

# BMJ Open Care home resident and staff perceptions of the acceptability of nutrition intervention trial procedures: a qualitative study embedded within a cluster randomised feasibility trial

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## ABSTRACT

**Objectives** To examine care home resident and staff perceptions of the acceptability of participating in a feasibility trial evaluating nutritional interventions in the treatment of malnutrition.

**Design** Exploratory qualitative methodology was used to gather descriptions of resident and staff perceptions of trial procedures, using semi-structured interviews with residents and focus groups with staff. The interviews were used to explore individual perceptions of the acceptability of the assigned intervention and the outcomes measured. Focus groups were used to explore staff experiences of trial participation and perspectives of nutritional support interventions.

**Setting** The study was embedded within a cluster randomised feasibility trial, which randomised six care homes to provide standard care (SC), food-based (FB) intervention or oral nutritional supplement (ONS) intervention to residents with, or at risk of, malnutrition.

**Participants** Residents in the trial with capacity to consent (n=7) formed the sampling frame for inclusion. Four agreed to be approached by the researcher and to take part in the individual interviews. All were women, representing two arms of the trial (ONS and SC). Twelve staff participated in six focus groups, one at each care home. All participants were women, representing all three arms of the trial.

**Results** Major themes that emerged from both interviews and focus groups included the perceived acceptability of trial involvement, the value of residents completing participant-reported outcome measures and the challenges associated with outcomes measurement in this setting. Themes that emerged from the focus groups alone, included the importance of individualising an intervention, and the perceived value of FB and ONS interventions and dietetic input.

**Conclusions** Residents and staff perceived involvement in a trial evaluating nutritional interventions to be acceptable, although the challenges associated with research in this setting were acknowledged. Resident preferences were highlighted by staff as an important consideration when implementing a nutrition support plan.

**Trial registration number** ISRCTN38047922

## Strengths and limitations of this study

- This is the first study to inform understanding of the feasibility and acceptability of conducting a clinical trial evaluating nutritional interventions in the care home setting from the perspectives of staff and residents.
- Use of individual interviews gave each resident the chance to freely voice their views.
- The dynamic interaction of the staff focus groups were perceived by the researcher as open and positive, and provided insight into shared viewpoints within and between care home sites.
- The study was limited by small sample size, particularly with regard the number of residents interviewed, but a staff focus group was conducted at each care home site, providing representativeness from each arm of the trial, and capturing the views of both nursing and care staff.
- Exploration of staff experiences of feasibility and acceptability was carried out in engaged and motivated care homes, which may limit transferability to the national care home population.

## INTRODUCTION

Care home residents in the UK are a distinct group of approximately 416 000 people (including 16% of those aged over 85 years)<sup>1</sup> with different mortality,<sup>2</sup> health status and health and care needs<sup>3</sup> compared with individuals of the same age residing in their own homes. Research outcomes established for older adults living within their own homes cannot be considered valid for care home residents and cannot therefore be used to guide best practice.<sup>4</sup>

The public health and social care expenditure associated with malnutrition in England from 2011 to 2012 was estimated at £19.6 billion; 15% of the total expenditure on health and social care.<sup>5</sup> Approximately 30%–42% of care home residents are

estimated to be at risk of malnutrition<sup>6-8</sup> placing them at increased risk of infection and pressure ulcers, clinical complications and depression and reducing their overall quality of life.<sup>9-10</sup> There is a need therefore to improve the evidence-based nutritional care provided to this population. However, research in care homes presents challenges, and consequently many studies exclude care home residents on the basis that their inclusion would present the team with ethical and practical dilemmas.<sup>11</sup> Recruitment difficulties due to physical and cognitive impairments<sup>12</sup> have been highlighted as a particular challenge, along with the consent process,<sup>12-13</sup> responding to family and carer concerns<sup>12</sup> and high attrition.<sup>12-14</sup> Additional issues for the researcher can include data collection within a busy care home schedule and difficulties for staff in adhering to assigned interventions and methodological protocols.<sup>12</sup> These challenges have led to nutrition intervention trials often excluding those at highest risk of malnutrition, including residents with advanced dementia and immobility.<sup>15-18</sup>

Existing studies of nutrition interventions for malnutrition within this setting have also tended to use a quantitative approach, which while useful for determining quantitative outcomes such as nutrient intake and weight change, have provided limited information on resident and staff perspectives of nutritional care and the reasons why the care home environment poses challenges for the researcher. During the last 20 years, researchers have identified the need for employing a range of methodologies to enhance understanding of healthcare complexities and to ensure that disempowered groups are heard.<sup>19</sup> Exploring feasibility outcomes with trial participants is a way to ensure that resident and staff perspectives can be used to inform the design and conduct for future definitive trials in this complex research setting.

The aim of this study therefore, was to seek an in-depth understanding of the experience of participating in a cluster randomised feasibility trial, which evaluated nutritional interventions in the treatment of malnutrition.<sup>8</sup> The study had two objectives:

1. To examine perceptions of the acceptability of trial procedures (including the intervention protocol, outcome measures and data collection methods) with care home staff and residents.
2. To examine care home staff perspectives of nutritional interventions and dietetic care in the treatment of malnutrition.

## METHODS

### Design and setting

This study used a pragmatic, exploratory approach to qualitative research, embedded within a cluster randomised feasibility trial (ISRCTN38047922)<sup>8</sup> to understand the experience of participating in a trial investigating nutritional interventions in the treatment of malnutrition. The study used semi-structured interviews with residents and focus groups with staff, which were consistent with

the exploratory aim of the study.<sup>20</sup> Topic guides (table 1) were used to ensure that core questions were asked, while allowing for flexibility to follow-up on novel information.<sup>21</sup> Due to the paucity of previous work in this area, a specific theoretical framework was not adopted. The study is reported in line with the Consolidated Criteria for Reporting Qualitative Research.<sup>22</sup>

The feasibility trial was conducted within the West Midlands, in England, where 17 care homes providing accommodation for older adults (over 65 years) were receiving regular dietetic input. This was being provided by the community nutrition support dietetic service where the lead researcher (female) (RS) was working as a dietitian at the time of the study. Purposive sampling was used to select and invite six, privately owned care homes with a diverse sample based on type of care provided (residential or nursing/nursing and residential) to take part in the trial. All care home sites were made aware that the trial was being conducted as part of a student MRes project by the lead researcher (RS). The care home sites were cluster randomised to provide standard care (SC) (n=2), food-based (FB) intervention (n=2) or oral nutritional supplement (ONS) intervention (n=2) for 6 months to residents identified with, or at risk of malnutrition. Outcomes were trial feasibility and the acceptability of the design, the nutritional interventions and the outcomes being assessed at 3 and 6 months. These included anthropometry, dietary intake, healthcare resource usage and participant-reported outcome measures (PROMs).

### Ethical approval

The Research Ethics Committee felt that the inclusion of residents lacking capacity in the collection of PROMs and in the qualitative study could not be justified in accordance with the Mental Capacity Act.<sup>23</sup> Within the care home setting, capacity is assessed by trained care home staff or the general practitioner. Written consent for PROMS data collection and for the qualitative study was sought on an individual basis from eligible residents that had been assessed as having capacity. Residents were provided with a full explanation of their required participation alongside a Participant Information Sheet. They were given 1 week to ask questions and decide whether they would like to provide information on quality of life, health state and dietary satisfaction. Each resident was asked to sign a consent form for PROMs and to indicate whether they would like to be considered for the individual interviews in the qualitative study.

### Participants

#### Sampling and recruitment

Those residents with capacity to consent who had indicated on the trial consent form that they would like to be considered for individual interviews and had completed the 6-month trial intervention (n=7), formed the sampling frame for potential inclusion. The care home staff made the initial approach to the seven potential participants to discuss their involvement. Those that

**Table 1** Topic guides for semi-structured interviews and focus groups

Stage	Content
<b>Semi-structured interviews</b>	
Discussion on involvement in the trial	<ul style="list-style-type: none"> <li>▶ The clarity and acceptability of explanations and instructions before and during the trial—<i>prompted for any examples where information was not clear, scope for improvement.</i></li> </ul>
Discussion on the dietary plan received	<ul style="list-style-type: none"> <li>▶ The acceptability of the dietary plan—<i>prompted on appetite, satisfaction with diet, compliance and whether intervention was always received.</i></li> <li>▶ Positive and negative outcomes of the interventions—<i>personal experiences.</i></li> </ul>
Discussion on the anthropometry assessments	<ul style="list-style-type: none"> <li>▶ Acceptability of the assessments undertaken—<i>prompted for understanding of instructions, personal experiences, suggestions to make the process more acceptable.</i></li> </ul>
Discussion on the PROMs questionnaires and scales	<ul style="list-style-type: none"> <li>▶ The ease/burden of completing questionnaires and scales—<i>prompted for time commitments, changes to routine, ways to make the process more acceptable.</i></li> <li>▶ Understanding of the questionnaires/scales—<i>prompted for any particular challenges, whether other residents could have completed.</i></li> <li>▶ Thoughts on the importance of residents being able to provide feedback through PROMs.</li> </ul>
<b>Focus groups</b>	
Discussion of care home involvement in the trial	<ul style="list-style-type: none"> <li>▶ The ease/burden of participation in the trial—<i>prompted for time commitments, knowledge and competency.</i></li> <li>▶ The confidence of the staff in completing malnutrition screening—<i>prompted for areas of concern/adequacy of training prior to commencement.</i></li> <li>▶ Experiences of completing healthcare resource usage questionnaires—<i>prompted for time commitment/specific challenges/any other items which could have been included.</i></li> </ul>
Discussion of allocated dietary intervention	<ul style="list-style-type: none"> <li>▶ The acceptability of the dietary plan for residents.</li> <li>▶ The ease/burden of delivering the dietary intervention.</li> <li>▶ Positive and negative outcomes of interventions—<i>according to study data, and own perceptions.</i></li> <li>▶ Possible reasons for poor compliance.</li> </ul>
Discussion of PROMs outcome measures	<ul style="list-style-type: none"> <li>▶ The ability of residents to complete the questionnaires and scales—<i>prompted for their thoughts on whether others could have completed, ways to make it easier, completion by proxy.</i></li> </ul>

PROM, participant-reported outcome measure.

remained interested in participation (n=4) were introduced to the dietitian researcher (RS) to provide further verbal information and a written information sheet and consent form. The three residents that declined to take part did not give specific reasons to the care home staff.

A focus group of staff (two to three) took place within each of the care home sites that had participated in the trial. Care home staff were selected on the basis that they had participated in the trial<sup>24</sup> and were provided with information sheets and consent forms. Six focus groups, covering all three arms of the trial were conducted.

### Semi-structured interviews

The dietitian researcher (RS) conducted individual semi-structured interviews lasting 30–60 min with care home residents to enable exploration of reality from narratives related to their own experiences of trial participation.<sup>25</sup> The interviews were organised around topic guides (table 1), developed using the trial feasibility objectives and discussions with care home staff. The basic research question explored was the experience and acceptability of participation in the trial. Themes and core questions were refined following the 6-month dietary intervention and the collection of PROMs.

Interviews allowed for greater exploration of individual perceptions of the acceptability of the assigned intervention and understanding and perception of the anthropometric assessments and the PROMs questionnaires than would have been possible with the use of focus groups.<sup>26–28</sup>

RS is an experienced nutrition support dietitian with an interest in malnutrition in the older adult population, and who had worked for several years with the care home population. This relevant background allowed for the effective exploration of individual dietary satisfaction while on the allocated nutritional intervention plan. Use of the interview technique enabled residents to ask for questions to be further explained, which allowed for the identification of any problems with comprehension and for questions to be rephrased as appropriate. This was felt to be important with the care home population and may have been less feasible within a group setting.<sup>29</sup> RS was responsible for audio taping the interviews, and transcribing the audio recordings verbatim.

### Focus groups

The dietitian researcher (RS) led and audio-taped focus group discussions lasting 45–60 min in each of the six care homes with between two and three care home staff

in each. The topic guide (table 1) was developed using the feasibility objectives from the trial alongside discussions with care home staff and was later refined following delivery of the 6-month nutritional intervention and collection of outcomes data. Focus groups were used to enable the views of more people to be included,<sup>25</sup> to highlight any variations in perspectives between the staff within each home and between care home types<sup>30</sup> and to collect information from those staff that were reluctant to be interviewed on their own or who felt they had less to contribute.<sup>31 32</sup> As the staff within a care home work closely together, holding a focus group within each individual home was found to stimulate engagement and discussion<sup>31 33</sup> and it was possible to explore knowledge, experiences and perceptions of participating in a trial, with a focus on the assigned intervention and protocol for delivery, the data collection process, the data collection tools and the outcomes from the trial. With a strong background in nutrition support within the care home setting and a working relationship with the care home staff as a dietetic practitioner, RS was able to appreciate the significance of the aspects discussed and to effectively follow-up on the relevant points.<sup>34</sup> RS was responsible for transcribing the focus group audio recordings verbatim.

### Nutritional interventions and outcome measures

All six care homes had received training and support to provide a standard care intervention to residents with or at risk of malnutrition. The food-based intervention choices and recipes were based on local nutrition support guidelines, national guidance and best practice resources<sup>35 36</sup> and were intended to increase the participating resident's daily nutritional intake by approximately 600 kcal and 20–25 g of protein. The ONS intervention consisted of two daily liquid ONS containing 600 kcal and 24 g protein.

The outcomes measured or collected in the trial by the care home staff included height, weight, body mass index, healthcare resource usage, compliance with the assigned intervention and completion of the standardised mini-mental state examination. PROMs data were collected from those residents that had capacity and had consented to completing quality of life and health state questionnaires and a visual analogue scale related to dietary satisfaction.

### Patient and public involvement

The care home residents involved in this study were not involved in the development of the research question, the outcome measures or the study design. However, the focus of the study and the development of the topic guides was informed via care home staff discussions and the insight of a carer, who supported the trial steering groups. Participants were recruited through the care homes that participated in the trial as described above. There are no plans to disseminate the qualitative study results to participants directly; however, results will be published in open-access peer-reviewed publications.

### Data analysis

Interview and focus group discussions continued until no new emerging ideas were being obtained and it was felt that thematic data saturation had been reached with the study participants.<sup>37</sup> The qualitative data were analysed using the framework analyses by Krueger<sup>38</sup> and Ritchie and Spencer.<sup>39 39</sup> The process of data analysis began during data collection, through the effective facilitation and audiotaping of the interview and focus group discussions. As RS undertook all of the interviews and focus groups, this reduced the time taken to become fully familiar with the data.<sup>23</sup> RS transcribed the audiotapes and then cross-referenced the transcripts against the recordings for accuracy and to identify the major themes. Concepts, ideas and short phrases were identified within the text and were used to develop thematic frameworks. The initial frameworks and themes were informed by the study objectives and the structure of the topic guides and were developed through deductive analyses and the identification of subthemes. These were then refined, combined and developed by annotating the themes from the draft frameworks on the transcripts, further immersing RS in the data, and enabling the themes and subthemes to be adjusted and made clearer.<sup>23 40</sup>

Once the frameworks had been refined, the data were indexed using a process of sorting, highlighting and arranging quotations (using CH1 to CH6 to indicate the care home source and R1 to R4 to indicate the source of the resident interview quotations). At this stage, RS consulted with AR in a process of peer debriefing, to determine whether the themes and subthemes were appropriately clear and comprehensive and to agree the final frameworks.<sup>41</sup> The last stage of analysis involved mapping and interpreting the data, enabling comparison of themes and subthemes and cross-checking against the original transcripts and audio recordings to ensure appropriate context and enhancing rigour.<sup>42</sup> No further changes were made to the themes or subthemes at this stage.

Data collected from the staff focus groups and resident interviews for objective 1 were considered alongside each other, to identify perceptions about trial acceptability that were common to both sets of participants.

## RESULTS

### Participants

Twelve staff participants took part in six focus groups, one at each of the care home sites. All participants were women and all three arms of the trial were represented. The participants were all involved with the trial for the full 6-month intervention. The main reason for care home staff that had participated in the trial being unable to attend the focus groups was the busy care home schedule and staff shift patterns.

Four resident participants took part in the individual interviews. All participants were women and two arms of the trial were represented; the ONS arm and the SC

arm. None of the residents approached by the dietitian researcher (RS) refused to participate in the interviews, or dropped out.

### Care home staff and residents' perceptions of the acceptability of trial procedures

The themes and subthemes identified from the care home staff focus group data and resident interview data are shown in [table 2](#), along with supporting quotations. Major themes that emerged from the data included: the perceived acceptability of being involved in the trial, the value of residents completing PROMs questionnaires and voicing their opinion and the challenge of undertaking physical measurements and delivering an intervention protocol with some groups of residents.

Eight staff participants commented that involvement in the trial did not pose an additional workload, although some participants stressed the importance of ensuring that all staff in the home were aware of the trial and what was required of them. The four resident participants did not consider taking part in the PROMs data collection to be a 'burden' with two of them commenting that it did not take up too much of their time. Six staff participants indicated that they believed more of the residents could have completed the PROMs questionnaires within the trial, with one specifically making a positive reference to the COOP quality of life tool. Three staff participants and all four resident participants commented on the usefulness of residents voicing their opinion through completion of these types of questionnaires.

Eight staff participants commented on the challenge of undertaking physical measurements such as anthropometry, with care home residents and four commented on the challenges associated with delivering a nutritional intervention in this setting. Particular reference was made to the challenges posed by the fluctuating mood and capacity of many of the residents. The four resident participants commented on the acceptability of the physical measurements and the nutritional interventions, although it must be noted that these four residents all had capacity. One resident mentioned that mood might determine the acceptability of the measurements.

### Care home staff perspectives of nutritional interventions and dietetic care in the treatment of malnutrition

The themes and subthemes identified from the care home staff focus group data are shown in [table 3](#), along with supporting quotations. Major themes that emerged from the data included the importance of considering resident preference and the potential for personalised plans, the perceived value of FB and ONS interventions by staff and families and the perceived value of dietetic input.

Seven staff participants commented on how resident preference influenced adherence to the intervention schedule, with two participants making reference to the importance of flexible and personalised approaches. Eight staff participants commented on the value of FB and ONS interventions, making reference to improvements

in well-being, weight and behaviour. Two of the participants also mentioned that the families of some of the residents viewed the FB and ONS interventions positively and would have liked them to continue beyond trial completion. Four of the staff participants made reference to the value and usefulness of dietetic visits to the care home with one participant commenting that residents would do better with dietetic intervention.

## DISCUSSION

### Care home staff and residents' perceptions of the acceptability of trial procedures

This is the first study that has examined the perceptions of the acceptability of trial procedures in the care home setting with staff and residents, a topic which has not previously been explored within the literature. Consideration of the data gathered from the focus groups and semi-structured interviews for objective 1 highlighted some common themes for both those that reside in and those that work in the care homes. Both the staff and residents felt their involvement in the trial to be acceptable. It was not viewed as creating additional work for the staff, and the residents perceived it to take up little of their time. The use of PROMs to assess self-perceived quality of life and health state and as a means of enabling residents to voice their opinion of the food and nutritional interventions was viewed as positive and of value to the trial, with the tools and questionnaires perceived as acceptable for residents to complete. Both groups of participants felt that more of the residents that took part in the trial could have completed the PROMs. The restrictions imposed by the approving Research Ethics Committee (REC) meant that those residents lacking capacity were excluded from the collection of these data on the basis that their involvement would not benefit other people with the same or similar impairing condition.<sup>8 36</sup> The perceived acceptability of the tools by staff and residents in this study supports the future assessment of feasibility and acceptability with a more representative care home population, giving scope to investigate the relationship between nutrition support and PROMs and to further explore resident experience of mealtimes and interventions, both areas that have been highlighted within the literature as requiring further research within this setting.<sup>43 44</sup>

Staff noted the value in finding out what the residents think through the use of PROMs, with one stating that 'sometimes this generation like to agree with everything'. Care home residents have been described previously within the literature as 'silent recipients of care',<sup>45</sup> tending not to highlight concerns or make clear their preferences, either due to cognitive impairment or because of the cultural norms of their generation.<sup>46</sup> The use of tools and questionnaires within the care home setting may provide residents with a non-verbal means of expressing their opinions of care and may assist in the effective delivery of person-centred health and social care, as advocated by the Care Quality Commission.<sup>47</sup>

**Table 2** Identified themes and subthemes from care home staff and residents regarding their experiences of the trial procedures:

Theme	Subthemes	Direct quotations
Care home staff		
Perceived acceptability of involvement in the trial	Not viewed as additional work	<p>‘No different to usual at all’ (CH1)</p> <p>‘No additional work (collecting healthcare resource usage data)—all in the notes’ (CH1)</p> <p>“I can’t say that it was a hassle, we just treated it as we should do anyway” (CH2)</p> <p>‘All the required information is documented in care plans anyway—not extra information’ (CH2)</p> <p>“No, wasn’t really any different....it’s (SC) what we are doing anyway” (CH3)</p> <p>‘Carers would be fortifying anyway, and working with the kitchen’ (CH4)</p> <p>“I was happy that you chose us to be involved—it wasn’t any extra work” (CH6)</p> <p>‘It didn’t seem like extra work—it was very organised’ (CH1)</p>
	Importance of all staff being made aware	<p>“We had a list in the kitchen to make it easy for staff to deliver the intervention” (CH2)</p> <p>“We put extra copies of the sheets (personalised dietetic FB plans) in the residents rooms to make sure the carers understood and knew what it was all about” (CH4)</p> <p>‘Everyone had a list of the residents that needed the FB intervention, they also had all the recipes to follow, so it was not challenging’ (CH6)</p> <p>‘It was straightforward so long as staff knew to sign that they (ONS) had been given’ (CH1)</p>
Staff completion of nutritional screening	<p>Confident in the process</p> <p>The value of ‘MUST’ training</p>	<p>Very confident in completing’ (GH1)</p> <p>“We do the MUST (the seniors)—no problem with completing it’ (CH2)</p> <p>‘Staff are confident in doing this and knowing what to do next’ (CH3)</p> <p>“I think we have gained more confidence in using MUST” (CH6)</p> <p>“I found it hard to begin with, but it’s alright now we’ve had lots of training” (CH2)</p> <p>“We have a good knowledge now we’ve been trained” (CH5)</p> <p>‘Further training on completing MUST is always useful’ (CH4)</p> <p>“The only challenge is we don’t always have heights, but now I know how to take the arm measurement (ulna length) if I can’t get height” (CH5)</p>

Continued

**Table 2** Continued

Theme	Subthemes	Direct quotations
The challenge of undertaking physical measurements with care home residents	Fluctuating mood and capacity	<p>'The patients were not refusing you because it was a study, they refuse to do things for us as well' (CH1)</p> <p>'it's dementia and it's really hard—it depends on the day' (CH2)</p> <p>'It's a challenge of the care home setting' (CH3)</p> <p>'it's just a challenge of care homes—if they refuse, they refuse' (CH4)</p> <p>'it depends on the individual, not all of them will be weighed either' (CH5)</p> <p>'Challenging in a care home—with people that have dementia, it depends on the day' (CH6)</p> <p>'They behave differently at different times of the day' (CH6)</p> <p>'Limitation of time—you are committed to come on that day—if the residents are having a bad day, you won't be able to get the measurements properly' (CH6)</p>
	Potential for staff training	<p>'Would be good if staff could be shown how to do these other measurements' (CH2)</p> <p>'It might work better if staff could be trained to do these measurements' (CH4)</p> <p>'If they can't do the weight, it would be good for staff to have more skills' (CH5)</p> <p>The challenge of delivering a nutritional intervention protocol in a care home: the care home staff cited challenges including physical space for supplements, additional work for kitchen staff and encouraging the residents to take the interventions</p> <p>'It's quite hard to get the residents (with dementia) to have things every day, whatever it is' (CH2)</p> <p>'There are a couple of residents that won't comply whatever the intervention' (CH4)</p> <p>"Only negative we had was all the supplements arriving at the same time—we don't have that much space!" (CH1)</p> <p>'There was more for the kitchen staff to do, but they didn't see it as extra work' (CH6)</p>
Resident completion of PROMs questionnaires	Feasible for more residents to have completed them	<p>'Some (residents without capacity) would be able to take part, but it depends on the day—are they having a good day?' (CH1)</p> <p>'More of them could have completed them' (CH2)</p> <p>'We have a couple on here that could have been able to answer these' (CH3)</p> <p>"I like these (The Dartmouth Cooperative Functional Assessment Charts (COOP) QoL tool), I've never seen these before—more residents could have completed them" (CH4)</p> <p>'Not all of them, but yes 2 or 3 could have done' (CH5)</p> <p>"Yes, they would have been able to complete these or tell you" (CH6)</p>
	Value of more residents completing them	<p>'It would be nice for them to be able to give their thoughts' (CH2)</p> <p>'Would be useful to know what they think...sometimes this generation like to just agree with everything' (CH3)</p> <p>"I think it is important for more of the residents to have a say" (CH6)</p>
Residents	Perceived acceptability of taking part in PROMs data collection	<p>Didn't take much time, it was alright' (R1)</p> <p>'It was alright—not too much of a burden' (R2)</p> <p>'It was okay' (R3)</p> <p>'Don't think it's taken up much time' (R4)</p>

Continued

Table 2 Continued

Theme	Subthemes	Direct quotations
Completion of PROMs questionnaires	Understanding of the tools	<p>'Understood, was not complicated' (R1)</p> <p>'Fine as it was, no need to change them' (R1)</p> <p>"Yes, understood what you were asking me" (R2)</p> <p>'Yes, easy to understand' (R3)</p> <p>'They made sense' (R4)</p>
	Value of residents completing them	<p>'Good to have a say, would be good if more residents could have done them' (R1)</p> <p>"It's nice to give an opinion if I can. Some of the other residents could have done them too" (R3)</p> <p>'It's very important to be asked about the food and your appetite' (R4)</p> <p>'Could have asked other residents the questions' (R2)</p>
Perceived acceptability of the physical measurements		<p>'It was ok, not a hassle' (R1)</p> <p>'It was fine to take the measures in the bedrooms' (R1)</p> <p>"No trouble, but probably depends what mood I'm in!" (R2)</p> <p>'Yes, it was okay to do' (R3)</p> <p>'It (handgrip) was quite fun' (R3)</p> <p>'Yes, it was alright – it didn't hurt' (R4)</p>
	Disagreement regarding acceptability	<p>"I Liked those" (ONS) (R1)</p> <p>"I liked the flavour and it was good that they were quite small" (compact supplements) (R1)</p> <p>"Quite liked them (ONS) when I did have them" (R3)</p> <p>"Yes it is acceptable (SC), I have extra glasses of milk" (R4)</p> <p>"I had one (ONS) a day, if I have two, they upset my stomach" (R2)</p> <p>"I think I prefer the homemade ones" (R2)</p> <p>"No, they were good for my appetite" (R3)</p> <p>"No they didn't reduce my appetite" (R2)</p> <p>"No effect on my appetite for meals" (R1)</p>
Perceived acceptability of the nutritional intervention protocol	No perceived impact of ONS on appetite	

FB, food-based; ONS, oral nutritional supplement; PROM, participant-reported outcome measure; SC, standard care.



**Table 3** Identified themes and subthemes from care home staff regarding their perspectives of nutritional interventions and dietetic care

Theme	Subthemes	Direct quotations
The value of nutritional interventions for malnutrition	Resident preference and personalisation	“We had one person who didn’t like them (ONS), she just did not like the taste” (CH1)
		‘The majority of the residents liked them (ONS), there was one female who just completely would not have it’ (CH2)
		“Would they do as well with snacks as drinks? I’ve been thinking about that- as they don’t always take the snacks—it would depend on what the person preferred” (CH2)
		“I think the extra homemade things is better, not everyone will drink the supplements” (CH6)
		‘Would be a good idea if the kitchen made their own milky drinks—could be a bit more flexible with that’ (CH2)
	Perceived improvements with FB and ONS interventions	‘Personalised plans are better aren’t they’ (CH4)
		‘Glass of milk, with cream and chocolate powder as a smoothie—they enjoy it’ (CH6)
		‘Improvement in resident’s well-being, including mental well-being’ (ONS) (CH1)
		‘Yes, expected weight to increase—usual food regime plus supplements’ (CH1)
		‘Yes, would expect the weight to increase’ (ONS) (CH2)
Perceived value of interventions from the families of residents	“I don’t think they needed anything additional to FB intervention” (CH4)	
	“Yes, I would like to think there would be an increase in weight with FB intervention” (CH4)	
	“I think they would have benefitted by being in one of the other groups—FB or ONS” (CH5)	
	‘Some of the residents behaviour improved while they were in the trial’ (ONS) (CH1)	
	“I feel it was acceptable for the residents...a lot of them want to continue” (ONS) (CH1)	
The value of dietetic-led intervention	Perceived value of interventions from the families of residents	‘A lot of the families have asked if residents could continue supplements’ (CH1)
		‘Most of the residents accepted it (the FB intervention) as part of their diet plan—they were pleased to have something extra and the families were as well’ (CH6)
		“It’s useful to be told specific things to do by the dietitian—extra things to add into the diet that you might not have thought of” (CH3)
		“We could have tried different things on discussion with you (dietitian)” (CH5)
		‘Would think they would do better with dietetic intervention’ (CH5)
		‘It was a benefit to have the dietitian here more often’ (CH6)

FB, food-based; ONS, oral nutritional supplement; PROM, participant-reported outcome measure; SC, standard care.

The tendency ‘to agree’ may also explain the ‘directness’ of the quotes obtained from the resident participants during interviews, even following probing for expansion on particular points. It is possible that the residents may have been reticent to raise concerns or negative points about their involvement in the trial, perhaps introducing an element of response bias and limiting the depth of understanding of resident experiences that could be achieved in this study.

Despite the perceived acceptability of involvement in the trial, the care home staff highlighted the challenges associated with taking physical measurements with residents and delivering a nutritional intervention protocol in this setting. These barriers included fluctuating mood and capacity of some residents, as well as reference to the high proportion of residents with a primary diagnosis of dementia (75%).<sup>8</sup> Other trials conducted in populations with fluctuating capacity have noted similar challenges when taking measurements such as triceps skinfold thickness<sup>48</sup> and handgrip strength.<sup>43–49</sup> While the residents interviewed felt that the physical measurements were acceptable and not deemed to be time consuming, one resident mentioned that daily mood and individual preferences can sometimes result in a lack of acceptance with an assessment schedule or an intervention.

A theme that emerged only from staff focus groups was the interest in care home staff receiving training to enable them to take anthropometric and functionality measures including mid-upper arm circumference, triceps skinfold thickness and handgrip strength. Some felt that this might have been useful within the trial, as a means of enabling measurements to be taken when residents were in a better mood, or having a good day. Others felt that it would be helpful for staff to be upskilled in this way outside of the trial setting, to support in their assessment of nutritional status. The emergence of this theme may be related to the perceived value placed on nutritional screening (‘MUST’) training by the staff, and their subsequent self-perceived confidence and competence in completing resident screening as part of usual care. Improvements in ‘MUST’ documentation and accuracy following dietetic-led projects are supported within the literature.<sup>50–51</sup> The interest from staff to expand their skill base could provide scope to introduce more comprehensive staff-led assessments of nutritional status within the care home setting. There are however, challenges associated with taking these measurements, including measurement error due to poor technique and substantial differences when measurements are made on the same individual by different observers.<sup>52</sup> If such an approach

were to be implemented in practice, it would require a standardised protocol and regular training updates.

### Care home staff perspectives of nutritional interventions and dietetic care in the treatment of malnutrition

A major theme which emerged from the focus group data was the perceived value placed by staff on the nutritional interventions, both FB and ONS, when compared with the standard nutritional care provided by the homes. A common perception among the staff was that they would expect the introduction of either intervention to be associated with improved outcomes, particularly weight. They also noted that the families of residents involved in the trial viewed the interventions as valuable and wished the residents to continue beyond the assigned protocol. Good staff knowledge of the nutritional interventions available to address malnutrition, and a positive attitude towards these interventions has been shown previously in the literature,<sup>53 54</sup> demonstrating that this is perhaps an aspect of nutritional care that is familiar to care home staff and is therefore perceived to be of value.

Another theme which emerged from the focus groups was the perceived value of dietetic input, with some staff expressing the opinion that residents requiring nutrition support 'would do better with dietetic intervention' and others mentioning that it was of benefit to have the dietitian visit the home more often. Previous research focusing on the knowledge of care home staff has highlighted the greatest knowledge deficits to be associated with nutrient and food requirements in older adults,<sup>53 55</sup> which perhaps explains the value placed on dietetic expertise by care home staff in this study. As the nutritional interventions used in this trial were delivered by the dietitian, an interesting area for future research, might be to explore the care home staff perceptions of the nutritional interventions (FB or ONS) when delivered without dietetic input.

A prominent subtheme that emerged in relation to the nutritional interventions was the importance placed by staff on resident preferences and the scope to provide a personalised plan. This subtheme illustrates a commonality with the feedback provided by residents when discussing the acceptability of the interventions, with some expressing a preference for certain types of oral nutritional supplements and others stating that they would have preferred a homemade drink. The importance of involving residents in decisions about their care, including nutrition and mealtimes has been highlighted by the British Geriatrics Society<sup>56</sup> and has been shown to be positively associated with quality of life.<sup>57</sup> A recent study by Watkins *et al.*,<sup>58</sup> which used semi-structured interviews to explore resident's experiences of mealtimes concluded that freedom of choice is a key component of their experiences of care. While it may not always be possible for residents to make decisions on all aspects of their care, it is apparent from this study that resident preferences should be considered alongside clinical reasoning when implementing a nutrition support plan. The individualisation of an intervention to suit a client's needs is a core

component of the shared decision making underpinning dietetic practice as outlined within the British Dietetic Association's 'Model and Process for Nutrition and Dietetic Practice'.<sup>59</sup> This study highlights the importance of this approach within the care home setting.

### Strengths and limitations

A key strength of this study is that it is the first to inform understanding of the feasibility and acceptability of conducting a clinical trial evaluating nutritional interventions in the care home setting, by exploring the opinions and perspectives of the staff and the residents involved in the trial. The inclusion of care home residents, highlighted as an under-represented group within the research literature<sup>12</sup> has added to our understanding of their experiences of being involved with research and of nutritional care within this setting. Use of individual interviews gave each resident the chance to freely voice their views. The dynamic interaction of the staff focus groups were perceived by the researcher as open and positive, and provided insight into shared viewpoints within and between care home sites.

A limitation of this study is the small sample size, particularly with regard the number of residents interviewed. The views held by this small sample of residents, who were all female and had capacity, may not be representative of the other residents that took part in the trial and may limit the depth of understanding of resident experiences that can be gained from this study. There was a lack of representation from residents in the FB intervention arm, but a staff focus group was conducted at each care home site, therefore providing representativeness from staff in each arm of the trial, and capturing the views of both nursing and care staff. The directness of quotes obtained from the resident participants has already been commented on, but this was also found to be a feature of the staff focus groups, despite the perceived positive engagement of the participants. The lack of extensive discussion may have been a consequence of the focus groups being held at the care home sites, necessitating the balance of research activities alongside extremely busy care roles.<sup>60</sup> The experience of trial involvement also appeared to have been largely acceptable to the care home staff. It is possible that they may have had more to say had they been dissatisfied with the experience or felt that it had increased their workload.

It is possible that the care homes recruited into this study do not necessarily represent the national care home population. All sites had been in receipt of long-term and regular input from the local dietetic service and were engaged in a programme of staff training. The dietitian researcher (RS) had an established relationship with the managers and staff at the homes, which may have made it easier to recruit to and facilitate the staff focus groups. This relationship may also have influenced the participants in giving what would be perceived as more desirable responses. However, with the focus on the exploration of feasibility outcomes to ensure that resident

and staff perspectives can be used to inform the design and conduct of future definitive trials, there was not felt to be a desired outcome of this study and the participants were encouraged to say how they really felt.

The exploration of staff experiences of feasibility and acceptability was carried out in engaged and motivated care homes, which may limit transferability. However, the focus groups and interviews have informed our understanding of the experiences of trial involvement and the perceived acceptability and value of nutritional interventions from the perspectives of both care home staff and residents.

## CONCLUSIONS

From staff focus groups and interviews with residents, involvement in a clinical trial evaluating nutritional interventions for malnutrition in the care home setting was perceived as acceptable, although the challenges associated with research in this setting were acknowledged. Both staff and residents agreed that the use of PROMs within the trial was positive and valuable and that more residents could have completed them. Care home staff demonstrated a positive attitude towards both the nutritional interventions used in the trial, and the value added by dietetic input. Resident preferences were identified as important, because they are likely to affect compliance with an intervention. To ensure that these are accounted for, it is suggested that a nutrition support plan be developed collaboratively between the dietitian and the staff, the resident and their relatives, to meet both the clinical needs and the preferences of the individual.

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## REFERENCES

1. LaingBuisson. Care of older people: UK market report, 27th edition. 2015 [http://www.laingbuisson.co.uk/Portals/1/MarketReports/Documents/Care\\_OlderPeople\\_27ed\\_Bro\\_WEB.pdf?ver=2015-09-29-162653-327](http://www.laingbuisson.co.uk/Portals/1/MarketReports/Documents/Care_OlderPeople_27ed_Bro_WEB.pdf?ver=2015-09-29-162653-327) (accessed 04 Feb 2018).
2. Nimmo AW, Peterkin G, Oid DR. Mortality in general practice: problems concerning deaths in institutions. *Public Health* 2006;120:671-5.
3. Sinclair AJ, Gadsby R, Penfold S, et al. Prevalence of diabetes in care home residents. *Diabetes Care* 2001;24:1066-8.
4. Bayer A, Tadd W. Unjustified exclusion of elderly people from studies submitted to research ethics committee for approval: descriptive study. *BMJ* 2000;321:992-3.
5. Elia M. The cost of malnutrition in England and potential cost savings from nutritional interventions. Malnutrition Action Group of BAPEN and the National Institute for Health Research Southampton Biomedical Research Centre. 2015 <http://www.bapen.org.uk/pdfs/economic-report-full.pdf> (accessed 04 Feb 2018).
6. Russell CA, Elia M. Nutrition screening survey in the UK and Republic of Ireland. BAPEN. 2010 <http://www.bapen.org.uk/pdfs/nsw/nsw10/nsw10-report.pdf> (accessed 01 Dec 2017).
7. Parsons EL, Elia M, Cawood AL. Randomised controlled trials shows greater total nutritional intakes with liquid supplements than dietary advice in care home residents. *Clin Nutr Supp* 2011;6:1.
8. Stow R, Ives N, Smith C, et al. A cluster randomised feasibility trial evaluating nutritional interventions in the treatment of malnutrition in care home adult residents. *Trials* 2015;16:433.
9. Arvanitakis M, Coppens P, Dughan L, et al. Nutrition in care homes and home care: recommendations - a summary based on the report approved by the Council of Europe. *Clin Nutr* 2009;28:492-6.
10. Meijers JM, Halfens RJ, Wilson L, et al. Estimating the costs associated with malnutrition in Dutch nursing homes. *Clin Nutr* 2012;31:65-8.
11. Watts G. Why the exclusion of older people from clinical research must stop. *BMJ* 2012;344:e3445.
12. Maas ML, Kelley LS, Park M, et al. Issues in conducting research in nursing homes. *West J Nurs Res* 2002;24:373-89.
13. Hall S, Longhurst S, Higginson J. Challenges to conducting research with older people living in nursing homes. *BMC Geriatr* 2009;9:38.
14. Ridda I, Lindley R, MacIntyre RC. The challenges of clinical trials in the exclusion zone: the case of the frail elderly. *Australas J Ageing* 2008;27:61-6.
15. Fiatarone Singh MA, Bernstein MA, Ryan AD, et al. The effect of oral nutritional supplements on habitual dietary quality and quantity in frail elders. *J Nutr Health Aging* 2000;4:5-12.
16. Smoliner C, Norman K, Scheufele R, et al. Effects of food fortification on nutritional and functional status in frail elderly nursing home residents at risk of malnutrition. *Nutrition* 2008;24:1139-44.
17. Manders M, de Groot CPGM, Blauw YH, et al. Effect of a nutrient-enriched drink on dietary intake and nutritional status in institutionalised elderly. *Eur J Clin Nutr* 2009;63:1241-50.
18. Lee LC, Tsai AC, Wang JY, et al. Need-based intervention is an effective strategy for improving the nutritional status of older people living in a nursing home: a randomized controlled trial. *Int J Nurs Stud* 2013;50:1580-8.
19. O'Cathain A, Murphy E, Nicholl J. Why, and how, mixed methods research is undertaken in health services research in England: a mixed methods study. *BMC Health Serv Res* 2007;7:85.
20. Pope C, Mays N. Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *BMJ* 1995;311:42-5.
21. Barriball KL, While A. Collecting data using a semi-structured interview: a discussion paper. *J Adv Nurs* 1994;19:328-35.
22. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007;19:349-57.
23. Department of Health. Mental capacity act 2005. 2005 [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4137745](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4137745) (accessed 07 Nov 2017).
24. Richardson CA, Rabiee F. A question of access: an exploration of the factors that influence the health of young males aged 15 to 19 living in Corby and their use of health care services. *Health Educ J* 2001;60:3-16.
25. Ritchie J, Lewis J. *Qualitative research practice: a guide for social science student and researchers*. London: Sage, 2003.
26. Chilban J. *Interviewing in depth: the interactive-relational approach*. Thousand Oaks CA: Sage, 1996.
27. Johnson J. In-depth interviewing. In: Gubrium J, Holstein J, eds. *Handbook of qualitative research*. Thousand Oaks, CA: Sage, 2002:19-103.

28. Rubin H, Rubin J. *Qualitative interviewing: the art of hearing data*. Thousand Oaks CA: Sage Publications, 2005.
29. Bryman A. *Social research methods*. Oxford: Oxford University Press, 2004.
30. Rabiee F. Focus-group interview and data analysis. *Proc Nutr Soc* 2004;63:655–60.
31. Kitzinger J. Qualitative research. Introducing focus groups. *BMJ* 1995;311:299–302.
32. Hudson P, Aranda S, McMurray N. Intervention development for enhanced lay palliative caregiver support. *Eur J Cancer Care* 2002;11:262–70.
33. Lane P, McKenna H, Ryan AA, et al. Focus group methodology. *Nurse Res* 2001;8:45–59.
34. Kreuger A, Casey M. *Focus groups: a practical guide for applied research*. London: Sage Publications, 2000.
35. National Institute for Health and Clinical Excellence. CG32 nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition. 2006 <http://guidance.nice.org.uk/CG32/niceguidance/pdf/English> (accessed 05 Dec 2017).
36. Malnutrition pathway. Managing adult malnutrition in the community. 2012 <http://www.malnutritionpathway.co.uk> (accessed 01 Apr 2013).
37. Kerr C, Nixon A, Wild D. Assessing and demonstrating data saturation in qualitative inquiry supporting patient-reported outcomes research. *Expert Rev Pharmacoecon Outcomes Res* 2010;10:269–81.
38. Krueger RA. *Focus groups: a practical guide for applied research*. Thousand Oaks, CA: Sage Publications, 1994.
39. Ritchie J, Spencer L. Qualitative data analysis for applied policy research. In: Bryman A, Burgess RG, eds. *Analysing qualitative data*. London: Routledge, 1994.
40. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101.
41. King N. Using templates in the thematic analysis of text. In: Cassell C, Symon G, eds. *Essential guide to qualitative methods in organisational research*. London, UK: Sage, 2004:257–70.
42. Ezzy D. *Qualitative analysis practice and innovation*. London: Routledge, 2002.
43. Stange I, Bartram M, Liao Y, et al. Effects of a low-volume, nutrient- and energy-dense oral nutritional supplement on nutritional and functional status: a randomized, controlled trial in nursing home residents. *J Am Med Dir Assoc* 2013;14:628.e1–8.
44. Watkins R, Goodwin VA, Abbott RA, et al. Attitudes, perceptions and experiences of mealtimes among residents and staff in care homes for older adults: a systematic review of the qualitative literature. *Geriatr Nurs* 2017;38:325–33.
45. Reimer HD, Keller HH. Mealtimes in nursing homes: striving for person-centered care. *J Nutr Elder* 2009;28:327–47.
46. Sidenvall B. Meal procedures in institutions for elderly people: a theoretical interpretation. *J Adv Nurs* 1999;30:319–28.
47. Care Quality Commission. The state of health care and adult social care in England: key themes and quality of services in 2009, the stationery office. 2010 [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/229162/0343.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/229162/0343.pdf) (accessed 08 Dec 2017).
48. Waning A, van der Weide W, Evenhuis IJ, et al. Feasibility and reliability of body composition measurements in adults with severe intellectual and sensory disabilities. *J Intellect Disabil Res* 2009;53:377–88.
49. Hoppitt T, Sackley C, Wright C. Finding the right outcome measures for care home research. *Age Ageing* 2010;39:119–22.
50. Cawood AL, Smith A, Dalrymple-Smith J, et al. Prevalence of malnutrition and use of nutritional support in Peterborough Primary Care Trust. *J Hum Nutr Diet* 2008;21:384.
51. Woodcock CL, Jukes K, Davies S. Tailored training on screening for malnutrition using the 'Malnutrition Universal Screening Tool' ('MUST') and management plans improves screening accuracy and documentation in care homes in West Sussex. *Proc Nutr Soc* 2011;70:E257.
52. Ulijaszek SJ, Kerr DA. Anthropometric measurement error and the assessment of nutritional status. *Br J Nutr* 1999;82:165–77.
53. Beattie E, O'Reilly M, Strange E, et al. How much do residential aged care staff members know about the nutritional needs of residents? *Int J Older People Nurs* 2014;9:54–64.
54. Bauer S, Halfens RJ, Lohrmann C. Knowledge and attitudes of nursing staff towards malnutrition care in nursing homes: a multicentre cross-sectional study. *J Nutr Health Aging* 2015;19:734–40.
55. Crogan NL, Shultz JA, Massey LK. Nutrition knowledge of nurses in long-term care facilities. *J Contin Educ Nurs* 2001;32:171–6.
56. British Geriatrics Society. Quest for quality. 2011 [http://www.bgs.org.uk/campaigns/carehomes/quest\\_quality\\_care\\_homes.pdf](http://www.bgs.org.uk/campaigns/carehomes/quest_quality_care_homes.pdf) (accessed 07 Nov 2017).
57. Philpin S, MERRELL JOY, Warring J, et al. Memories, identity and homeliness: the social construction of mealtimes in residential care homes in South Wales. *Ageing Soc* 2014;34:753–89.
58. Watkins R, Goodwin VA, Abbott RA, et al. Exploring residents' experiences of mealtimes in care homes: A qualitative interview study. *BMC Geriatr* 2017;17:141.
59. British Dietetic Association. *Model and process for nutrition and dietetic practice*. Birmingham: BDA, 2016.
60. Shepherd V, Nuttall J, Hood K, et al. Setting up a clinical trial in care homes: challenges encountered and recommendations for future research practice. *BMC Res Notes* 2015;8:306.