

1 **Title: Could eggs help increase dietary protein intake in older adults? – Exploring reasons for**
2 **the consumption and non-consumption of eggs in people over 55 years old**

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14 **Keywords:** eggs, dietary protein, older adults, focus groups

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18 **ABSTRACT**

19 Compared to other protein-rich foods, eggs are of soft texture, easy to cook, and low cost, and may
20 be useful in increasing protein intakes in older adults. Focus groups and interviews were used to
21 explore the reasons for consuming and not consuming eggs specific to older adults. Forty-two
22 individuals (20 males, 22 females, aged 56-96 years) took part in one of eight focus groups or two
23 individual interviews. Thematic analyses revealed 69 different reasons for eating or not eating eggs
24 in this population. Reasons were related to: hedonics, properties of the food, preparation style,
25 convenience, physical environment, variety, physical health/abilities, nutrition and health
26 knowledge, food safety, social environment, morality, emotion, and habit. Many reasons were
27 found for eating or not eating eggs, and some of these reasons are likely to be specific to older
28 adults and eggs combined, including texture and sensory/eating abilities, convenience and physical
29 abilities.

30

31 **Keywords:** dietary protein; eggs; older people; qualitative; thematic analysis

32 INTRODUCTION

33 Dietary protein intake has been related to many health outcomes that are likely to affect the older
34 population ⁽¹⁻³⁾. Low protein intakes are associated with the loss of skeletal muscle mass, strength
35 and functional abilities, higher risk of incident frailty, falls and fractures, decreased bone mineral
36 density and bone mass, and recovery from injury ⁽⁴⁻¹⁴⁾. The prevalence of protein specific
37 undernutrition in community dwelling older adults ranges from 1-24% if based on the Estimated
38 Average Requirement of 0.66g of protein per kg of body weight ⁽¹⁵⁻¹⁷⁾, but it can be as high as 77%
39 when higher recommendations are used ⁽¹⁸⁾. It has been suggested that dietary protein requirements
40 for older adults may be higher than the current recommendations for all adults, and that many older
41 adults could benefit from increasing dietary protein intakes ⁽²⁾.

42
43 There are a number of reasons why older people tend to eat less food or different foods than
44 younger adults ^(19; 20). Sensory impairment has been associated with the quality and quantity of food
45 intake in older adults ⁽²¹⁾. Physical abilities and frailty can affect eating behaviour ⁽²²⁾, and the
46 consumption of high protein foods specifically ⁽²³⁾. Difficulties with food preparation, and/or food
47 purchasing have been found, often as a result of the perceived inconvenience, high perishability and
48 low value for money of many protein-rich foods ⁽²⁴⁾, as have difficulties with eating itself ⁽²³⁻²⁶⁾.
49 Eating capabilities, e.g. biting, chewing, or swallowing, are often compromised by oral health,
50 denture status, and salivary function, and can affect food choice and nutritional status ^(23; 24; 27). For
51 certain protein-rich foods such as meat, cooking, biting and chewing can be particularly difficult,
52 resulting in lower consumption and a lower protein intakes.

53
54 Compared to other protein-rich foods, eggs are easy to cook, of long shelf-life and low cost ^(28; 29).
55 Eggs are a nutrient dense, high quality source of protein ^(27; 30), and are of soft texture and so easy to
56 eat. Some difficulties may remain, e.g. in peeling shells, but eggs, may offer a good solution to
57 many of the barriers to protein consumption in older individuals. However, the UK National Diet
58 and Nutrition Survey (NDNS) data show that current intake of eggs and egg dishes in older adults is
59 only 2% of daily total energy intake, and only 3% of average daily protein intake ⁽³¹⁾. A good
60 understanding of the factors affecting egg consumption specific to older adults could help in a food-
61 based approach to improve or maintain protein intakes in this population group.

62
63 Previous studies have explored determinants for eating in general in older adults ^(22; 32; 33), and for
64 eating protein-rich foods specifically ^(23; 24). Moreover, the determinants of egg intake have been
65 studied in younger adults ⁽³⁴⁻³⁶⁾. This study aimed to explore the reasons for consuming and not
66 consuming eggs in the older population. Moreover, as a first study in this area, the work aimed to

67 gain all possible reasons for consuming and not consuming eggs from the population group
68 themselves.

69

70 **METHODS**

71 The study was conducted using focus groups and interviews to allow the elicitation of reasons for
72 eating or not eating eggs from groups and individuals without constraining ideas and responses.
73 Rather than using determinants for food choice from the literature and apply them to egg intake in
74 older adults, a more inductive approach was used to understand why people in this target age group
75 eat or do not eat eggs. Food intake is not just about the physical need for energy and nutrients, but
76 can have a complex role in a person's life ^(37; 38). Qualitative research is especially suited for
77 exploring why people behave in a certain way ⁽³⁸⁾. The study was granted ethical approval by the
78 Research Ethics Committee of Bournemouth University, UK, prior to commencement, and was run
79 in accordance with the Ethical Guidelines of the British Psychological Society.

80

81 *Participants*

82 People were included if they were: able to give consent; not allergic to dairy products, nuts, eggs,
83 meat products or seafood; did not currently suffer from any serious condition which they felt
84 influenced their eating (including an eating disorder); had not been undergoing chemotherapy or
85 radiotherapy in the last 6 months; and had choice over their food intake. With an interest in both
86 prevention and treatment, recruitment focused on British adults aged 55 years and over.

87

88 Recruitment focussed on individuals independently living in their own homes. Additionally, one
89 focus group was planned with participants living in sheltered housing and one focus group in a
90 residential (non-nursing) care home (provided inclusion criteria were met) to increase the diversity
91 of the population sample and the diversity of reasons for consumption/non-consumption considered.
92 Participants living in sheltered housing live independently and in the community, and are supported
93 by 24hr wardens and greater community support. Residents of the care home did not prepare their
94 own food, but alternatives or additions to any meal (including the use of eggs) were always
95 possible. Independently-living participants were recruited from the local community by contacting
96 volunteers from previous studies, organisations that run group meetings with people in our target
97 population, and by word of mouth. Sheltered housing and care home residents were recruited via
98 sheltered housing and care home managers. Participants were deliberately not informed that the
99 project was about protein or eggs, nor whether these foods were thought to be good or harmful for
100 them.

101

102 *Procedure*

103 Focus groups were designed to be mixed, or include exclusively males, females, people who work
104 (more than 20 hours per week), and people who do not work. Gender and working habits are known
105 to impact on food choice^(32; 39-42) and it was considered that discussion exclusively among these
106 groups may reveal reasons for consumption / non-consumption that would otherwise remain hidden
107⁽⁴³⁾. Frailty levels were also recorded (based on the criteria by Fried et al.⁽⁴⁴⁾) prior to study
108 inclusion to ensure we included people who were frail and people who were not frail.

109
110 Focus groups and interviews with independently-living older adults were held at Bournemouth
111 University, UK; those with sheltered housing and care home residents were held in communal
112 rooms where the participants lived. One or two researchers were present (a moderator (EvdH) and
113 with the bigger groups also an assistant (KMA)).

114
115 Focus groups and interviews were semi structured, and each lasted approximately one hour. Each
116 meeting started with a short introduction to the researcher(s), an explanation of the study procedure,
117 and an explanation of the audio recording, anonymity and confidentiality. Participants were then
118 asked to introduce themselves and talk a little about their last memorable meal to encourage
119 familiarity and engagement. Once each individual had spoken, participants were asked, as a group,
120 to discuss whether they thought their age or their daily routine (e.g. working or not working, or how
121 active they are) influenced their eating. Participants were then shown twelve pictures of eggs
122 prepared in different ways: hard and soft boiled eggs, fried eggs, scrambled eggs, omelette,
123 stuffed/devilled egg, pickled eggs, scotch eggs, quiche, eggnog, crème caramel and egg custard
124 tarts. Participants were asked what they thought about eggs, why they do or do not eat eggs, and/or
125 of their reasons for eating or not eating eggs, for eating or not eating eggs in a certain way, or in a
126 certain situation. Participants were then shown another set of six pictures of protein-rich foods:
127 eggs, meat, fish/seafood, dairy/cheese, nuts, and pulses, and were asked how any reasons for
128 consumption may differ between eggs and other protein-rich foods. The discussion ended by
129 discussing whether participants would be willing to replace any of the other protein-rich foods with
130 egg, or any other foods, and whether they would consider eating more eggs. All discussions were
131 audio recorded on two digital recorders. At the end of the session, each participant had his/her
132 height and weight measured (or self-reported this where they did not feel comfortable being
133 measured), and all participants filled out a short questionnaire on demographic information and
134 lifestyle factors, requesting: marital status, living situation, education level, nationality, (previous)
135 occupation level, whether they are vegetarian or vegan, whether they have (partial or full) dentures,
136 whether they have physical disabilities that hinder food purchasing, preparation, or consumption,

137 and whether they receive help with food shopping or preparation, have food delivered, or eat away
138 from their home. Focus groups were conducted until no new reasons emerged, indicating that data
139 saturation was reached.

140

141 *Data analyses*

142 Audio-recordings were transcribed by the moderator of all focus groups and interviews (EvdH),
143 based on the principles of thematic analysis by Braun and Clarke ⁽⁴⁵⁾. Reasons for consumption/non-
144 consumption were generated by two researchers (EvdH, KMA) independently, and interpretations
145 of the data were subsequently discussed and agreed upon by both researchers. This exploratory
146 study did not test a hypothesis, and there were no a priori reasons set out before the data were
147 analysed, but both researchers involved in analysis have background knowledge in eating behaviour
148 which may have affected the analyses. We sought to identify as many reasons for egg
149 consumption/non-consumption as possible, but did not analyse our data further, e.g. by population
150 demographics such as gender or lifestyle. This was not the purpose of our study, and we considered
151 our sample to be too small to represent each demographic group fairly ^(43; 45). Analyses focussed
152 exclusively on references to eggs; comments about eating behaviour in general were not considered.
153 Labels and definitions were developed, altered and refined, as guided by the phases of thematic
154 analysis described in Braun and Clarke ⁽⁴⁵⁾. Quotes were coded to the sub-themes using the
155 qualitative data analysis software NVivo (QSR International Pty Ltd. Version 10, 2012).

156

157 **RESULTS**

158 *Participants*

159 In total, 42 individuals took part in one of eight focus groups, or one of two individual interviews.
160 There were between three to seven people in each focus group. Focus groups included one females
161 only group, one males only group, one group with only individuals who worked, three groups with
162 only individuals who did not work, and two mixed groups. One focus group was conducted at the
163 sheltered housing accommodation with five participants; one focus group was conducted at the
164 residential home with four participants. Participant characteristics are given in Table 1.

165

166 Table 1 about here

167

168 *Reasons for eating or not eating eggs*

169 A total of 69 different reasons for eating or not eating eggs were identified. For the purposes of
170 presentation, these reasons are grouped into 13 themes: Hedonics, Properties of the food,
171 Preparation style, Convenience, Physical environment, Variety, Physical health/abilities, Nutrition

172 and health knowledge, Food safety, Social environment, Morality, Emotion, Habit. Themes and
173 their contributing reasons, their definitions, and example quotes can be found in Tables 2 and 3.
174 Many reasons however, were closely related, and there is some overlap in their classification into
175 themes. All reasons are described in a neutral manner, because many reasons were found to both
176 facilitate and hinder egg intake for different people.

177

178 Tables 2 and 3 about here

179

180 **DISCUSSION**

181 The aim of this study was to investigate the reasons for eating or not eating eggs in older adults; 69
182 different reasons were identified and grouped into 13 themes. Previous studies report many of the
183 above themes as determinants of food consumption in the elderly population ^(22; 32; 33; 46). Hedonic
184 reasons, properties of the food, convenience, physical environment (including cost and value for
185 money), physical health and abilities have been described as important determinants of food choice
186 in older adults, while morality, emotion, nutrition and health knowledge, social environment, and
187 habits are also reported ⁽²²⁾. Some reasons, such as the properties of the food and physical health and
188 abilities, have also been described before in relation specifically to the intake of protein-rich foods
189 in the elderly ^(23; 24; 47), and some reasons have been reported specifically in relation to the intake of
190 eggs in younger adults ⁽³⁴⁻³⁶⁾. When comparing determinants in younger and older adults, Steptoe et
191 al. also show that ethical concern (morality), familiarity (habit) and natural content were positively
192 correlated to the participants' age, while convenience and physical environment are unrelated ⁽³²⁾.

193

194 Themes that were specific to eggs and older adults include: the properties of the food (e.g. texture
195 and flavour) and convenience (e.g. culinary skills, effort and time to prepare) combined with
196 physical health/abilities (e.g. eating abilities, sensory abilities, and physical abilities). Sensory
197 analyses with older adults have previously shown that eggs were popular for their soft texture, while
198 different types of meat were characterized to have more difficult textures (tough, dry and/or stringy)
199 ⁽⁴⁷⁾. Studies indicate that older adults generally avoid hard and/or fibrous foods that can be difficult
200 to bite or chew including meat and nuts ⁽⁴⁸⁾. Older adults with difficulties specifically with chewing
201 also report avoiding chewy/stringy foods like meat ⁽⁴⁹⁾, and having a lower intake of beans and nuts
202 ⁽⁵⁰⁾, meat and meat dishes, and total protein intake ^(51; 52). Older people with impaired dental status
203 and chewing difficulties also typically consume softer foods more often (including chicken, fish,
204 grains, and dairy products) ⁽⁵³⁾. Moreover, for foods that are difficult to chew like meat, the chewing
205 ability of older adults ⁽⁵⁴⁾ as well as the processing method (minced beef vs beef steak) ⁽⁵⁵⁾ can affect

206 the postprandial digestion and absorption rates of the protein, meaning that even when people do eat
207 meat they may not benefit optimally from the protein provided.

208

209 Cooking style can impact heavily on the sensory properties of the food ^(56; 57). Many protein-rich
210 foods require cooking, and there are some indications that lower cooking abilities and skills may be
211 related to lower protein intake ⁽²⁵⁾, and specifically meat consumption ⁽⁵⁸⁾. One study showed that
212 Greek older people did not eat significantly less meat but overcame chewing difficulties by
213 preparing difficult to eat foods in a different way ⁽⁵³⁾. Next to culinary skills, physical abilities affect
214 the ability to cook, e.g. being able to stand for long enough to prepare a meal, and have the
215 functional ability to prepare different foods. Previous work shows that significantly fewer women
216 with rheumatoid arthritis cook their own meals compared to other women without or with milder
217 rheumatoid arthritis ⁽⁵⁹⁾. For eggs, preparation style will have a strong influence on texture and ease
218 or difficulty of consumption (e.g. scotch eggs might be more difficult, while most other
219 preparations are soft and easy to bite, chew and swallow). Eggs are also notably much easier to
220 prepare than many other protein-rich foods ⁽²⁸⁾, and ease of preparation in terms of effort and time
221 as well as skills and abilities was specifically mentioned by some of our participants, e.g. *“It’s very*
222 *very good, if you, you come in and you’re hungry. They’re very quick, that’s why I eat them*
223 *mostly”*. Additionally, different preparation styles and/or seasoning may affect the ability to taste or
224 smell the dish. Studies have shown that adding sauces or seasonings can increase protein intake
225 within a meal ⁽⁶⁰⁻⁶²⁾, and this could make a meal easier to eat and/or more appealing, but adding
226 seasoning and preparing sauces can require some physical abilities and cooking skills.

227

228 Reasons for eating / not eating eggs that may be specific to this particular older age group were also
229 found. These relate to perceived medical factors like the cholesterol content of eggs, and to
230 concerns over food safety. It has been suggested that the misconception that eggs are harmful for
231 blood cholesterol, and can increase risk of coronary heart diseases (CHD), persists in the minds of
232 many people ⁽⁶³⁾. From the 1960s, research studies suggested that cholesterol in foods was
233 associated with increased risk of CHD, and therefore should be limited ⁽⁶⁴⁾. Eggs are one of the
234 highest sources of dietary cholesterol in our diets, so recommendations were given to restrict their
235 consumption to three to four per week ^(65; 66). Even though recommendations were changed in 2007
236 to remove all restrictions, the custom of restricting egg intake might still be strong in people older
237 than 55 years old who were recommended to do this for most of their lives. Similarly in relation to
238 food safety and food scares, one of the biggest UK salmonella food scares was in the late 1980s
239 when Junior Health Minister Edwina Currie commented publicly on a high risk of salmonella food
240 poisoning from British eggs. Although the risk of salmonella in UK eggs is now considered low or

241 very low ⁽⁶⁷⁾, at that time, our participants may have developed habits that adhered to this
242 Government advice.

243

244 Several reasons also emerged that relate specifically to eggs, and may be more influential in the
245 older age group than in those younger. The theme morality includes issues of food origin and
246 animal welfare, and our participants seemed very aware of topical societal concerns like the carbon
247 footprint of different foods. Eggs have a relatively low greenhouse gas emission (GHGE), and could
248 offer a protein-rich alternative to meat and fish which have a larger GHG footprint ⁽⁶⁸⁾. Previous
249 research also suggests ethical concerns in elderly people, although study results can be mixed ^(22; 32),
250 and it has been suggested that younger and older adults do not show differences in types of eggs
251 consumed ⁽⁶⁹⁾. This possibly differs between cultures, generations, education levels and personal
252 interests, and depends on the participant sample. The theme labelled emotion includes ‘status’.
253 Many participants were positive about eggs, but they seem to consider eggs a food you would eat on
254 your own or with your family; several participants mentioned that they would not serve eggs when
255 they give a dinner party. When asked why, the participants mentioned: “..it’s like whether you want
256 to try and impress or whether you just want to give somebody a healthy meal. Just something that
257 you’d rather make an effort out of”. This generation may think of eggs as an everyday type of food
258 that is not suitable to serve to others. Eggs have previously been reported as a food more commonly
259 consumed in households with lower incomes ^(35; 70).

260

261 Strengths of the study include that participants were recruited from different subgroups within the
262 target age group, and the combined the use of focus groups and individual interviews to gain a more
263 comprehensive understanding of relevant issues ^(71; 72). Because the target age group is
264 heterogeneous in lifestyle, physical abilities and eating behaviour, the participants were recruited to
265 be representative of different types of older adults. Individuals or population subgroups were not
266 compared, due to low numbers and possible bias in each population group ^(43; 45). Larger scale
267 studies that allow this investigation would clearly be of interest. The study is limited by the small
268 sample size, and due to the nature of this study, the research outcomes are contextual; the
269 conclusions are based on the ideas and experiences of 42 participants who live in or close to
270 Bournemouth, UK. Some topics discussed may be particularly relevant to a UK audience, but the
271 identified resultant themes are, however, we believed transferable to other samples of participants in
272 the target age group, and therefore generalizable to a larger sample. The study is restricted also to
273 the identification of reasons for consuming/non-consuming eggs, with no attempt to order these,
274 e.g. in terms of importance. We considered this inappropriate in a small study conducted with an
275 opportunity sample ^(43; 45), but further research is needed to look at the relative importance of all the

276 reasons. Identification of the important determinants of egg consumption could then inform
277 strategies to increase dietary protein intake and improve protein status in this population.

278

279 To conclude, this study identifies many reasons for eating or not eating eggs in a sample of British
280 adults over the age of 55 years. Many of these reasons relate to food intake in general, or to other
281 protein-rich foods, but some reasons may be specific to eggs and the older population. Identification
282 of those reasons of direct impact on egg consumption could help in designing specific strategies to
283 increase egg intake and aid a food-based approach to improve or maintain protein intakes in the UK
284 older population.

285

286 **TAKE AWAY POINTS**

- 287 • Many different reasons were provided for eating or not eating eggs.
- 288 • Reasons that are specific to eggs in older adults are related to the properties of the food and
289 convenience, combined with those associated with physical health and abilities.
- 290 • Reasons based on medical factors, food safety and food scares, ethical concerns and societal
291 worries may also be more influential in our older group than in those younger.
- 292 • Further work should identify the reasons of greatest impact on egg intakes, on a population
293 wide basis, to inform the development of food-based interventions.

294

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302

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461 **Table 1** Participant characteristics (N = 42). The values provided are number of responses and
 462 percentage of all responses in the specific category.
 463

Characteristic		Value
Age in years (Mean \pm SD)		67 \pm 9
Gender	Male	20 (48%)
	Female	22 (52%)
Working	Working (>20h)	11 (26%)
	Not working (or <20h)	31 (74%)
Frailty*	Frail	8 (19%)
	Not frail	33 (79%)
BMI in kg/m ² (Mean \pm SD)		29 \pm 5
Marital status*	Married	21 (50%)
	Used to be married	14 (33%)
	Never married	6 (14%)
Living status*	Alone	15 (36%)
	With others	26 (62%)
Education in years (Mean \pm SD)		15 \pm 3
Most recent employment level*	Unemployed	0 (0%)
	Manual worker	5 (12%)
	Non-manual worker	11 (26%)
	Professional/Management	25 (60%)
Denture wearing*	No dentures	34 (81%)
	Partial dentures	5 (12%)
	Full dentures	2 (5%)

464
 465 * Numbers do not add up to n=42 because one person did not fill out the questionnaire and one
 466 person left some questions open.

467 Table 2 Themes and reasons with definitions.

468

Theme	Reason	Definition
Hedonics	Liking	Liking or disliking for eggs.
	Appeal	How appealing eggs are, liking or disliking the idea of eating a certain type of egg, usually without actually having eaten it.
Properties of the food	Appearance	The appearance of eggs (e.g. the colour, shape, or just general way they look).
	Complete	Eggs being described as a meal in itself or a 'complete package'.
	Flavour	The taste and/or flavour of eggs.
	Freshness	The freshness of eggs, the time since eggs have been obtained or the extent to which it is preserved.
	Moreish	When a foods are referred to as being moreish, and people can easily eat a large amount of them, or struggle to stop from eating them once they started.
	Odour	The odour/smell of eggs.
	Quality	The quality of eggs, the extent to which eggs are referred to as being e.g. better/worse, nicer, decent or proper.
	Satiating effect	The extent to which eggs provide a satiating effect, or make you feel full.
	Size	The size of eggs.
Texture	The texture or mouth-feel of eggs.	
Preparation style	Combination	When eggs are eaten or not eaten because it is served/eaten in combination with other foods which are liked or not liked, or if it is part of a dish or recipe that is eaten because people enjoy the whole dish, not because

		they want to eat each specific food.
	Processing	The amount of processing that went into eggs before they are eaten (when served by others) or prepared at home.
Convenience	Convenience	The general convenience of storing, preparing, or eating eggs.
	Culinary skills	The ability or inability to cook or prepare a certain food.
	Effort to prepare	The effort it takes to prepare or cook a certain food.
	Planning	The extent to which preparing eggs requires a certain amount of planning.
	Practicalities	When food choice or eating behaviour is determined by practical reasons that are not specified.
	Time to prepare	The time it takes to prepare or cook a certain food.
Physical environment	Availability	The extent to how easily the food is accessible (this could be whether it is accessible in shops, or in the house, or within reach, or served to you).
	Cost	The price of eggs, or relative cost compared to other foods.
	Experience	The whole experience or eating occasion itself influencing whether someone wants to eat a certain food or not.
	Financial situation	The influence of a person's financial situation on their food choice or eating behaviour.
	Standby	Eggs being handy to have ready in case you need something to eat that was not planned.
	Value for money	The cost of eggs in relation to the quality.
Variety	Replacing foods	Eating eggs as an alternative for another food, or not eating it because you eat an alternative food.
	Variety	Eggs that are eaten or not eaten specifically to change the variety in the overall diet, from a hedonic point of

view.

Versatility The extent to which eggs can be eaten in different ways.

Wide variety of choice Eating or not eating eggs because of the variety of choice available.

Physical health/abilities	Appetite	Changes in appetite, or appetite being different than it has been before.
	Digestibility	Any positive or negative influences digestion has on food choice or eating behaviour.
	Eating abilities	Physical abilities that are specific to eating, the ability or inability to eat eggs, and effort it takes to eat eggs (this includes chewing, biting, and swallowing difficulties).
	Genes	Genetic reasons that influence food choice or eating behaviour.
	Medical factors	Any medical reason that influences a person's food choice or eating behaviour.
	Physical abilities	Physical abilities or disabilities which influence food choice or eating behaviour (e.g. mobility).
	Sensory abilities	Abilities or disabilities of the senses (taste, smell, sight, hearing, and touch) that influence food choice or eating behaviour (including references to sensory deterioration with aging).

Nutrition and health knowledge	Balanced diet	Eggs that are eaten or not eaten specifically to balance out different foods as part of an overall diet, from a health and knowledge point of view.
	Health beliefs	Beliefs about eggs that include any positive or negative value (e.g. good, bad or healthy, or the food being nutritious or beneficial, even if it is unclear whether this is in terms of energy (kcal) or nutrients or something else).
	Nutritional knowledge	Beliefs about eggs including nutritional knowledge without giving a value of e.g. good, bad or healthy.
	Recommendations	Recommendations, advice, or reports concerning nutrition and health that can be positive or negative, and are

		provided by sources like e.g. media or health professionals. (Excluding negative media reports about food scares, e.g. the Salmonella scare.)
	Restraint	Actively avoiding eggs, for different reasons including losing weight or health reasons.
	Sufficiency	A person's belief of eating enough eggs without giving any other reason of why they believe this specific amount is sufficient.
	Value	The belief that eggs are beneficial (can be in terms of calories, or nutrients, or in general).
Food safety	Food safety	Whether eggs are safe or unsafe to eat, or references to a way of preparation that makes them more or less safe to eat.
	Food scares	Bacteria related food scares, that are known by most of the general public.
	Spoilage and wastage	Eggs eaten because they are almost going off, or with other foods to prevent them from going off, or eating eggs to prevent having to throw them away, or combined with other foods to prevent having to throw those foods away.
Social environment	Culture	Cultural habits or traditions concerning a certain food.
	Other people present	The social influence of anyone present at an eating occasion (e.g. people living in the same house, or guests). It could be solely their presence influences food choice or eating behaviour, e.g. different foods served to guests than in a family situation, or that the preferences of the other people that are taken into consideration.
	Politeness	When food choice or eating behaviour are affected by wanting to be polite, or avoiding to be impolite.
Morality	Animal welfare	Any type of animal welfare that is related to how eggs are produced, and how the animals are kept.
	Environmental issues	Environmental issues (e.g. pollution) influencing people's food choice or eating behaviour.
	Food origins	The origin of the food, where the food comes from.

	Moral values	Any moral issues mentioned affecting food choice or eating behaviour.
Emotion	Comfort	The comfort a food can offer, in terms of not providing negative feelings (e.g. guilt) or providing positive feelings (e.g. cheering up).
	Masculinity	Beliefs about gender specific eating behaviour.
	Status	The status eating or serving a certain food gives you (e.g. trying to impress people at a dinner party).
	Treat	Eating eggs as a treat, to treat yourself or others.
Habit	Familiarity	The extent to how familiar a person is with a certain food.
	Habit	Habitual behaviour concerning eggs.
	Previous experience	A prior experience concerning eggs, which is either a one off experience, something that happened in a set period of time, or something that never happened (excluding quotes about egg types they have never eaten, as this would be coded as familiarity).
	Substantial meal	Eggs referred to as a snack food or a meal, or in terms of a lighter or a more substantial meal.
	Staple food	Habitually buying eggs on a regular basis.
	Suitability	Whether a eggs are considered suitable for a certain situation or combined with certain other foods, if it is eaten in a way that is suitable.
	Trying new things	Willingness to try new egg dishes.
	Trend	General eating behaviour from a specific period of time, or a eggs being eaten by many people in a specific period of time.
	Upbringing	Eating behaviour and habits as a result of upbringing.

Themes	Example Quotes
1. Hedonics	<p><i>"I like a nice fried egg" (FG 7)</i></p> <p><i>"Pickled eggs, don't appeal to me at all. I can't say I've ever eaten them." (FG 3)</i></p>
2. Properties of the food	<p><i>"I think eggs have an appearance going for them.." (FG 6)</i></p> <p><i>"It's all up in a little parcel and everything's there." (FG 5)</i></p> <p><i>"..ducks eggs I do from time to time. Because they're bigger, and they are much more rich in taste." (I 2)</i></p> <p><i>"I do like fresh egg" (FG 3)</i></p> <p><i>"And I'm also conscious of the fact that, if I open up my lunchbox in the office, and I got egg sandwiches, then that office is going to smell, in an unpleasant sort of way." (FG 6)</i></p> <p><i>".. you get a good texture with the scotch egg" (I 1)</i></p>
3. Preparation style	<p><i>"You wouldn't have an egg with a gin and tonic, would you? Where you can have a hand full of nuts." (FG 4)</i></p> <p><i>"And partly the reason why I always have eggs, is cause I like baking" (FG 2)</i></p> <p><i>"I won't go for the devilled egg, cause I don't like sort of things where I don't know what the other ingredients are apart from the egg." (FG 4)</i></p>
4. Convenience	<p><i>"I have them [eggs] because they are very convenient, they are very easy to prepare." (FG 1)</i></p> <p><i>"..poached I don't like because I make a complete pig's ear of poaching them. I can't do it. I do enjoy a poached egg, but I won't prepare it for myself.." (FG 1)</i></p> <p><i>"..an egg is very quick and easy to prepare.." (FG 4)</i></p> <p><i>"It's very very good, if you, you come in, and you're hungry. They're very quick. That's why I eat them mostly." (FG 1)</i></p>
5. Physical environment	<p><i>"I like a fried egg, with a cooked breakfast on holiday." (FG 7)</i></p> <p><i>Actually that is another thing that's good about eggs. How cheap they are. You can make a meal cheaply with eggs." (FG 1)</i></p> <p><i>"Also, it's a good standby, eggs. If you get peckish at night, an egg sandwich, eggs on toast. It's a good standby meal." (FG 7)</i></p> <p><i>"I think it's worth paying extra for the free range, the flavour is far superior." (FG 6)</i></p>
6. Variety	<p><i>"I don't tend to eat them for breakfast cause I have cereals.." (FG 2)</i></p> <p><i>"They're very versatile aren't they? You can use them in so many different ways." (FG 4)</i></p> <p><i>"But just mentioning the different eggs in the supermarket so you can get quail eggs now, you can get duck eggs." (FG 6)</i></p>
7. Physical	<p><i>".. [we] cut down the number [of eggs] we ate. Because of the concerns of what it might do to your constipation.." (FG 4)</i></p>

health/abilities	<p><i>"There's more to chew in meat than, that's where eggs and fish and that are much easier to eat." (FG 1)</i></p> <p><i>"Because we have a family history of not tolerating egg very well." (I 1)</i></p> <p><i>"And they do repeatedly put them [eggs] on a high shelf. So you're frightened they're gonna break when you try to reach them." (FG 1)</i></p> <p><i>"I mean I tried a boiled egg the other day and I just.. I think your taste changes over the years." (FG 7)</i></p>
8. Nutrition and health knowledge	<p><i>"I wouldn't go for a fried egg, because I don't think that's healthy." (FG 4)</i></p> <p><i>"..they're [eggs are] protein and that's fine, you know. It's not a meat meal, but at least I've had some protein.." (FG 2)</i></p> <p><i>"I started to include more eggs than before, because actually now the research on egg fat has changed and you can have lots of eggs. .. You can have eggs every day."(FG 7)</i></p> <p><i>".. I have to watch the calorie content of what I eat. That would limit how many eggs." (FG 5)</i></p> <p><i>"I think I eat enough eggs in the week to be sufficient." (FG 2)</i></p>
9. Food safety	<p><i>"My eggs sit on the side, I don't keep 'em in the fridge and I never look at the dates, never have. And I've never been ill from an egg, so. It's never worried me" (FG 2)</i></p> <p><i>"And I also had hard boiled eggs, about a week ago. Because I needed to use them up. Because they had got to their sell by date. So I hard boiled them." (FG 1)</i></p>
10. Social environment	<p><i>"It's a north country thing, pickled eggs." (FG 7)</i></p> <p><i>"Well, I like any eggs, but me partner likes boiled eggs.." (FG 6)</i></p> <p><i>"So I couldn't tell her that I didn't like it [omelette], cause I felt that wasn't the right thing to do." (FG 2)</i></p>
11. Morality	<p><i>"I'd rather know where they came from rather than how cheap they are." (FG 4)</i></p> <p><i>I buy the free range eggs because of yeah, sympathies to animal welfare and all that sort of thing." (FG 6)</i></p> <p><i>".. if there were more vegetarians around there would be a more even dispersal of the world's resources and there wouldn't be so many starving people."(FG 6)</i></p>
12. Emotion	<p><i>"So I think there's a lot of comfort in an egg, because I feel very guilty about eating things that I shouldn't eat. And with an egg, I can eat it, so I have a lot of eggs." (FG 5)</i></p> <p><i>"An egg is dead easy, anybody can cook an egg. It doesn't need a lot of education. Perhaps that's the appeal to men, I don't know." (FG 6)</i></p> <p><i>"I think if you're having people round, eggs probably wouldn't be a first choice." (FG 4)"..it's like whether you want to try and impress or whether you just want to give somebody a healthy meal. Just something that you'd rather make an effort out of." (FG 4)</i></p>

13. Habit

“I start everyday normally with eggs.” (FG 3)

“It would be a snack food, egg, rather than a substantive meal.” (FG 2)

“And I’ve never been ill from an egg..” (FG 2)

“Although if you have it the wrong time of day, if you had a boiled egg for tea for example whereas we normally have a proper meal then I would feel short changed. If you had it for breakfast or for lunch maybe, then that’s ok.” (FG 5)

“To me they’re part of the staple food basket each week.” (FG 2)

“Perhaps I need to experiment more because now we live in an age of choice where you can go into a supermarket and buy 300 different types of egg.” (FG 6)

