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Barriers and facilitators to cooking from ‘scratch’ using basic or raw ingredients: A qualitative interview study [DOI: 10.1016/j.appet.2016.08.115.]

Fiona Lavelle^a, Laura McGowan^a, Michelle Spence^a, Martin Caraher^b, Monique Raats^c, Lynsey Hollywood^d, Dawn McDowell^d, Amanda McCloat^e, Elaine Mooney^e, Moira Dean^{a*}.

^aInstitute for Global Food Security, School of Biological Sciences, Queen’s University Belfast, UK

^bCentre for Food Policy, Department of Sociology, School of Arts and Social Sciences, City University London, UK

^cFood, Consumer Behaviour and Health Research Centre, School of Psychology, University of Surrey, UK

^dDepartment of Hospitality and Tourism Management, Ulster Business School, Ulster University, UK

^eDepartment of Home Economics, St. Angela's College, Sligo, Ireland.

Email addresses:

FL: flavelle01@qub.ac.uk

LM: Laura.McGowan@qub.ac.uk

MS: m.s.spence@qub.ac.uk

MC: M.caraher@city.ac.uk

MR: M.Raats@surrey.ac.uk

LH: l.hollywood@ulster.ac.uk

DM: e10218120@uucde.ulst.ac.uk

AM: amccloat@stangelas.nuigalway.ie

EM: emooney@stangelas.nuigalway.ie

MD: moira.dean@qub.ac.uk

*Corresponding author: Dr Moira Dean, Institute for Global Food Security, School of Biological Sciences, Queen’s University Belfast, Belfast BT9 5AG, UK. Phone: +44(0)28 9097 6561; fax: +44(0)28 9097 6513; e-mail: moira.dean@qub.ac.uk

1 **Background:** Previous research has highlighted an ambiguity in understanding
2 cooking related terminology and a number of barriers and facilitators to home meal
3 preparation. However, meals prepared in the home still include convenience products
4 (typically high in sugars, fats and sodium) which can have negative effects on health.
5 Therefore, this study aimed to qualitatively explore: (1) how individuals define
6 cooking from ‘scratch’, and (2) their barriers and facilitators to cooking with basic
7 ingredients.

8 **Methods:** 27 semi-structured interviews were conducted with participants (aged 18-
9 58 years) living on the island of Ireland, eliciting definitions of ‘cooking from
10 scratch’ and exploring the reasons participants cook in a particular way. The
11 interviews were professionally transcribed verbatim and Nvivo 10 was used for an
12 inductive thematic analysis.

13 **Results:** Our results highlighted that although cooking from ‘scratch’ lacks a single
14 definition, participants viewed it as optimal cooking. Barriers to cooking with raw
15 ingredients included: 1) time pressures; (2) desire to save money; (3) desire for
16 effortless meals; (4) family food preferences; and (5) effect of kitchen disasters.
17 Facilitators included: 1) desire to eat for health and well-being; (2) creative
18 inspiration; (3) ability to plan and prepare meals ahead of time; and (4) greater self-
19 efficacy in one’s cooking ability.

20 **Conclusions:** Our findings contribute to understanding how individuals define
21 cooking from ‘scratch’, and barriers and facilitators to cooking with raw ingredients.
22 Interventions should focus on practical sessions to increase cooking self-efficacy;
23 highlight the importance of planning ahead and teach methods such as batch cooking
24 and freezing to facilitate cooking from scratch.

25

26 **Keywords:** Scratch Cooking, Qualitative, Skills, Barriers, Facilitators¹

27

28 **Introduction**

29 Over recent years, there has been concern that the culture of domestic cooking has
30 rapidly evolved alongside broader social, environmental and technological changes to
31 the potential detriment of our diet and resulting nutritional health. Research has
32 indicated: less time is being spent on domestic food preparation (Soliah, Walter, &
33 Jones, 2012; Pettinger, Holdsworth, & Gerber, 2006), a breakdown of traditional meal
34 patterns (Buckley, Cowan, & McCarthy, 2007), a greater availability and
35 consumption of high energy ultra-processed ready-made foods (typically high in
36 sugars, fats and sodium) (Monteiro, Moubarac, Cannon, Ng, & Popkin, 2013; Moodie
37 et al., 2013; Monteiro, Levy, Claro, deCastro, & Cannon, 2011; Stuckler, McKee,
38 Ebrahim, & Basu, 2012), and an increase in food produced and consumed outside the
39 home environment (Mintel, 2014). Moreover, it has been suggested that whole
40 cultures have experienced a dramatic change in their ability to select, prepare and
41 consume food (Lang & Caraher, 2001), with fewer and/or different cooking skills
42 (Beck, 2007; Worsley, Wang, Wijeratne, Ismail, & Ridley, 2015). Some researchers
43 have also suggested a loss of the necessary skills to prepare a meal from raw
44 ingredients (from ‘scratch’) (Caraher, Dixon, Lang, & Carr-Hill, 1999). In light of
45 this, several community diet projects have been developed to increase cooking skills
46 among the consumer. Although such interventions lack theoretical underpinning and
47 rigorous outcome evaluations (McGowan et al., 2015) they do have the potential to
48 reduce overreliance on convenience foods. Indeed, previous research has shown that

¹ **Abbreviations:** NI, Northern Ireland; UK, United Kingdom; IOI, Island of Ireland; ROI, Republic of Ireland, CFS, Cooking from Scratch.

49 those who frequently prepare a meal in the home (Wolfson & Bleich, 2015) and use a
50 greater number of cooking skills make healthier food choices and have a better dietary
51 quality (Chen, Meei-Shyuan, Yu-Hung, & Wahlqvist, 2012; McGowan et al., 2015),
52 whereas a lack of cooking skills has been associated with increased consumption of
53 convenience food products (van der Horst, Brunner, & Siegrist, 2011).

54 To gain insights into the state of domestic meal preparation, research has
55 investigated the perceptions of what constitutes home-cooking and the barriers and
56 facilitators to cooking (Wolfson, Smith, Frattaroli & Bleich, 2016a; Wolfson, Smith,
57 Bleich & Frattaroli, 2016b; Bowen, Elliot & Brenton, 2014; Soliah, Walter & Jones,
58 2012). Previous studies have alluded to several barriers to home meal preparation,
59 such as parental employment (Devine et al., 2006; Jabs et al., 2007; Devine et al.,
60 2009), lack of time (Jabs & Devine, 2006), cost of convenience foods (Brunner, van
61 der Horst, & Siegrist, 2010), poor cooking skills (van der Horst et al., 2011; Stead et
62 al., 2004), and limited food resources (Vidgen & Gallegos, 2014). In a recent
63 American study Wolfson et al. (2016b) found a continuum in what home-cooking
64 meant to participants, from cooking from scratch (CFS) at one end to heating up a
65 ready-made microwave meal at the other. Different use of terminology was debated
66 by participants illustrating the highly individualised nature of the terms used. This
67 lack of consensus has been previously highlighted (Short, 2006; Short, 2003). In
68 addition, the motivators to home meal preparation have been explored using focus
69 groups (Jones, Walter, Soliah & Phifer, 2014), highlighting the cost effectiveness of
70 cooking in the home, having a cooking role model, familiarity with cooking
71 techniques and having time for the preparation, cooking and cleaning.

72 In relation to the use of terminology, encouraging some to increase their home-
73 cooking, may encourage the use of convenience products, as Wolfson et al. (2016b)

74 demonstrated that some view heating a ready-meal as home-cooking. Recent
75 European research found that only 30% of total household food expenditure was on
76 'scratch' ingredients (Daniels & Glorieux, 2015), with the rest being spent on
77 convenience food and meals consumed outside the home. Another study showed that
78 only 20% of Belgian families spend the majority of their food budget on raw or fresh
79 ingredients, with the remainder combining fresh ingredients with some level of
80 convenience food (Daniels, Glorieux, Minnen, van Tienoven & Weenas, 2015).
81 Convenience foods are normally high in saturated fat, sugars, sodium and additives
82 (Monteiro, Moubarac, Cannon, Ng, & Popkin, 2013; Moodie et al., 2013; Monteiro,
83 Levy, Claro, deCastro, & Cannon, 2011; Stuckler, McKee, Ebrahim, & Basu, 2012),
84 and the consumption of convenience food has been associated with overweight and
85 obesity (van der Horst et al., 2011; Smith, McNaughton, Gall, Blizzard, Dwyer &
86 Venn, 2009; Malik, Willett and Hu, 2013). Further, the additives in these products
87 have been linked to the increase in autoimmune diseases (Lerner & Matthias, 2015).

88 In light of this, it is important to understand what CFS means to the consumer and
89 what barriers consumers face moving away from convenience products towards using
90 basic or fresh ingredients in their cooking. Thus, this study explicitly explored the
91 barriers and/or facilitators to cooking with basic or raw ingredients and how they may
92 be different to the barriers faced in home meal preparation in general.

93 Interviews were chosen as the method of data collection as it would allow for
94 maximum individual clarity with the already confusing terminology, as participants
95 within a focus group can be influenced by other dominant participants. Therefore this
96 study qualitatively explored in a European population: (1) how individuals define
97 cooking from 'scratch', and (2) the barriers and facilitators to cooking a meal with
98 basic or raw ingredients.

99 **Material and Methods**

100 **Participant Recruitment**

101 Male and female participants from the island of Ireland (IOI) were recruited via
102 convenience and snowball sampling with purposive acceptance to take part in a semi-
103 structured interview. Recruitment methods included announcements in the form of an
104 email circulated to staff at a NI (Northern Ireland) and ROI (Republic of Ireland)
105 university, interviewer contacts, and face-to-face invitations at a range of ROI
106 community classes aimed at the unemployed. Every effort was made to include
107 participants from different educational backgrounds and age groups, with a range of
108 perceived cooking abilities. Of the thirty-one participants that responded with interest
109 and completed a screening questionnaire; three did not meet the eligibility criteria (i.e.
110 aged between 18-65 years; not involved in professional cookery; responsible for
111 preparing at least one household meal per week) and a further one was unable to
112 commit the necessary time. In total, 27 participants (17 females and 10 males) were
113 interviewed (Table 1). All participants provided informed verbal consent and the
114 study was approved by the School of Biological Sciences Ethical Committee at
115 Queen's University Belfast.

116

117 **Table 1 Characteristics of interview participants.**

Characteristic		N = 27	
		N	%
Country	Northern Ireland	15	56
	Republic of Ireland	12	44
Age	18-34 years	12	44
	35-44 years	5	19
	45-58 years	10	37
Highest Education level	Basic School (age 15/16, Junior Cert/GCSE)	2	8
	Secondary School (age 17/18, Leaving Cert/A Level)	4	15
	Professional Training	3	11
	Undergraduate level	9	33

	Postgraduate level	9	33
Occupational Status	Employed full-time (>30h per week)	18	67
	Employed part-time (8-29h per week)	3	11
	Retired	1	4
	Student	2	7
	Unemployed	3	11
Life Stage	Single/Married with children in the household	9	33
	Married with no children in household ^a	4	15
	Single	4	15
	Single with cohabitees	6	22
	Single lives with family	4	15
Number in Household	1	4	15
	2	9	33
	3	8	30
	4-6	6	22
Type of ingredients used in meal preparation	All Ready-made	2	7
	Mostly pre-prepared, some fresh/basic/raw ingredients	7	26
	Mostly fresh/basic/raw, some pre-prepared ingredients	17	63
	All fresh/basic/raw ingredients	1	4
Perceived Ability	1	1	4
	2	2	7
	3	2	7
	4	7	26
	5	9	33
	6	2	7
	7	4	15

118 ^a Includes couples with grown children no longer residing in their household.

119

120 **Interview Questioning Guide**

121 Based upon a review of previous literature (McGowan et al., 2015) and a small
122 number of interviews (n=4) with experts working to improve cooking and food skills
123 (defined here as food planning, organising, shopping, budgeting), the research team
124 developed the interview questioning guide. The interview guide was piloted for
125 clarity, comprehension, reliability and timing with five individuals and refined prior
126 to implementation. The questions were designed to elicit participants perceptions
127 regarding their experiences with domestic cooking including terminology relating to
128 cooking, their motivations and barriers for cooking with basic or raw ingredients, how

129 they learned their cooking and food skills, and how they had/could improve their
 130 cooking skills (See Table 2).

131

132 **Table 2: Questioning route of interviewers**

Introductory Question
<ul style="list-style-type: none"> • Please describe the most recent main meal you prepared or cooked at home?
Personal Definitions
<ul style="list-style-type: none"> • What does the term ‘convenience foods’ mean to you? • What would you consider a ‘ready-made’ product to be? • What would you consider cooking from ‘scratch’ to mean?
Perceived Cooking and Food Skills Practices
<ul style="list-style-type: none"> • I can see that you rated yourself as an x out of 7 for cooking from ‘scratch’, can you tell me why that is? • How would you rate yourself in terms of your wider food practices like shopping, planning meals, food safety and storing food or eating healthily? • How do you decide what to stock your fridge or cupboards with? How do you decide how to create a meal e.g. what to put on a plate to make up your meal?
Barriers/Facilitators to ‘Scratch Cooking’
<ul style="list-style-type: none"> • What gets in the way of you cooking? (<i>and of wider food practices like shopping etc.</i>) • What motivates you to cook? • Are you confident with all foods/ingredients?
Learning Cooking Skills
<ul style="list-style-type: none"> • How do you believe you learnt your cooking skills, e.g., chopping, mixing? • If you wanted to improve on these or any cooking skills how would/have you do/did this?

133

134 **Data Collection**

135 Interviews were conducted by telephone (n=26) or face-to-face (n=1), between
 136 October and December 2014, by one of two experienced interviewers (FL; a Sport
 137 and Health Scientist: and LM; a Health Psychologist) who had completed courses on
 138 qualitative data collection. As an ice-breaker, participants were asked to introduce
 139 themselves and describe the most recent main meal that they had prepared.

140 Interviewees were given some assurances (e.g. that there were ‘no right or wrong
 141 answers’, their anonymity would be kept intact and they could opt out at any point)

142 before the interviewer proceeded to ask a series of guided open-ended questions

143 (Table 2). The interview concluded when all topics had been covered and no new

144 information emerged. Interviews were audio-recorded and lasted between 20 and 60

145 minutes (mean duration 36 minutes).

146 **Data analysis**

147 Audio recordings were professionally transcribed verbatim, checked for precision
148 (FL, LM), and, coded thematically (Braun & Clarke, 2006) using the qualitative
149 programme NVivo 10 (QSR International Pty Ltd, Victoria, Australia). Initially,
150 interviewers (FL, LM) independently read and coded two randomly selected
151 transcripts before jointly reaching a consensus on the validity and reliability of the
152 application of their codes to the data. This process was repeated for a further three
153 transcripts, afterwards, minor revisions were made to the terminology of some codes.
154 The remaining transcripts were then coded (FL) and independently checked for
155 coding consistency (LM) before consensus was reached (with FL). Both coders
156 agreed that data saturation had occurred as no new codes emerged from the final six
157 interviews. Subsequently, codes were grouped into potential barriers and facilitators
158 and inspected for overlap to ensure that there were clear distinctions within and
159 between barriers and facilitators. To increase intra-observer reliability, four members
160 of the research team who were experienced in qualitative data analysis (FL, LM, MS;
161 a Nutritionist and MD; a Consumer Psychologist) immersed themselves in the data
162 and critically discussed the emerging barriers and facilitators, together with their
163 interpretations. As a final step, FL, LM, MS, and MD discussed the results and
164 selected key quotes to exemplify each barrier and facilitator. Socio-demographic data
165 was summarized using IBM SPSS Statistics version 19 software (SPSS, Chicago, IL).

166 **Results**

167 The sociodemographic characteristics of the 27 participants are shown in Table 1. To
168 ensure a wide range of cooking abilities (see Table 1), a question was included in the
169 screening questionnaire on perceived ability; “On a scale from 1 to 7 where 1 means
170 very poor and 7 means very good, how good are you at preparing and/or cooking

171 meals from ‘scratch’ at home (i.e. using basic/fresh/raw ingredients etc.)?”.
172 Participants responses ranged from 1 to 7 (Mean 4.6, SD 1.6). An overview of these
173 participants’ definitions of CFS and their barriers and facilitators to cooking with raw
174 or basic ingredients is presented respectively.

175 **Perceptions of cooking from ‘scratch’ using basic ingredients**

176 Illustrative quotes of participants’ personal definitions of CFS can be seen in Table 3,
177 these appeared to be individualized with no clear patterns across perceived ability,
178 gender or age. Perceptions of the degree of preparation allowed for classification of a
179 meal as made from ‘scratch’ varied considerably. These perceptions spanned a
180 continuum from traditional understandings of the term (using raw ingredients
181 entirely) to a more inclusive modern version, which incorporated some convenience
182 products (e.g. store bought pasta). There was consensus that CFS was the “*healthiest*”
183 method of preparing a meal; with natural, fresh and unprocessed ingredients being
184 key components, yet, for some, the use of frozen foods (such as frozen fish fillets)
185 was also included. The degree of time and effort needed for CFS was perceived as
186 being greater than that required for convenience products, however, for many, it was
187 viewed as the goal to strive towards.

Table 3: Illustrative quotes to demonstrate the spectrum of ‘cooking from scratch’ perceptions.

Personal Definition	Perceived Ability	Gender	Age
<i>“It means preparing sauces/condiments/everything from the raw ingredients top to bottom, so if you’re making a curry it means preparing the paste and chopping up all the herbs and everything, making the paste and then adding the cream, doing it all completely from individual ingredients.”</i> (Participant 12)	4	M	32
<i>“If you were making your own sauces, all like fresh food, using actual spices, I would consider made from scratch meals obviously the healthiest.”</i> (Participant 27)	1	F	21
<i>“Once you’ve bought the ingredients organically, washing them and putting them together, so whether you’re getting a full chicken and cutting it up, whether you’re getting head of broccoli and cutting it up, stuff like that, same with your sauces with the least amount of stress.”</i> (Participant 25)	5	M	24
<i>“Well something that hasn’t been prepared in any way, where you’re buying it fresh, well I say fresh, most of the stuff I cook from scratch is frozen but I mean hasn’t been treated in any way.”</i> (Participant 19)	4	M	57
<i>“Taking different ingredients, well for salad cooking from scratch would be washing cutting and then putting oil, maybe adding olives to the greens so it doesn’t involve cooking on fire but it involves preparing the ingredients, like washing and cutting, for rice or spaghetti and stuff it involves boiling or put in the oven, so combining different ingredients that you have manipulated some way, so taking raw ingredients and either cooking them or washing, cutting, adding spices to them so that they make up a meal.”</i> (Participant 7)	6	F	30
<i>“It would be essentially just using basic raw ingredients, I would include the spices, not prepared sachets of seasoning but possibly not grinding your own spices maybe using ready ground herbs and seasoning but not using like sauces which have been pre-made or dressing and certainly preparing the vegetables.”</i> (Participant 3)	4	F	28
<i>“Anything that can easily be made from the raw ingredients, I’d still assume like vegetable stock or chicken stock or pasta to be from scratch even though in the past I have made these from flour and wheat and that but I’d still kind of dub these essentials as allowing to be from scratch. For example bolognaise...I could just buy a jar of Dolmio and that would be seen as cooking a meal but in my eyes it’s not from scratch. From scratch is the main portion of the meal should come from raw ingredients with the minimum amount of pre-made ingredient, for example pasta takes quite a while to make from fresh so I use just a bag of that.”</i> (Participant 20)	7	M	24
<i>“Cooking from scratch is doing it to what ability you feel like or how much effort you feel like putting in, if you chop and prep all your veg, depending on the size of the dinner you might cheat with some things like if you’re making a pie, you might decide you won’t use your own pastry, you’ll definitely buy store bought but to me that’s still cooking from scratch.”</i> (Participant 2)	5	F	35

<p><i>“I suppose in the traditional meaning it is totally everything, practically growing your own, but I think times have moved on. I think cooking from scratch is...it’s actually washing the vegetables, getting the earth off them and peeling them and cutting them yourself, it’s more vegetables, maybe with chicken, I do buy whole chickens but chicken fillets are easier, I tend to go for ones that are marinated so that’s really convenience too, I wouldn’t be marinating.” (Participant 14)</i></p>	3	M	51
<p><i>“For the curry I used mushrooms, onions, chicken fillets but I normally use a dry curry mix, Mayflower, you just mix it with about 10 ounces of water and it gives you a curry sauce which actually tastes like proper [bought/takeaway] Chinese curry but everything else would have been fresh ingredients.” (Participant 4)</i></p>	5	F	47
<p><i>“Cooking from scratch means opening the jar and putting it into the saucepan, adding my own blend of herbs and spices to it, making the meatballs, I make the meatballs from scratch and then putting the pasta on.” (Participant 23)</i></p>	5	F	58

189 **Barriers to cooking from ‘scratch’ using basic or raw ingredients**

190 Five barriers to CFS using basic or raw ingredients were identified: (1) time
191 pressures; (2) desire to save money; (3) desire for effortless meals; (4) family food
192 preferences; and (5) effect of kitchen disasters.

193 **(1) Time pressures**

194 Almost all participants said that they were so busy that they found it difficult to cook
195 from basic or raw ingredients. The strongest time pressure appeared to come from
196 work and/or family commitments:

197 *“...I don’t get time to do that [cook from basic ingredients] now, because now I’m*
198 *a dad...it’s all rush rush rush now.”* (Participant 16)

199 *“You’ve got a very limited amount of time to cook after work before you want to*
200 *eat, so unless you’re organised you don’t have any time, and if you don’t have any*
201 *time you can’t make things from scratch, it takes too long.”* (Participant 12)

202 The feeling that there was not enough time, especially mid-week, was implicated
203 in the increased consumption of convenience foods:

204 *“You’d probably have a little bit more processed food throughout the week just*
205 *due to time constraints... just less time to prepare food.”* (Participant 25).

206 In addition, participants were not willing to spend the majority of their ‘free’ time
207 engaged in meal preparation and compromised by moving away from using basic
208 ingredients.

209 **(2) Desire to save money**

210 Participants, (particularly smaller households and ROI), felt that it was cheaper for
211 them to eat partially or fully prepared foods. For them, price was a major disincentive
212 to cook with basic or raw ingredients.

213 *“It works out cheaper for me to buy pre-packaged dinners in Aldi.”* (Participant
214 23)

215 Moreover, their negative attitude towards cooking with basic or raw ingredients was
216 further driven by the concern that cooking in this way would generate more food
217 waste. Reasons for this concern stemmed from the observation that more food would
218 be bought in excess and not used:

219 *“I didn’t realise when I was buying all those fresh stuff in the summer like veg and*
220 *like broccoli and chicken and that kind of stuff ... I’ve gotten not much in my basket*
221 *and this is coming to like 20 euro and I’d be afraid that I’m wasting...if I’m buying it*
222 *for just me I wouldn’t eat a whole thing of like broccoli or whatever so then I’d nearly*
223 *feel like half the food would end up getting half wasted then.”* (Participant 27)

224 Interestingly, some of these participants expressed their fondness for cooking in
225 general and perceived that CFS may have the greatest health benefits, however,
226 financial restraints and waste reduction strategies overpowered their positive
227 dispositions.

228 ***(3) Desire for effortless meals***

229 For some participants, cooking from basic ingredients was viewed as a “chore” which
230 was not high on their list of priorities but cooking was seen as a necessity:

231 *“[Cooking from scratch] is a lot of time and effort and if you’re already hungry*
232 *and you’re standing there smelling the food and stuff, that’s a nightmare so if it can’t*
233 *be prepped and cooked within 30 to 40 minutes I won’t bother and it’s the same at*
234 *weekends.”* (Participant 2)

235 Their desire for effortless meals stemmed from a ‘*lack of energy,*’ ‘*lack of*
236 *motivation*’ and ‘*laziness*’ and led to participants choosing convenience products or
237 consuming take-away food:

238 *“There’s no point in buying a whole turnip that’s going to take me ages to cut into*
239 *and cook so I would buy the convenient packs which are already diced up and washed*
240 *and prepared.”* (Participant 15)

241 *“My mood and energy levels would dictate how adventurous I would be with the*
242 *meal or possibly I’d just have a takeaway.”* (Participant 3)

243 **4) Family food preferences**

244 Participants voiced that that their family’s tastes and preferences for certain foods
245 were highly influential in determining meal choices which, in turn, governed the
246 degree to which they relied on convenience products and cooked with basic or raw
247 ingredients. Participants felt that they had *‘ate what they were given’* when they were
248 growing up, whereas nowadays, children have their food preferences catered for.
249 Some alluded to the food preferences of their family and their efforts to meet these in
250 order to avoid power struggles about food as a result of food refusal and selective
251 eating. An overreliance on certain foods and convenience products were often utilised
252 as an easier way to cater to the varying food preferences of each family member. For
253 example:

254 *“I know what people like and what I’ll get away with so I just make sure I don’t*
255 *stray too far from that...otherwise you’re in revolt.”* (Participant 18)

256 *“.. last night we had pizza and I didn’t want pizza but my daughter did and ...I*
257 *went with pizza because I knew she would eat it but with the pizza there was no extra*
258 *vegetables... it was quite cardboardy so there was no thought in it really.”*
259 (Participant 15)

260 Family influence also restricted participants’ ability to experiment with new
261 ingredients. Even if the participant felt inspired to try something new they often felt
262 restricted:

263 *“If I do something different like try something new in the house probably no one*
264 *would eat so it’s a bit disheartening making something and no one eat it.”*
265 (Participant 24).

266 It seemed family preferences were more influential than the desire to experiment,
267 so that meals will be eaten.

268 **(5) Effect of Kitchen Disasters**

269 When faced with personal cooking failures, such as strange tasting and
270 unappealing looking dishes, participants recalled occasions in which they became
271 discouraged and vowed not to make particular dishes from basic ingredients again. In
272 these instances, partially or fully prepared convenience foods were often praised for
273 their consistent taste and handiness. For example:

274 *“I just got a basic recipe for cheesecake...my dad was sprinkling sugar on it and I*
275 *didn't know why...I tried it, how disgusting it was! I was thinking they must really*
276 *love me for having eaten that cheesecake... I'll not bother next time...I'll just buy one*
277 *from the shop. Things like that can be a bit disheartening when you do try something*
278 *and then it turns out awful...you can get food, for example, from a trusty Dolmio pack*
279 *of sauce, put it in the microwave and it would of turned out nice and be ready in a*
280 *minute.” (Participant 27)*

281 Personal disasters or stories from others appeared to instil fear in some participants
282 in relation to raw ingredients and food safety and appeared to create a reluctance to
283 use these ingredients:

284 *“you hear about ...people [who] have been touching raw meat or something and*
285 *then cooked meat and then they end up with e-coli and ..[it's] to make sure that I*
286 *don't poison anybody.” (Participant 8)*

287 **Facilitators to cooking from 'scratch' using basic or raw ingredients**

288 Four facilitators to cooking with basic or raw ingredients were identified: (1) desire to
289 eat for health and well-being; (2) creative inspiration; (3) ability to plan and prepare
290 meals ahead of time; and (4) greater self-efficacy in one's cooking ability.

291 ***(1) Desire to eat for health and well-being***

292 Within this theme, participants described how they cooked with “*as much basic*
293 *ingredients as possible*” in order to improve the health and well-being of themselves
294 and their families (e.g. “*A desire to be healthy drives you to cook*”). Specifically,
295 compared to convenience foods, participants viewed that preparing food from basic or
296 raw ingredients was healthier as it contained less undesirable components (i.e. fat,
297 added sugars, salt, additives and preservatives) and more fruit and vegetables. For
298 example:

299 “*I’ve become aware...about cooking from scratch to reduce the salt content and to*
300 *reduce the sugar content because a lot of pre-prepared food is high in salt or sugar.*”

301 (Participant 14)

302 Various factors motivated participants’ to eat for health and well-being, such as
303 their: nutritional knowledge; bad health (e.g. cancer); and a desire to reduce and
304 maintain body weight while avoiding the negative physical side effects of processed
305 food on the body (“reflux”, “bloating”, “migraines”, “poor athletic performance”).

306 “*I know that if I cook it... natural ingredients, proper ingredients that I can eat it*
307 *and it doesn’t irritate my stomach.*” (Participant 22)

308 Some participants voiced that their motivation and behaviour towards eating more
309 healthily had increased with age:

310 “*As I’ve got older I’ve noticed that sometimes processed foods and things*
311 *...doesn’t always agree with me the best, so I try to do the best for my family; we’re*
312 *trying not to use processed food.*” (Participant 4)

313 ***(2) Creative inspiration***

314 Participants voiced that they often received inspirational meal ideas and recipes from
315 numerous sources which encouraged them to cook with basic or raw ingredients.

316 Recipes available through traditional (TV, newspapers, magazines, cookbooks) and

317 digital media (social media, internet search engines) both clearly impacted upon the
318 cooking habits of those who viewed them. In many cases, participants described
319 coming across recipes “*by chance*” and being inspired to cook them (or a modified,
320 simplified or achievable version):

321 *“When I’m sort of flicking through the papers at the weekend and you see a recipe*
322 *and you think and you look at that and ok well actually I might not actually fancy*
323 *doing that particular recipe but what they are suggesting you might do there I might*
324 *bring into something which I’ve cooked another time.”* (Participant 1)

325 When participants’ did actively seek recipes, they showed a preference for digital
326 media (such as webpages and websites) in contrast to print media (such as cookbooks)
327 as it was viewed as being “*handy*” and “*in-front*” of them:

328 *“I would look up a recipe on the internet...I would look up to see some sort of*
329 *chicken dish and maybe get ideas on that BBC good food website. But yes I would*
330 *tend to find myself looking up the stuff on the internet as it’s easier than reading a*
331 *cook book.”* (Participant 6)

332 In addition to print/printable recipes, some participants noted getting a ‘*spark of*
333 *inspiration*’ from browsing in the shops. Individuals also received inspiration from
334 meals that they had tried in a restaurant or seen a friend make:

335 *“You know if I tasted something maybe nice in a restaurant and I thought that’s*
336 *lovely I would kind of look up how to do it and maybe try and make a wee bit of it*
337 *myself.”* (Participant 13)

338 **(3) Ability to plan and prepare meals ahead of time**

339 Within this theme participants described how organising (meals planning and grocery
340 shopping) and preparing meals ahead of time permitted them to cook with basic and
341 raw ingredients more frequently. Specifically, by batch cooking (refrigerating or

342 freezing portion(s) for another meal) and using left-over ingredients, participants were
343 able to minimise the time and energy required to cook in this way:

344 *“It’s just convenience more than anything else you know if I’m going to cook I*
345 *might as well cook you know a big load of it so I don’t have to do it every night.”*

346 (Participant 19)

347 *“I have to sort of plan ahead...one reason why I like to do a roast on Sunday is*
348 *because then I know I’ve got leftovers and it makes it easier for me for my lunches”.*

349 (Participant 8)

350 **(4) Greater self-efficacy in one’s cooking ability**

351 Participants who self-identified as a good cook tended to cook more from basic or raw
352 ingredients and enjoy doing so:

353 *“I can cook anything really, a bake or make pizzas or make bread, whatever; I*
354 *don’t mind, I enjoy it.”* (Participant 18)

355 This greater self-efficacy appeared to enable these participants to experiment more
356 with different food combinations and flavours. As a result they had a greater
357 repertoire of dishes that they were able to make and were able to take full advantage
358 of supermarket special offers:

359 *“I can cook a variety of things and combine in different ways and make some*
360 *different tasty things.”* (Participant 7)

361 *“Shop smart, and don’t go out with set things in your mind...such as ‘I’m going to*
362 *cook this and this’. You can often shop off what’s on offer and that can then dictate*
363 *your rough menu for the week so then you get a more efficient shop; bang for your*
364 *buck.”* (Participant 20)

365 In most cases, participants who had confidence in their cooking ability attributed
366 this to earlier visual and experiential learning opportunities. Specifically, participants

367 talked about how their home and/or school environment had enabled them to learn by
368 “seeing” or by “doing”:

369 *“I think sometimes you pick up things that you maybe would have watched your*
370 *mum cook when you were a kid and you know they’re there in the back of your*
371 *memory and you don’t realise until you’re doing them yourself.”* (Participant 4)

372 *“We’d be in pairs and the teacher would be at her station at the top of the room*
373 *and she would just kind of be guiding us, like obviously, after in our first second or*
374 *third times we kind of knew how to chop stuff properly but for the first few times she’d*
375 *guide us and then she would walk away and if we needed any help she would show*
376 *us.”* (Participant 21)

377 **Discussion**

378 To the best of our knowledge, this is the first study to specifically explore how
379 individuals define CFS as well as the barriers and facilitators to cooking a meal with
380 basic or raw ingredients. Our rich descriptive data highlighted that CFS lacks a single
381 definition, however, participants viewed it as a goal to strive towards. Overall, nine
382 themes meaningfully hindered or enabled participants to cook with raw and basic
383 ingredients.

384 Wolfson et al (2016b) found that there was a continuum in home-cooking
385 definitions from CFS to heating a microwavable meal. Our results show that even
386 within ‘scratch’ cooking, participants’ definitions spanned a continuum from
387 traditional understandings of the term (the entirety of the meal from basic or raw
388 ingredients) to a modern version which included some ‘essential’ convenience
389 products. This heterogeneity in CFS perspectives is reflective of previous literature
390 which explored meal preparation in the home environment (Wolfson et al., 2016b;
391 Short, 2006). Wolfson et al. (2016b) concluded a definition for CFS as *“all or almost*

392 *all scratch ingredients are used and time and energy are invested,*” however, our
393 results show that this still leaves room for ambiguity. Daniels and Glorieux (2015),
394 also had difficulty concluding on what constituted a convenience product and created
395 six categories, with one category being labelled other. This ‘Other’ category consisted
396 of food products that may be considered as staples in our current cooking and eating
397 habits such as bread and milk products, which are original convenience products. Our
398 findings show the necessity for interventions, researchers and public health
399 practitioners to clearly and consistently define what it means to cook from ‘scratch’ or
400 an open acknowledgement that a continuum exists and that the aim of the intervention
401 is to move people along the continuum towards the use of as many fresh ingredients
402 as possible. This is an essential first step in acquiring a more accurate understanding
403 of the relationship between cooking and healthy eating behavior in the broader
404 population.

405 Similar to results recently reported by Wolfson et al. (2016), participants viewed
406 cooking from basic and raw ingredients as the best method of cooking, ‘real cooking’
407 (as mentioned by participants in Wolfson et al. 2016), and they placed a higher value
408 on this method in terms of health and nutritional quality. In the American population
409 it was accepted that although CFS had high importance, it was not seen as the norm
410 standard for cooking (Wolfson et al., 2016b), whereas, in this current sample, some
411 participants considered it quite common depending on their definition. Interestingly,
412 motivations for cooking with basic and raw ingredients did not extend beyond
413 concerns for nutritional health and well-being. This suggests that while familial
414 motivations for home-cooking (Simmons and Chapman, 2012) addressed social (i.e.
415 connecting to family and friends), cultural (i.e. retaining family culinary traditions
416 and practices and/or breaking away from them to explore new ways of eating) and

417 personal factors (i.e. gaining independence through cooking skills) the main motivator
418 for CFS is primarily health. Further, Simmons and Chapman (2012) showed that the
419 ability to cook enabled the ‘cook’ to regulate the family food supply, whereas, our
420 results highlight a shift where the family decides the choice of food to be made rather
421 than the ‘cook’, similar to the findings of Soliah et al. (2012) and Dixon and Banwell
422 (2004).

423 The emergent barriers to cooking with basic and raw ingredients suggest that
424 participants require meals that are time efficient, convenient, reasonably priced, and
425 in alignment with their family’s food preferences. Some of these factors were also
426 found in Wolfson et al. (2016) with cost and time being barriers to CFS. Effort also
427 appeared to act as a barrier to cooking from scratch as mentioned in previous research
428 relating to home meal preparation (Wolfson et al., 2016b; Kaufmann, 2010;
429 Lappalainen et al., 1997; Gatley, Caraher, & Lang, 2014). Some participants in this
430 study felt meal preparation was a necessity, and the effort needed for CFS was too
431 excessive. Daniels and colleagues (2012) also found that half the time spent cooking
432 is purely out of necessity. Interestingly, Wolfson et al. (2016) noted a link between
433 time, cost and health in home-cooking, where one of the elements was sacrificed to
434 prioritize the others. However, in relation to CFS this was not apparent. Here, those
435 that cooked from ‘scratch’ for health reasons did not mention time and cost although
436 time and cost were inevitably linked to other facilitators such as planning and
437 preparing ahead of time to compensate for time and cost.

438 The fear of failure associated with previous negative cooking experiences acted as
439 a barrier to some to CFS. Fearfulness has been previously noted in cooking (Stead *et*
440 *al.*, 2004) but not explored in detail. The use of convenience products to overcome
441 possible negative cooking experiences appears to be a form of avoidance motivation

442 rooted in the psychological concept of approach-avoidance. Elliot (2006) defines
443 approach-avoidance motivation as “*Approach motivation may be defined as the*
444 *energization of behavior by, or the direction of behavior toward, positive stimuli*
445 *(objects, events, possibilities), whereas avoidance motivation may be defined as the*
446 *energization of behaviour by, or the direction of behavior away from, negative stimuli*
447 *(objects, events, possibilities).*” Those using avoidance for survival (using
448 convenience products instead of risking a potentially disastrous meal), forgo
449 opportunities for development and improvement (learning new cooking skills) (Elliot,
450 2006).

451 Further, participants who had a greater self-efficacy in their cooking ability and
452 experienced greater inspiration from multiple sources were more inclined to cook
453 with basic and raw ingredients and have a greater repertoire of dishes that they were
454 able to make. Stead et al. (2004) also found that confident cooks had a wider
455 repertoire of recipes and had more knowledge of cooking techniques. Wriden et al.
456 (2007) also found that some of those that had an increase in cooking confidence after
457 a practical cooking intervention reported using more basic ingredients in their
458 cooking.

459 Our results collectively suggest that it is essential to provide opportunities for
460 people of all ages to gain hands-on experiences with food (i.e. cook) to both acquire
461 and perfect their food preparation skills (i.e. menu-planning and food shopping skills)
462 in order to organise and prepare a meal from basic and raw ingredients. Indeed, in this
463 study, those that self-identified as a good cook attributed their ability to cook from
464 scratch to earlier visual and experiential learning. These skills provide consumers
465 with strategies to overcome the barriers identified. Specifically, strategies such as
466 shopping more thriftily (e.g. bulk buying, taking advantage of supermarket special

467 offers), batch cooking (refrigerating or freezing portion(s) for another meal), and
468 being able to easily adjust recipes to meet family preferences all facilitate CFS.

469 Thus, the best way to facilitate a shift from using convenience products towards
470 basic ingredient cooking, points in the direction of teaching basic cooking and food
471 skills. This need for practical cooking experience has been previously noted both in
472 research and the media (Jones et al., 2012; Caraher, Seeley, Wu, & Lloyd, 2013;
473 Oliver, 2015). These opportunities provide an environment where people can
474 experiment, fail and learn from their failure, and may enhance their ability to cook
475 from scratch which in turn may boost their cooking self-efficacy. The content of these
476 cooking interventions should focus on teaching strategies (such as ones employed by
477 the participants in this study) to overcome barriers and emphasise the facilitators such
478 as the health benefits of using fresh ingredients over convenience products and they
479 should also be tailored to the individual as previously stressed by Daniels et al.
480 (2012). Interventions should include components on: 1) the cheapness of using basic
481 ingredients; 2) batch cooking without the use of convenience products whereby
482 reducing the immediate effort required ; 3) enabling individuals to cook simplified
483 versions of scratch meals they have been inspired by or their usual convenience
484 product; and 4) family interventions allowing the children to experiment and handle
485 new food. Children helping has been shown to increase their willingness to try new
486 food (Nicklas et al., 2001) increasing variety in food choice. These suggestions add to
487 the work of Short, Caraher, Lang and Halkier (Short, 2006; Caraher & Lang, 1999;
488 Halkier, 2009) who advocate the importance of home-cooking. Alternatively, or
489 concurrently, hospitality and food industries should be encouraged to continue
490 product reformulations of convenience foods to make them healthier.

491 An important strength of this study was that it employed qualitative interviews to
492 directly assess consumer perceptions about their definitions of CFS and their barriers
493 and facilitators to cooking with basic ingredients. A few limitations deserve
494 consideration. Firstly, despite our efforts to recruit a range of education levels, our
495 sample where highly educated which may limit the transferability of our findings to
496 those with lower education. However, Daniels et al. (2015) found no difference in
497 consumption of convenience products between different levels of education. It would
498 be interesting to repeat this study in those with a lower level of education to identify
499 additional barriers and facilitators. Furthermore, the participants volunteered without
500 any incentives for the study thus the majority of our participants indicating a level of
501 interest in food and/or cooking, although a number of participants noted that they
502 actually had no interest in cooking. Although a wide range of participants from
503 varying backgrounds were included in this study, it is worth noting that these results
504 need to be considered within the cultural context of the UK and Ireland. Participants
505 also self-rated their cooking abilities so caution must be taken considering over-
506 inflations and socially desirable responses. This was addressed, with reassurance to
507 the participants that all answers were valid and that the study was about the
508 participants' personal understandings and barriers and facilitators. Further, due to the
509 nature of the study design and the sample size, direct comparisons between age,
510 gender and abilities is not applicable, a survey of 1000 individuals on the IOI was
511 conducted as a follow up (McGowan, Pot, Stephen, Spence, Raats, Lavelle et al.,
512 *Under Review*).

513 **Conclusions**

514 Our findings contribute to a greater understanding of how individuals define
515 cooking from 'scratch', and barriers and facilitators to cooking a meal with basic or

516 raw ingredients. Interventions should focus on practical sessions to increase self-
517 efficacy in cooking skills; highlight the importance of planning ahead and teach
518 methods such as batch cooking with basic ingredients and freezing. More research is
519 needed to explore these parameters in other diverse populations to fully understand
520 potential further barriers, any additional interpretations of cooking from ‘scratch’ and
521 to implement these strategies within interventions to evaluate their effectiveness in
522 increasing cooking with basic ingredients and in turn improving dietary quality.

523 **Competing interests**

524 The authors declare they have no competing interests.

525 **Authors’ contributions**

526 MD, MS, LH, MR, MC, AM and EM were involved in the conception of the research
527 and funding acquisition; LM and FL drafted the interview schedule and conducted the
528 research; FL, LM, MS and MD performed the analysis and interpreted the data; FL
529 and LM drafted the manuscript and MD and MS edited. All authors read and
530 approved the final manuscript, and agree to be accountable for all aspects of the work.

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