

1 **The use of finger foods in care settings: An integrative review.**

2 Milly Heelan¹, Jacqui Prieto¹, Helen Roberts², Naomi Gallant¹, Colin Barnes³ & Sue Green⁴

3 ¹School of Health Sciences, University of Southampton, University Road, Southampton,
4 SO17 1BJ

5 ²Faculty of Medicine, University of Southampton, Southampton General Hospital Mailpoint
6 807, Southampton So16 6YD

7 ³Research and Improvement Team, St Marys Community Health Campus, Office 13 PEC,
8 Milton Road, Portsmouth, PO3 6AD

9 ⁴Faculty of Health and Social Sciences, Bournemouth University, Christchurch Road,
10 Bournemouth, BH1 3LH

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12 **Corresponding author:** Milly Heelan, School of Health Sciences, University of
13 Southampton, University Road, Southampton, SO17 1BJ **Tel:** 07708943678 **Email:**
14 a.r.heelan@soton.ac.uk

15 **Authorship:** MH, SG, HR, CB were involved in the design of the review, developing the
16 protocol extracting and appraising study methodologies. MH and NG had a lead role in
17 identifying articles for inclusion. MH, SG, JP, HR, and CB contributed to data analysis and
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19 manuscript.

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27 **Abstract**

28 | **Background:** Reduced food intake is prevalent in people in [residential and hospital](#) care
29 settings. Little is known about the use of finger-foods, (foods eaten without cutlery), to
30 increase feeding independence and food intake. The Social Care Institute for Excellence ⁽¹⁾
31 [recommends the use of finger foods to enable mealtimes independence and to prevent loss of](#)
32 [dignity and embarrassment when eating in front of others](#). The aim of this review is to
33 identify and evaluate existing literature regarding the use and effectiveness of finger foods
34 among adults in health and social care settings.

35 **Methods:** An integrative review methodology was used. A systematic search of electronic
36 databases for published empirical research was undertaken [in October 2018](#). Following
37 screening of titles and abstracts, the full text of publications, which investigated outcomes
38 associated with the provision of finger foods in adult care settings, were retrieved and
39 assessed for inclusion. Two independent investigators conducted data extraction and quality
40 assessment using Critical Appraisal Skills Programme checklists. Thematic analysis was used
41 to summarise the findings.

42 **Results:** Six studies met the inclusion criteria. Four themes were identified: Finger food
43 menu implementation; Importance of a team approach; Effect on nutrition and Influence on
44 wellbeing. Study designs were poorly reported, with small sample sizes.

45 **Conclusions:** There is some evidence that provision of finger foods may positively affect
46 patient outcomes in long-term care settings. There is a paucity of research evaluating the use
47 of a finger food menu in acute care settings, including economic evaluation. Future high
48 quality trials are required.

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49 **Introduction**

50 The aging population living with multiple co-morbidities, for example dysphagia, stroke and
51 dementia is increasing ⁽²⁾. Older people, particularly those living in residential care settings
52 and those admitted to hospital, are at risk of reduced oral food intake and malnutrition ⁽³⁾.
53 Being under- nourished can cause loss of muscle mass and weakness, together with other
54 physiological effects, including increased susceptibility to infection and delayed wound
55 healing ⁽²⁾. It can impact on mental well-being and lead to reduced quality of life as a result of
56 increased dependence on others ^(4; 5). Malnutrition is associated with increased costs to
57 national health services as a result of extended and more frequent hospital stays and multiple
58 General Practitioner (GP) visits ⁽⁶⁾.

59 Reduced food intake in institutional care can be due to a number of complex factors,
60 including the environment and the patient ⁽⁷⁾. Environmentally, staff shortages reducing
61 access to mealtime assistance, limited choice, unappealing food and mealtime interruptions
62 can lead to a patient refusing food. Patient factors relating to eating difficulties can be
63 associated with older age ⁽⁸⁾ as well as specific diseases such as dementia or stroke. People
64 with dementia experience change in cognition, which can cause difficulties recognising food
65 or cutlery, uncoordinated transfer of food from the plate to the mouth and distraction during
66 the mealtime task ⁽⁹⁾. People after stroke experience physical changes such as hemiparesis,
67 limb apraxia or visual disturbances, which can cause difficulty manipulating cutlery or
68 transferring food from the plate to the mouth ^(10; 11; 12), alongside embarrassment when eating
69 in view of others ⁽¹³⁾.

70 The need to improve food intake in care settings has been acknowledged internationally,
71 resulting in the publication of guidelines ⁽¹⁴⁾. Guidelines include various proposed strategies
72 to improve intake in older adults and particularly adults with dementia, however little is
73 known about the effectiveness of these strategies to improve oral intake ^(15; 16; 17). Evidence
74 based recommendations for healthcare promote the provision of adequate support for people
75 who are unable to eat independently ⁽¹⁸⁾ and offering food that is appropriate for the person,
76 using a food first approach ⁽¹⁴⁾. Despite this, relatives of older people frequently report
77 inadequate amount of appropriate food and lack of support for people unable to feed
78 themselves ^(19; 20). The European Society for Clinical Nutrition and Metabolism (ESPEN)
79 clinical recommendations ⁽²¹⁾ suggests using finger foods for older adults due to their limited
80 cost and low risk, although the supporting evidence for this intervention is sparse.

81 For the purpose of this integrative review, finger foods are defined as foods presented in a
82 form that are easily picked up with the hands and transferred to the mouth without the need
83 for cutlery. Finger foods are considered easier to eat as they do not require manipulation with
84 cutlery⁽²²⁾. Typically, a finger food menu includes small sandwiches, pieces of quiche, cut up
85 vegetables and cake slices or foods presented in bite sized portions, for people managing
86 regular textured foods⁽²³⁾.

87 The Social Care Institute for Excellence⁽¹⁾ recommends the use of finger foods to enable
88 mealtime independence and to prevent loss of dignity and embarrassment when eating in
89 front of others⁽²⁴⁾. For people after stroke or with cognitive impairment, finger foods have the
90 potential to support participation and to increase independence at mealtimes^(21; 25; 26).

91 Potential benefits of using finger foods are enhancement of nutritional intake and
92 maintenance of weight^(21; 27). Additionally, finger foods are described as a more flexible
93 approach to dining⁽²⁸⁾. They can be used as a portable alternative to a plated meal and can be
94 eaten “on the go”⁽²²⁾.

95 No previous high quality reviews have purposefully addressed the use of a finger food menu
96 with older adults in care settings. NHS hospital trusts have implemented finger foods as part
97 of a multimodal approach to nutritional intervention, without evidence showing that they
98 singularly have a positive impact on patients⁽²⁹⁾. Locating and reviewing the literature to
99 identify which finger foods are most appropriate, which groups would benefit and the cost
100 effectiveness of the intervention would inform future research and support clinical practice,
101 guiding decisions regarding resource allocation. Therefore, the aim of this review was to
102 locate and synthesise empirical published literature on the use of finger foods in adults in care
103 settings.

104 **Materials and methods**

105 An integrative review methodology allows full understanding of a phenomenon⁽³⁰⁾. It
106 supports the objective critique and summary of selected quantitative and qualitative research
107 studies, as opposed to a systematic review which addresses a distinctive clinical question [and](#)
108 [evaluated the effectiveness of an intervention](#)⁽³¹⁾. This integrative review follows the five
109 steps outlined by Souza *et al.*⁽³²⁾: definition of the guiding question, a detailed and systematic
110 search of the literature, data extraction, critical analysis of included publications and
111 interpretation and synthesis of results.

112 **Selection criteria**

113 Eligible studies were selected through predefined inclusion criteria developed using the
114 PICOST tool (Population, intervention, comparator, outcome, setting, type) ⁽³³⁾. Studies were
115 included if, (i) the sample population included adults aged 18 years or above, (ii) the study
116 involved use of finger foods, including an increase in finger foods offered, (iii) [Any](#)
117 [comparator was present, or none at all, \(iv\) Any subsequent outcomes were used, \(v\) the](#)
118 study was conducted in any institutional setting (e.g. long-term care centres, assisted living
119 residence, residential homes, nursing homes, ~~hospital, medical~~ [acute hospital](#) ward) [\(vi\)and](#)
120 was an example of empirical research. Review publications were not included, as the aim was
121 to find empirical evidence.

122 **Search strategy**

123 Databases were searched using a wide range of pre-defined search terms developed with the
124 assistance of a medical librarian and combined using Boolean operators (And/Or/Near) and
125 MeSH (Medical Subject Heading) terms. This aimed to retrieve the widest scope of
126 publications possible across different platforms. In addition, reference lists of selected
127 publications were searched. [In attempt to review the most robust publications, grey literature](#)
128 [was not included in this search.](#)

129 Databases searched to October 2018 included MEDLINE, EMBASE, CINAHL Plus® with
130 Full Text [\(1937-2018\)](#), Psych INFO [\(1880-2018\)](#), Web of Science, Cochrane and Ahmed. [No](#)
131 [language restrictions were placed during the search.](#) Search terms included: adult, patient,
132 elderly, senior, geriatric, dementia, Alzheimer's, neurocognitive impairment, neurocognitive
133 decline, finger food, buffet, utensil less, menu modification, mealtime intervention, dementia
134 diet and eating with hands or fingers.

135 The inclusion criteria were used by two investigators (MH and NG) to screen title and then
136 abstracts initially. Full texts of publications that appeared to be relevant were retrieved for
137 further consideration by three investigators (MH, NG, SG).

138 **Data extraction and quality**

139 Selected publications were read multiple times to ensure familiarity. Data were extracted
140 using a pre-prepared and piloted instrument based on the data extraction table by Souza *et al.*
141 ⁽³²⁾. Studies were appraised using the appropriate Critical Appraisal Skills Programme
142 (CASP) tool for the study design ⁽³⁴⁾. [This tool supports systematic evaluation of published](#)
143 [papers, considering validity, credibility, relevance and results of papers](#) ⁽³⁴⁾. [Results of the](#)

144 CASP tool were discussed and agreed with multiple authors (SG and MH). None of the
145 publications included met all the criteria assessed by the CASP appraisal form. However, it
146 was not possible to assess whether the publications omitted these key components or whether
147 it was simply not reported by the authors, despite attempts to contact authors.

148 **Data synthesis**

149 Primary data sources were coded, categorized and synthesised ~~Initial codes were derived~~
150 ~~inductively~~ using a systematic approach in accordance with guidelines for preparing an
151 integrative review⁽³⁰⁾. Due to the small number of publications found, it was not necessary to
152 subgroup papers. Initial codes were derived inductively from publications, using descriptive
153 codes to simplify and sort data into manageable data forms. Next, these descriptive codes
154 were displayed in a visual matrix to observe patterns and themes. Codes were analysed
155 iteratively by clustering descriptive codes into overarching themes and comparing and
156 contrasting codes. -These overarching themes were discussed and agreed with the other
157 authors. All relevant studies identified were included in the thematic analysis regardless of
158 quality.

159 **Results**

160 **Descriptive findings**

161 Six publications were included in the final selection. Figure 1 summarises the selection
162 process using the preferred reporting items for systematic review and meta-analysis
163 (PRISMA) flow diagram, including reasons for exclusion.

164 Table 1 provides a summary of the publication characteristics. Publications reported studies
165 undertaken in long-term care settings in the United States of America^(35; 36), the United
166 Kingdom^(24; 27; 37) and France⁽³⁸⁾. None described the use of a finger foods in acute care
167 settings. Study designs varied including, observational studies^(36; 37; 38), a pilot study⁽³⁵⁾, a
168 case-study⁽²⁴⁾ and a reterospective study⁽²⁷⁾, but did not include randomised controlled trials.
169 Sample sizes were generally small ranging from six participants⁽²⁴⁾ to 114 participants⁽³⁸⁾
170 using a range of outcome measures.

171 All participants included had a diagnosis of dementia or other psychiatric conditions.
172 Participants presented with a range of physical and cognitive eating difficulties, which were
173 attributed to their cognitive impairment. These included difficulties using utensils^{(24; 27; 35; 36;}

174 ³⁷⁾, for example poor hand or finger control, tremor and limited concentration or high level of
175 distractibility ⁽³⁶⁾.

176 Quality assessment

177 Assessment using the CASP case control critical appraisal tool indicated that two
178 publications reporting quantitative findings were of low quality ^(27; 35). Soltesz and Dayton ⁽²⁷⁾
179 used a control group, which differed in key characteristics to the intervention group. -The
180 control group comprised of 11 residents consuming a modified pureed diet, and an
181 intervention group of 43 residents with no swallowing difficulties eating a normal diet. In
182 addition, confidence intervals were not provided for key outcomes, giving no indication of
183 variability ⁽²⁷⁾.

184 In the study by Jean ⁽³⁵⁾, participants acted as their own control groups, in a pre-post study
185 design. No confounding factors were reported, making it difficult to attribute maintenance or
186 increase in weight to the finger food menu intervention ⁽³⁵⁾. Additionally, Jean ⁽³⁵⁾ presented
187 results using only descriptive statistics, which makes it difficult to generalise the results
188 found and places at risk of external validity. Based on the CASP case control checklist,
189 Pouyet et al. ⁽³⁸⁾ study satisfied most criteria of the three studies, however being the only
190 study of its kind, reporting on attractiveness of pureed finger foods, limits the external
191 validity.

192 The studies employing a qualitative methodology were assessed as low quality ^(24; 36; 37). Ford
193 ⁽³⁷⁾ did not report sufficient detail of the study methodology or findings. Barratt et al. ^{(24);}
194 Nangeroni and Pierce ⁽³⁶⁾ did not adequately consider the researcher and participant
195 relationship, ethical considerations and included unclear statements of findings and
196 credibility. Limited information regarding the recruitment strategy or reasons for population
197 recruited, makes it difficult to establish target sample -for all studies-

198 **Meta synthesis**

199 Four main themes were identified inductively through thematic analysis: (i) Finger food
200 menu implementation; (ii) Importance of a team approach; (iii) Effect on nutrition (vi)
201 Influence on wellbeing.

202 *Finger food menu implementation*

203 Included publications defined finger foods as food that did not require cutlery ^(27; 37; 38), or
204 could be eaten easily with the hands ^(24; 36; 38). Generally, finger foods offered were considered

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205 appropriate for residents eating normal or regular textured foods ⁽²³⁾ and with no evidence of
206 oropharyngeal dysphagia. However, Barratt *et al.* ⁽²⁴⁾; Nangeroni and Pierce ⁽³⁶⁾; Pouyet *et al.*
207 ⁽³⁸⁾ used softer foods and pureed forms of finger food ⁽³⁸⁾ to support older people with
208 dysphagia or difficulties chewing. Pouyet *et al.* ⁽³⁸⁾ showed the pureed finger foods were
209 generally well accepted by adults with Alzheimer's disease, with reports that shape was not
210 an influence on food attractiveness ⁽³⁸⁾. The authors, however, did consider shape as
211 important to support manipulation with the hands.

212 Details of the specific implementation of a finger foods varied. In two studies, finger foods
213 were offered alongside the normal menu to increase variety of food offered ^(27; 36). Soltesz and
214 Dayton ⁽²⁷⁾ added extra finger foods to the existing menu, however the overall number of
215 finger foods increased minimally, leading to difficulties comparing the control and
216 intervention group. This contrasts with other publications, where a finger food menu was
217 developed to replace the standard menu offered over lunch and dinner times ^(24; 35), or offered
218 as smaller, more frequent meals ⁽³⁷⁾. None of the publications reported difficulties with
219 intervention fidelity and suggested no additional staff or additional food items were required
220 ⁽²⁷⁾. Success with using finger foods was supported using simple and easy foods for staff to
221 make ⁽³⁵⁾.

222 The cost of implementing a finger food menu was considered by Barratt *et al.* ⁽²⁴⁾; Soltesz and
223 Dayton ⁽²⁷⁾; Jean ⁽³⁵⁾. However, none reported a robust economic evaluation, resulting in
224 conflicting results. Soltesz and Dayton ⁽²⁷⁾ suggested the implementation of a finger food
225 menu cost no more than the provision of standard foods and Jean ⁽³⁵⁾ suggested that high
226 energy and protein supplements were discontinued in 25% of participants receiving a finger
227 food menu giving a cost saving. Conversley, in a later study Barratt *et al.* ⁽²⁴⁾ described an
228 increase on cost per person to implement the finger food menu.

229 *Importance of a team approach*

230 Collaboration between clinical and catering teams to support the provision of a finger food
231 menu was a common theme arising in three papers ^(24; 27; 35). Despite catering services often
232 perceived as non-clinical services, their involvement in ensuring food was presented in a
233 way that patients could access allowed observable changes in clinical outcomes ⁽²⁴⁾. In
234 publications showing increased costs for providing finger foods, agreements between budget
235 holders - often clinical managers, commissioning services and catering teams - is required to
236 justify the need for this intervention ⁽²⁴⁾. Staff training in understanding the need and rationale

237 of finger foods was one approach influencing maintenance and success of implementing the
238 intervention across departments ^(35; 37).

239 Barratt *et al.* ⁽²⁴⁾; Soltesz and Dayton ⁽²⁷⁾ described collating feedback from the clinical and
240 catering team to support the development and implementation of the finger food, however
241 little detail was given about the changes made and how this data was collected.

242 *Effect on nutrition*

243 Nutritional outcomes were measured in only three studies by assessing food intake via food
244 chart reviews, plate waste observations and changes in weight ^(35; 37). Increased nutritional
245 intake and weight maintenance during the finger food menu intervention period was
246 demonstrated in all three studies ^(27; 35; 37). Full description of the menu offered with
247 nutritional values was not provided, therefore, although there was an increase in weight of
248 food consumed, the nutritional value of the foods eaten could not be evaluated. Ford ⁽³⁷⁾
249 suggested that changes in nutritional status could affect medical status, however an
250 explanation as to how medical status will change was not included.

251 *Influence on wellbeing*

252 The fourth theme describes the improvement in wellbeing during the implementation of
253 finger foods which was reported in all publications. Wellbeing was measured formally by
254 Barratt *et al.* ⁽²⁴⁾, using Dementia Care Mapping. Barratt *et al.* ⁽²⁴⁾ demonstrated an increase in
255 mean wellbeing scores of residents offered a finger food menu which was maintained six
256 weeks after the introduction. However, the small sample size used by Barratt *et al.* ⁽²⁴⁾ and
257 pre-post study design limits control of confounding variables in the complex long-term care
258 setting and makes it difficult to attribute these findings wholly to the food offered.

259 Increased independence with eating for people choosing to eat finger foods was described in
260 three studies ^(24; 35; 36), despite variation in outcome measures used. Barratt *et al.* ⁽²⁴⁾ observed
261 an increase in the mean percentage of observations recorded as ‘independent feeding’ over
262 lunchtime meals. This contrasts to Jean ⁽³⁵⁾ who created a scale which demonstrated 3 of 12
263 residents became fully independent eating their meal when offered finger foods, despite
264 during the baseline measure being fully dependent with feeding. Nangeroni and Pierce ⁽³⁶⁾ did
265 not provide details of how independence was measured. Within these studies, blinding or
266 reflexive views of the researcher were not described, which increases the risk of bias and
267 makes it difficult to distinguish whether this would lead to a reduced requirement for support
268 by staff and visitors ⁽²⁴⁾.

269 **Discussion**

270 The aim of this integrative review was to locate and synthesise empirical published literature
271 on the use of finger foods for adults in care settings, to inform future research and support
272 clinical practice and policy decisions.

273 The lack of [high quality](#) trials identified suggests the use of a finger foods with adults is yet to
274 be robustly evaluated. There is some evidence to demonstrate improvement in relevant
275 outcomes, such as food intake, but this has been shown in studies that lacked a control
276 making it difficult to ascertain the cause of the effect shown. The variation in interventions
277 provided across these publications provides additional challenges when comparing outcomes.
278 However, this does highlight the need for a pragmatic approach to future research,
279 considering all stakeholders involved. [A study by Cluskey and Kim^{\(39\)} undertaken in the
280 USA suggested that finger foods are judged by healthcare professionals, working in long term
281 care settings, as being beneficial for residents, cheap and easily implemented in institutions.
282 The limited adverse effects and expense to provide these types of foods means that their use
283 continues to remain in clinical guidelines on nutrition and hydration in geriatrics^{\(21\)}](#)

284 Despite guidelines suggesting that finger foods could be used to support people with other
285 conditions, such as stroke⁽²⁵⁾, all studies focussed on people with cognitive impairment. Ford
286⁽³⁷⁾ acknowledged the potential of using a finger food menu to support older adults with a
287 wide range of eating difficulties, including mental health or physical difficulties. An increase
288 in food intake in people with cognitive impairment has been shown in other studies with
289 different presentations of food. In a cross over, randomised controlled trial undertaken in a
290 nursing home, Young *et al.*⁽⁴⁰⁾ demonstrated increased energy intake when high carbohydrate
291 foods were offered in place of a usual meal which was not fully described. Although this
292 study did not aim to evaluate the use of finger foods, it was noted many of the high
293 carbohydrate foods could be defined as finger foods, such as bread with jam, hard boiled egg,
294 muffins and slices of cheese. In addition, greater severity of cognitive deficit and atypical
295 motor behaviour was associated with greater intervention success⁽⁴⁰⁾. [Young et al
296 acknowledged that in this trial, people with nutritionally controlled diabetes were excluded
297 from the trial. This highlights that the suitability for a finger food diet would need to be
298 assessed individually as the nutritional content and presentation may not meet some people's
299 dietary needs.](#)

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300 None of the research studies in this integrative review conducted a well described economic
301 evaluation, to assess the benefits of individual interventions and to evaluate the best use of
302 available resources alongside highest patient satisfaction⁽⁴¹⁾. It is important to reflect the true
303 direct and indirect costs of healthcare interventions, particularly when implementing a change
304 in practice⁽⁴²⁾.

305 Interestingly, none of the studies in this review included or explored the views of staff, carers
306 or the recipient of the finger foods, despite suggestions that they may have positive benefits
307 on quality of life and wellbeing. A conference abstract, with no associated published paper,
308 was identified which used a survey methodology to explore residents, caregivers and relatives
309 experiences of providing a finger food menu in a nursing home⁽⁴³⁾. It appears further in depth
310 research investigating the experience of residents, caregivers and relatives could give further
311 information on the acceptability of this menu⁽⁴³⁾ to support effective and efficient service
312 delivery⁽⁴⁴⁾.

313 The findings of this review are in agreement with broader reviews on nutritional
314 interventions. Abdelhamid *et al.*⁽⁴⁵⁾; Malerba *et al.*⁽⁴⁶⁾ suggest positive outcomes for the use
315 of finger foods, but further need for high quality investigation and well powered randomised
316 control trials. The review by Abdelhamid *et al.*⁽⁴⁵⁾ focussed on interventions to support food
317 intake in people with dementia and included two studies which classified the use of finger
318 foods as a direct dietary intervention^(27; 35). Addressing the use of multiple dietary
319 interventions meant the review did not focus specifically on the use of finger foods and
320 limited the range of publications found. However, two studies^(27; 35) were also included in
321 this integrative review and interestingly no studies published later than 2016 were found. The
322 descriptive review by Malerba *et al.*⁽⁴⁶⁾, in France, commented on the use of finger foods for
323 people with dementia in community and home settings. Malerba *et al.*⁽⁴⁶⁾ suggests beneficial
324 outcomes relating to the use of finger foods, for example reduced workload of carers,
325 increased independence and individualised care for people with dementia. Despite useful
326 results, the review did not show a systematic approach to searching the literature or quality
327 critique of publications included.

328 **Strengths and limitations to integrative review**

329 The range of study designs included in this review and the synthesis of quantitative and
330 qualitative data adds a level of complexity to the review and therefore can introduce bias⁽³⁰⁾.
331 To ensure the quality of this review, rigorous systematic approaches were used throughout.

332 To reduce bias, two reviewers (MH and NG) screened 347 abstracts for inclusion and
333 discrepancies were dealt with through discussion. The full texts were chosen following
334 discussion with the other authors of this paper.

335 **Conclusions and future recommendations**

336 The findings suggest that the use of finger foods may increase nutritional intake and enhance
337 independence and wellbeing for adults with cognitive impairment in long term care settings.
338 However, the low quality of the studies included do not provide robust evidence for the
339 effectiveness for using these types of foods in care settings. Therefore results should be
340 interpreted with caution.

341 The review highlights key considerations to implementing a finger food menu within care
342 settings, and a particular need to focus on the use of this menu in hospital settings. Further
343 research is required to suggest whether this intervention is cost effective, feasible and
344 acceptable to be used in acute care settings for older adults.

345 **Transparency Declaration:** The lead author affirms that this manuscript is an honest,
346 accurate, and transparent account of the study being reported. The reporting of this work is
347 compliant with PRISMA3 guidelines. The lead author affirms that no important aspects of the
348 study have been omitted and that any discrepancies from the study as planned have been
349 explained.

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