on the earlier pilot study.²¹ As a complex intervention, the delivery of mealtime volunteer assistance was potentially influenced by the interactions with volunteers, the environment within the different departments, and the readiness and preferences of those patients receiving assistance. Thus, the MRC guidance on process evaluation of complex interventions was used to provide a framework for evaluating the implementation (how the intervention was delivered including its fidelity, quantity and reach of delivery in each department), mechanisms through which the intervention brought about change and context (external barriers and enablers to the implementation).²² The results are reported in accordance with the Standards for Reporting Implementation Studies statement.²³

Patient involvement

The volunteers' experiences from the pilot study²⁰ helped shape the design of this study, alongside advice from the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care patient and public involvement team. Meetings with the volunteers were held at regular intervals to discuss study progress and later analysis and dissemination of results.

Intervention

Volunteers were recruited to work with patients aged ≥ 70 years in four departments in one hospital: two male MOP wards, three AMU wards, two T&O wards and two adult medical wards. This represented a range of case mix including patients living with frailty and dementia (MOP), acute illness (AMU), fractures (T&O) and respiratory illness (adult medicine). Recruitment was conducted by the hospital's pre-existing voluntary services team, which comprises 2.5 full time equivalent members of staff and supported >1000 existing volunteers across the hospital. Recruitment strategies included advertising banners in main areas of the hospital, postcards by the cash registers in hospital cafes and restaurants, talks to local community groups and sixth form colleges (students aged 16–18) and hospital open days.

The volunteers attended a standardised half-day training session delivered by the research team on nutrition in older patients, safe feeding strategies, a practical session on feeding and assessment of competency prior to independent practice as previously described.²⁴ Following this competency assessment, the research team then met with each volunteer at the beginning of their next two mealtime shifts to ensure there were no concerns and that they were settled within the ward environment. The responsibility for identifying suitable patients for volunteer assistance was with the nurse in charge of each shift, and the volunteers handed over any relevant information to the nurse prior to their departure. Based on experience from the pilot study, we aimed to provide two volunteers to assist

with weekday lunch or evening meals on each ward (10 volunteers/ward/week); the ward managers identified which mealtime was most useful. The exception was AMU where we aimed to provide assistance at both mealtimes. Volunteers were recruited to one clinical department at a time and matching of individual volunteers to wards was largely based on their preferred mealtime. In practice, college students were mainly available at evening mealtimes and older volunteers often preferred lunchtimes. The ward, day and mealtime of volunteering remained constant for each volunteer throughout the study and was decided at the volunteer's competency assessment. This enabled their integration into the ward team. Six monthly 'coffee and cake' meetings were held for the volunteers by the research team and voluntary services department, where the progress of implementation and any volunteer concerns were discussed. All volunteers were aware of how to contact the research team and voluntary services department by phone or email for any urgent concerns.

Data collection

Details of how the intervention was delivered, its fidelity, quantity and reach of delivery in differing departments were recorded in the following way. The numbers of volunteers at each stage of the recruitment process were recorded from initial contact, through training and competency, to mealtime assistance. At the end of each mealtime, volunteers recorded the number of patients they had helped and the manner of their assistance (defined for study purposes in ascending order as social interaction, encouragement, preparation, assisting food to mouth and finally feeding). Volunteers were trained in how to complete these activity forms and could record multiple options, although only the most in-depth assistance was noted by the research team. The proportion of mealtimes covered by volunteers across each department was recorded. Additionally, volunteers' demographic profile and reasons for volunteering were obtained through a brief self-completed anonymised questionnaire. Those who left the programme during the study were asked to complete a brief questionnaire to establish their reasons for leaving to inform future volunteer retention.

The mechanisms by which the intervention brought about change, the acceptability of the volunteer mealtime assistant programme in the different departments, and perceived barriers and enablers were assessed using qualitative methods. Semistructured interviews were conducted with a purposive sample of eight patients (men and women, aged 70–85 years and over 85 years) and seven staff members representing different roles in all four departments who had frequent contact with the volunteers (four ward managers, a student nurse and two housekeepers). One focus group was held with nine volunteers working in a range of wards. The interviews and focus group were carried out by a single qualitative researcher, and all participants gave written informed consent. The context in which the volunteers worked in

the four departments was further described by recruiting 50 patients in each department and collecting data on their demographic, clinical and nutritional characteristics (BMI, Malnutrition Universal Screening Tool (MUST) score, appetite). These participants also gave written informed consent.

The cost implications of the implementation were evaluated based on staff costs of training and administrative support. The duration and frequency of volunteer training sessions and competency assessments were recorded along with training staff seniority.

Data analysis

Quantitative data were double entered onto a database, cleaned and analysed in R using R Studio.²⁵ Summary statistics—mean, SD; median, IQR and number, percentage (%)—were used to describe the volunteer recruitment, activity, demographic profiles and retention as well as the patient characteristics. Differences between volunteers and patients in the four clinical departments were assessed using Kruskal-Wallis and X^2 tests as appropriate. The interviews and focus group were audiotaped and transcribed verbatim. Analysis was conducted using the Framework Method, a method of analysis where qualitative data is summarised and analysed within a matrix of key themes.²⁶ Two researchers independently coded the data and agreed on a thematic framework, after which one researcher indexed, charted, mapped and interpreted the data. Common themes and differences in the views and perceptions of patients, staff and volunteers in the four departments were identified.

The economic analysis was run in Microsoft Excel and assessed the economic implications of mealtime volunteers releasing staff time to undertake other clinical tasks. Inputs uncertainty and assumptions have been tested through a sensitivity analysis and outputs range estimated in volunteers releasing time for Band 3 and Band 5 nurses.

RESULTS

Preparation for and process of implementation

Agreement for large-scale implementation of the mealtime assistance programme was initially obtained from the hospital governing board, followed by dissemination by the research team to the different hospital departments via the hospital's Nursing and Midwifery Group. The research team then met with individual ward managers to discuss the programme, confirm the need for assistance and identify the most appropriate mealtime. Ward managers cascaded the information to their nursing teams, and the research team were able to provide further education to ward staff (if needed) at the time of volunteers' competency assessments. Implementation was facilitated by the successful pilot study, with preagreed processes in place for training and supervision of volunteers, as well as widespread knowledge within the hospital of the presence of a mealtime volunteer programme.

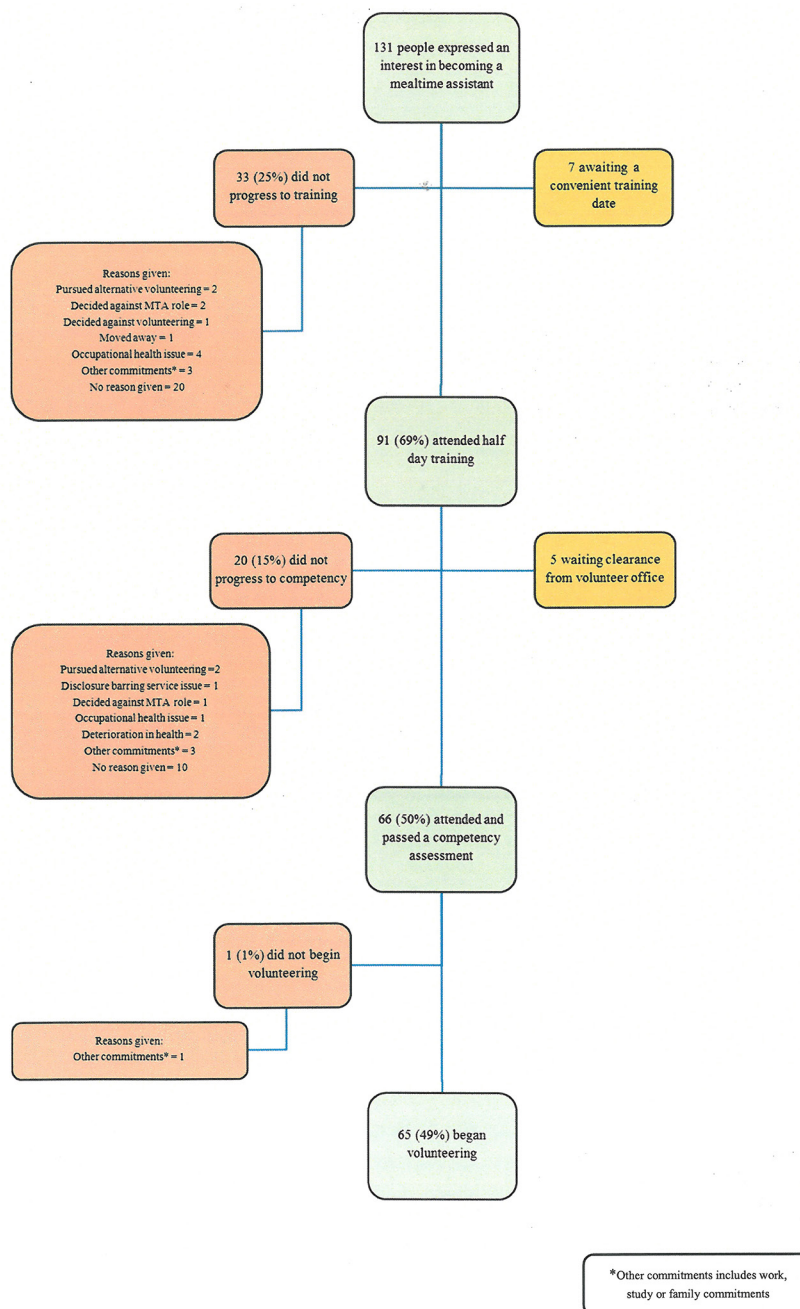


Figure 1 Volunteer recruitment and training.

Delivery of the intervention

During the 15-month study period, 131 people expressed an interest in providing mealtime assistance. Ninety-one people attended a training session and 65 (70%) completed the subsequent competency assessment (figure 1). All 65 volunteers passed this competency assessment and went on to provide mealtime assistance. A further 12 (13%) volunteers had a planned training session or competency assessment after data collection ceased and are not included in these results. However, 20 (22%) of those trained did not attend the competency assessment, typically due to a change in the volunteer's health or other commitments. The median time between expressing an interest via the volunteer office and

attending training was 31 days and between attending training and having a competency assessment was 26 days.

The demographic profile of the volunteers is shown in table 1 and was similar in each department. Fifty-two out of 65 (80%) volunteers were female but the group included a range of different ages, ethnicity, working roles and previous experience. Students comprised the largest group of volunteers, often expressing an interest in a healthcare career and reflecting the success of the college talks, although advertising within the hospital was also successful. All volunteers were recruited by the hospital voluntary services team.

In total, 846 sessions were delivered by 65 volunteers during the study period (median eight sessions per

Table 1 Volunteer characteristics by each department

Characteristic, n (%)	MOP, n=21	AMU, n=19	T&O, n=15	Adult medicine, n=10	P values
Gender					
Male	15 (71)	15 (79)	14 (93)	8 (80)	0.450
Female	6 (29)	4 (21)	1 (7)	2 (20)	
Age (years)					
Range	17–77	17–68	17–76	19–70	0.114
Median (QR)	28 (20–59)	21 (18–23)	18 (17–53)	36 (25–61)	
Ethnicity					
White British	17 (81)	18 (95)	9 (60)	5 (50)	0.041
Other ethnicity	4 (19)	0 (0)	5 (33)	5 (50)	
Unknown	0 (0)	1 (5)	1 (7)	0 (0)	
Marital status					
Single	13 (62)	16 (84)	9 (60)	2 (20)	0.044
Married/living with partner	4 (19)	3 (16)	4 (27)	6 (60)	
Divorced	1 (5)	0 (0)	2 (13)	1 (10)	
Widowed	3 (14)	0 (0)	0 (0)	1 (10)	
Employment status					
Full-time employed	3 (14)	2 (11)	1 (7)	1 (10)	0.414
Part-time employed	0 (0)	3 (16)	1 (7)	1 (10)	
Student	9 (43)	10 (53)	7 (47)	2 (20)	
Retired	5 (24)	1 (5)	1 (7)	4 (40)	
Unemployed	4 (19)	3 (16)	4 (27)	2 (20)	
Other	0 (0)	0 (0)	1 (7)	0 (0)	
Previous volunteering experience					
None	8 (38)	9 (47)	7 (47)	4 (40)	0.354
Healthcare volunteering	10 (48)	8 (42)	7 (47)	2 (20)	
Non-healthcare volunteering	3 (14)	2 (11)	1 (7)	4 (40)	
Previous healthcare experience					
None	5 (24)	11 (58)	4 (27)	2 (20)	0.080
Informal carer role	1 (5)	2 (11)	2 (13)	3 (30)	
Student work experience	5 (24)	4 (21)	3 (20)	0 (0)	
Professional experience	10 (48)	2 (11)	6 (40)	5 (50)	
Reasons for volunteering					
Former healthcare career	2 (10)	0 (0)	1 (7)	1 (10)	0.318
Interest in healthcare career	11 (52)	16 (84)	10 (67)	4 (40)	
Desire to help,	6 (29)	1 (5)	4 (27)	3 (30)	
Other	2 (10)	2 (11)	0	2 (20)	
Method of recruitment to volunteer role					
Volunteer Office	15 (71)	10 (53)	8 (53)	2 (20)	0.180
College or university talk	2 (10)	5 (26)	5 (33)	2 (20)	
Advertisements	2 (10)	2 (11)	2 (13)	5 (50)	
Word of mouth	1 (5)	1 (5)	0 (0)	1 (10)	
Other	1 (5)	1 (5)	0 (0)	0 (0)	

P value calculated for age using Kruskal Wallis test; p values calculated for all other variables using χ^2 test. AMU, acute medical unit; MOP, medicine for older people; T&O, trauma and orthopaedics.

Table 2 Volunteer activity recorded in each clinical department

	MOP	AMU	T&O	Adult medicine	P values
Number of volunteers	16	19	15	10	
Number of sessions	313	167	121	54	
Duration of volunteering (weeks)	68	54	35	19	<0.001
Activity, n (%)					
Social interaction	12 (2)	53 (8)	57 (14)	18 (13)	
Encouragement	104 (19)	68 (11)	30 (8)	25 (18)	
Preparation	90 (17)	208 (33)	136 (34)	32 (23)	
Assisting food to mouth	35 (6)	83 (13)	32 (8)	16 (12)	
Feeding	305 (56)	225 (35)	140 (35)	47 (34)	
All	546 (100)	637 (100)	395 (100)	138 (100)	

P value calculated using X² test.

n, Number of patients assisted.

AMU, acute medical unit; MOP, medicine for older people; T&O, trauma and orthopaedics.

volunteer, range 2–109). More sessions were delivered to MOP and AMU since the volunteers were recruited there first, and then in T&O and finally in adult medicine. Details of the type of mealtime assistance given to each patient by volunteers in each department was recorded by 60/65 volunteers and relates to 655/846 (77%) sessions (table 2). In these 655 sessions, 1721 patients received mealtime assistance including 718 (42%) whom the volunteers fed. Volunteers typically assisted 2–3 patients each session including feeding one person. There was a significant difference in the recorded assistance between the departments: the highest proportion of feeding assistance was in MOP (56% compared with 34%–35% in other wards) while social interaction was more commonly recorded in T&O and adult medicine. There were also differences in recorded activity between volunteers. Social interaction and encouragement were recorded more often by volunteers aged >25 years (10% and 15% activity, respectively) than those aged <25 years (5% and 9%, respectively). However, preparation of meals (eg, cutting up food and opening packets) was more frequently recorded by younger volunteers (33%) than older ones (25%). More experienced volunteers (defined as having delivered 12 or more sessions) also recorded assistance with preparation more frequently than the less experienced volunteers (29% compared with 23%). Finally, assisting food to mouth was more frequently reported by less experienced volunteers than more experienced volunteers (14% compared with 8%). No adverse events were reported and there were no reports of patients refusing to be fed by volunteers.

During the study, the delivery of the intervention was adapted by one smaller ward for older patients and two wards with fewer older patients, each of which found that only one volunteer/mealtime was needed to provide sufficient mealtime assistance.

Thirty-four volunteers (52%) continued volunteering at the end of the 15-month study period. The most common reasons for leaving, cited by 21 volunteers, were

changes in work (8), study (4) or family (2) commitments and moving away (7). However, three volunteers stopped volunteering because ward refurbishment and consequent staff changes disrupted the relationships they had built with ward staff, and they did not wish to move to another ward team. There were no significant differences in reasons for leaving between the four departments. However, volunteers aged <25 years were significantly more likely than older volunteers to leave due to moving away (31% compared with 13%) and studying commitments (25%: 0%) and less likely to leave due to work commitments (6%: 47%) and changes to the ward environment (0%: 20%).

Context and barriers and enablers to the volunteer mealtime assistant programme

There were important differences and similarities between the patients characterised in the four clinical departments (table 3). The MOP patients had a median age of 85 years compared with 74 years among the adult medicine patients. Patients characterised in these two departments were mostly male, while those in AMU and T&O had a higher proportion of women and of patients who lived alone. MOP patients had more comorbidities and lower Mini Mental State Examination scores, while the lowest Barthel scores were seen in T&O. Importantly, the nutritional indices were similar across all four departments, with median BMI at or above the normal range and most patients having a low risk of malnutrition according to the MUST score. However, low median Simplified Nutritional Appetite Questionnaire (SNAQ) scores indicate significant anorexia among many patients in all departments.

Participants from all four departments identified common themes in interviews and the focus group. Ward staff reported that a lack of assistance at mealtimes was a factor in patients not eating enough prior to the introduction of the volunteers. Volunteers also recognised this as a problem and described the competing priorities that

Table 3 Patient characteristics in each department

Median (IQR)	MOP, n=50	AMU, n=50	T&O, n=50	Adult medicine, n=51	P values
Age	85 (82–89)	81 (75–85)	80 (76–86)	74 (71–78)	<0.001
Gender, n (%)					<0.001
Male	50 (100)	19 (38)	15 (30)	37 (73)	
Female	0 (0)	31 (62)	35 (70)	14 (28)	
Home situation, n (%)					
Married	28 (56)	19 (38)	19 (38)	34 (67)	0.005
Living alone	22 (44)	31 (62)	31 (62)	17 (33)	
Care home	2 (4)	0	3 (6)	0	0.295
Personal care help	16 (32)	16 (32)	7 (14)	5 (10)	0.004
Comorbidities	7 (5–8)	6 (4–8)	4 (3–6)	5 (4–7)	<0.001
Medications	9 (7–12)	7 (6–10)	8 (5–12)	9 (6–11)	0.156
MMSE*	26 (22–28)	28 (25–29)	28 (27–29)	29 (27–30)	<0.001
Barthel	90 (78–98)	92 (81–100)	70 (41–86)	90 (78–100)	<0.001
Body mass index†	24.3 (22.0–27.1)	26.9 (23.0–30.3)	25.6 (21.9–28.4)	25.4 (22.5–29.1)	0.131
MUST‡ low risk, n (%)	38 (76)	40 (82)	43 (86)	40 (78)	0.820
SNAQ‡	15 (12.5–16)	13 (12–15)	14 (12–15)	14 (912–15)	0.227

P value calculated using Kruskal-Wallis test except for gender, home situation and MUST calculated using X² test.

*n=49 for T&O.

†n=49 for AMU.

‡n=49 for MOP.

AMU, acute medical unit; MMSE, Mini Mental State Examination; MOP, medicine for older people; MUST, Malnutrition Universal Screening Tool; SNAQ, Simplified Nutritional Appetite Questionnaire; T&O, trauma and orthopaedics.

nurses had to face at mealtimes. Consistent with staff and volunteer views, most patients interviewed agreed that the nurses had too much to do to be able to provide effective help at mealtimes. Volunteers considered increasing patients' dietary intake as important. They recognised that this could be a significant challenge in some circumstances and had developed strategies to encourage patients to eat. All staff interviewed were positive about the volunteers and reported that they were often particularly good at encouraging reluctant eaters:

With a volunteer, the patients will eat a lot more, definitely, because they're getting that bit of conversation as well. Staff member 01

Volunteers felt that preparing patients for their meal was important, and both staff and volunteers identified the importance of the social aspects of the volunteer role to patients.

She'll help someone, but while she's talking to that patient, she's talking to the other three as well, so they're all sort of having a little chat while having their lunch. Staff member 02

It's not just the feeding, it's the social thing I think is as important as well. Volunteer 01

One member of staff reported that their ward had initially had some concerns about the volunteers but these had been quickly addressed once the volunteers started on the ward. No other staff members reported any

concerns about the safety or appropriateness of volunteer feeding and many agreed that the routine of volunteers making contact with a staff member on arrival ensured that the assistance was appropriate. Staff wished volunteer numbers could be increased, but recognised that recruiting and maintaining a volunteer workforce was challenging. Volunteers valued the training they received, but reported that situations could arise that had not been discussed in the training session. One patient felt it was particularly important that volunteers were appropriately trained, managed and monitored.

Cost analysis of the programme

The cost analysis was based on the cost of staff resources required to implement the intervention. The implementation costs over the 15-month study period (August 2014–December 2015) included training sessions (13 in total), competency sessions (one per volunteer) and 1 hour of administrative support per volunteer (to encompass arranging training and support following attainment of competency). The total cost of implementation (recruiting and training the volunteers) was £5681, equivalent to £87.40 per volunteer. However, the volunteers released nursing time for clinical duties. The overall cost saving over and above the implementation costs (using NHS Agenda for Change Pay Scales, 2015)²⁷ was £17 200 saving if releasing Band 3 nurses and £32 400 saving if releasing Band 5 nurses. This is equivalent to a potential cost saving per patient per day

of £27.04 (Band 3) and £45.04 (Band 5) over the period of the study.

DISCUSSION

This is the first study to formally evaluate the implementation of a volunteer mealtime assistance programme at scale across a number of wards and different clinical departments. We used a range of methods to recruit volunteers and, in particular, talks to college students and advertising banners within the hospital were successful and supplemented the hospital voluntary service team's usual methods. Ninety-one out of 131 (70%) people who expressed an interest attended a training session, of whom 70% subsequently worked as mealtime assistants. Training was essential and valued by patients, staff and volunteers. Sixty-five volunteers of different ages and experience worked across four clinical departments over a 15-month period: this mix of different ages was required to cover both lunch and evening mealtimes. The highest proportion of patients who were fed were in MOP but at least 34% volunteer activity in each department was feeding patients, which highlights a widespread need for mealtime assistance. The volunteer mealtime assistants were valued by staff and by patients in all four departments despite differences in patient ages. It was important to complete the training and clearances for volunteers swiftly in order to maintain their interest. There was a high turnover with almost half of both older and younger volunteers leaving by the end of study. This was mainly for personal reasons and the students finishing college, but a planned ward move and associated staff changes did contribute to three volunteers leaving. The recruitment, training, management and support of the volunteers took a significant amount of time and this was recognised by the ward staff. The 65 volunteers released valuable nursing time for clinical duties equivalent to £17 200 of Band 3 healthcare assistant time and up to £32 400 had the mealtime assistance time been given by newly qualified Band 5 nurses over the period of the study.

This study had a number of strengths. It is one of the largest studies of mealtime volunteers to date and the only one to formally evaluate the implementation of the volunteers in four different clinical departments. The mixed methods study design included a cost analysis and has evaluated the context, barriers and enablers to the intervention from the perspective of patients, staff and volunteers.

However, there were limitations to this study. It was carried out in one hospital in England with little ethnic diversity among the patients, although there was more diversity among the volunteers and staff. The focus on four departments meant that mealtime assistance for patients in other departments, such as those with cancer or stroke, was not evaluated. Volunteer activity was self-reported and not independently observed (although it was recorded for 77% of volunteer sessions), and it is therefore likely that recorded activity underestimates the scale

of volunteer assistance. Finally, we did not measure the impact of volunteer mealtime assistance on dietary intake or nutritional status, as this has been reported in previous studies^{13 14 16} and was not the focus of this implementation study.

Most previous studies of trained volunteer mealtime assistants for older people in hospital have been pilot or cross-sectional observational studies focused on measuring dietary intake, rather than implementation studies. Only two of these studies have included all patients on the study wards as in this study.^{14 28} The benefit of collecting data at a ward level for an implementation study is that the practical implications for a hospital can be assessed. Several studies have reported recruiting students,^{29–31} and they were the sole workforce in two studies.^{32 33} Two studies have reported a similar training programme to the one developed for this study, consisting of a training session followed by observing the volunteers in practice.^{23 34} Other studies have similarly involved volunteers, feeding patients where needed. Only five published studies have formally assessed feedback from patients, volunteers or staff^{14 25 28 35 36} and in keeping with our study no paper reported any negative feedback. Two studies reported volunteer activity as the number of tasks and time spent with each patient and also found that volunteers spent more time with patients than nurses.^{23 28} Only one study published in 2013 included an economic analysis and calculated a cost-savings in staff time for each volunteer activity, equivalent to US\$12–26 in staff costs for each encounter between volunteers and patients.²³ In keeping with our study, two previous studies have reported a lack of adverse events with trained volunteer mealtime assistants working with older people.^{14 23}

The use of volunteers trained to provide mealtime assistance and its implementation has been assessed as part of a wider programme of volunteer activity in the HELP.¹⁸ This intervention incorporated six different volunteer activities and was designed to reduce delirium rather than address a lack of mealtime assistance per se. When the implementation of HELP was evaluated across 17 hospital sites, 31% of hospitals adapted the volunteer feeding protocol, with some sites reducing the volunteer role to assistance with meal setup due to concerns about volunteers feeding patients.³⁷ This is in direct contrast to our own study, where, apart from nurses on one ward voicing initial worries about volunteer feeding (that were rapidly allayed once the volunteers began), no concerns were raised and the implementation of feeding was not prevented. In line with our study, volunteer turnover in the HELP study necessitated constant recruitment and training of new volunteers.

This study has demonstrated that trained volunteers can deliver high-quality mealtime care, including safely feeding patients in a range of clinical departments where there was a high level of need. The volunteers released valuable nursing time for clinical tasks and the programme was very cost-effective. The trained mealtime volunteer programme has now been taken up by the hospital as part

of its quality improvement framework. Other hospitals struggling to deliver mealtime care to older patients could develop similar trained mealtime volunteer programmes using the recruitment and training strategies outlined in this paper. It is important to note that the recruitment, management and retention of volunteer mealtime assistants was an active process needing dedicated personnel and resources from paid and voluntary staff with senior management support. The support of the hospital voluntary services team was essential. Retention was aided by timely post-recruitment checking of references, maintaining volunteers on one ward such that they became part of the ward team and ensuring volunteers were able to access help from the research team or voluntary services department when needed. Six monthly meetings with volunteers helped to maintain relationships.

While this study has demonstrated that volunteers can deliver quality mealtime care to older people in hospital at scale, there are other issues to be addressed to understand why patients eat so little when protected mealtimes and sufficient help is provided. In this and previous studies, it is clear that anorexia is a major problem among patients in each department and is rarely measured or addressed. Patients with confusion due to delirium and/or dementia have a high risk of poor nutrition and future research could address methods to improve this. Patient interviews suggest that a lack of physical activity in hospital also contributes to poor nutrition, with patients reporting that less should be eaten to balance the inactivity.¹⁵ Future research should evaluate whether volunteers can undertake other roles to support clinical staff including a focus on increasing the mobility of inpatients alongside mealtime assistance.

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