

1 **TITLE**

2 Men's views and experiences of infant feeding: A qualitative systematic review

3

4 **ABSTRACT**

5 While the advantages of breastfeeding are well documented, rates for breastfeeding often fall
6 short of international and national targets. Increasing attention has been paid to the role of
7 men in infant feeding but a lot of the research about men has been elicited from women,
8 rather than from men themselves. To explore these issues further, a systematic review of the
9 qualitative research on infant feeding was carried out, focusing specifically on men's own
10 views and experiences. Evidence was identified by searching electronic databases (CINAL,
11 Cochrane, PubMed and Scopus), manually searching citations, and by searching the grey
12 literature. Studies were included in the review if they discussed men's views and experiences
13 of infant feeding and if they reported primary qualitative data. A total of 20 research papers
14 were included in the review and each study was summarised and then analysed thematically
15 to produce a synthesis. Five major analytical themes were identified: men's knowledge of
16 infant feeding; men's perceptions of their role in infant feeding; positive views on
17 breastfeeding; negative views on breastfeeding; and, men's experiences of health promotion
18 and support. The review concludes by highlighting that while men can play an important role
19 in supporting women, they do not have a significant role in infant feeding decisions.

20

21 **INTRODUCTION**

22 In May 2016, the World Health Organisation (World Health Organisation, 2016a) endorsed
23 global targets for improving infant, young child and maternal nutrition including the aim to
24 'increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%' in order
25 'to achieve optimal growth, development and health' (World Health Organisation 2016b).
26 The beneficial short and long-term health effects of breastfeeding for both mother and baby,

27 wherever they live, are well documented (Victora *et al.* 2016; World Health Organisation
28 2016c). However, despite World Health Organisation, United Nations, and national policies
29 for the promotion of breastfeeding over the past 25 years, the rate of exclusive breastfeeding
30 to six months in low and middle-income countries was 37% in 2013 (Rollins *et al.* 2016:
31 491). For high-income countries Victora *et al.* (2016) suggest that the rate of breastfeeding to
32 12 months is 20%, noting the range between Norway (35%), the USA (27%), Sweden (16%)
33 and the UK (<1%). A UNICEF-UK study reported that 75% of babies in the UK receive no
34 breastmilk at all (Renfrew *et al.* 2012: 17). To summarise, in low- and middle-income
35 countries poor women breastfeed for longer than rich women but in high-income countries,
36 the situation is reversed (Victora *et al.* 2016).

37

38 Aspects that influence breastfeeding behaviours, decisions and practices vary over time and
39 include historical, cultural and socio-economic factors (Britton, *et al.* 2007; Rollins *et al.*
40 2016). It has been widely reported that the attitudes of partners and female relatives are likely
41 to affect infant feeding decisions (Bar-Yam & Darby 1997; Britton *et al.* 2007; Earle 2002;
42 Gibson-Davis & Brooks-Gunn 2007; Morrison *et al.* 2008; Rollins *et al.* 2016; Sherriff *et al.*
43 2014). Moreover, the father of the baby has been shown to be particularly influential
44 especially with respect to breastfeeding intention, engagement and continuance (Giugliani *et*
45 *al.* 1994; Bar-Yam & Darby 1997; Earle, 2000; Freed *et al.* 1992; Mueffelmann *et al.* 2015;
46 Shaker *et al.* 2004; Sherriff *et al.* 2009; Hoffman 2011; Sherriff *et al.* 2014). However, many
47 studies are quantitative in nature and measure a particular intervention at a certain time and
48 with a specific population (for example, see Molzan Turan *et al.* 2001 or Rempel &
49 Rempel,2004). Fewer studies adopt qualitative methods that focus on views and experiences
50 of infant feeding more generally and of those that do, the majority draw on the views and
51 experiences of women rather than involving men directly themselves. The paucity of data on

52 fathers' involvement in breastfeeding was highlighted by Roll and Cheater's (2016) literature
53 review of the factors that influence expectant parents' views on infant feeding. They found
54 only one study that briefly mentioned fathers and as a result their findings 'principally
55 addresses expectant mothers' views' (Roll & Cheater 2016: 148). Recent research has
56 highlighted the value of qualitative research methods in understanding infant feeding
57 (Leeming *et al.* 2017).

58

59 Given the perceived significance of fathers in infant feeding decision-making and practice, it
60 is important to investigate their role more fully. Therefore, the aim of this review was to
61 explore and summarise qualitative insights into men's views and experiences of infant
62 feeding. The findings have implications for health promotion policy and practice, including
63 the design of interventions.

64

65 **KEY MESSAGES**

- 66 • This international review identified 20 papers that reported original qualitative data on
67 men's views and experiences of infant feeding.
- 68 • Men are rarely responsible for infant feeding decisions although they play a supportive
69 role, especially in the decision to continue with breastfeeding.
- 70 • There is a need for dedicated health promotion materials aimed at men.
- 71 • In the majority of studies, infant feeding was synonymous with breastfeeding; further
72 research could explore infant feeding in its broadest sense to include formula feeding,
73 bottle feeding and mixed feeding methods.

74

75 **METHODS**

76

77 **Identification of studies**

78 A systematic review of the qualitative research on men's views and experiences of infant
79 feeding was carried out between April and August 2016 using a combination of search
80 strategies to maximise identification of relevant studies (and using the CRD (2009)
81 guidance). The aim of this review was to explore men's views and experiences of infant
82 feeding drawing on original qualitative research from data elicited only from men themselves
83 (in this context the focus was on husbands and partners including biological and non-
84 biological fathers). Following advice from a data information specialist, database searching
85 using keywords, titles and abstracts was conducted via four databases: CINAL, Cochrane,
86 PubMed and Scopus (for search terms see Table 1). The same search terms were repeated
87 across all databases. Manual searches were also carried out using the citations of the selected
88 studies to identify further papers. The grey literature was also searched using Google (first
89 100 hits) and specialist sites that might contain information on men and infant feeding (La
90 Leche League, The Breastfeeding Network, The Fatherhood Institute, National Childbirth
91 Trust and UNICEF: The Baby Friendly Initiative).

92

93 **Selection of studies**

94 Papers were selected for inclusion if they discussed men's views and experiences of infant
95 feeding and if they reported original qualitative data elicited from men. Studies were only
96 included where direct quotations from men were given (see Noyes & Lewin 2011). For
97 pragmatic reasons given limited financial and time constraints, the systematic review was
98 restricted to studies published between 1 January 2000 and 30 March 2016. Studies published
99 in languages other than English and Spanish were also excluded as they could not be
100 translated by the project team. Given the focus on original qualitative data, studies that
101 reported men's views and experiences based on data elicited from women were excluded. On
102 this basis, papers that drew on secondary data analysis and literature reviews were also
103 excluded.

104

105 The authors met on a regular basis to discuss the study. RH conducted the database searches
106 and manually searched citations. Both authors conducted the manual search of other sources.
107 RH screened paper titles and abstracts and identified papers that did not meet inclusion
108 criteria and removed duplicates; SE checked titles and abstracts independently and agreed
109 whether papers met criteria for inclusion. Eligible papers were shortlisted and both authors
110 individually assessed full-text articles separately and then met to discuss their reasoning. Any
111 discrepancies were dealt between them; there were no differences in judgement.

112

113 We identified a total of 121 records through database searching and an additional 85 were
114 identified through other sources. After removing duplicates, 176 records remained and were
115 screened using keywords, title and abstract. Following screening, 39 full-text articles were
116 read to assess for eligibility. Of the 39 articles assessed, 20 met the criteria for inclusion (see
117 figure 1).

118

119 **Quality appraisal**

120 Quality appraisal of the selected studies was conducted by both authors following the criteria
121 described by Walsh and Downe (2008), a method that is intended to be used reflexively in the
122 spirit of the qualitative research tradition. They suggest using criteria to give an indication of
123 research quality without relying on checklists, ratings or scoring. Data were extracted on the
124 following: Scope and purpose of study; study design; sampling strategy; analysis; interpretive
125 framework; issues relating to reflexivity; issues relating to ethics; the relevance and
126 transferability of the study; and, a narrative summary of the study quality (see Appendix 1-
127 Supplementary Material). None of the studies were excluded from the review on the basis of
128 the quality appraisal although it was used reflexively to provide context for data analysis and
129 as suggested by CRD (2009: 10) 'assessed at the synthesis stage'. It was clear at this stage

130 that the weakest studies were less important in analytical terms and thus were less likely to be
131 represented within the findings. In weaker studies, the quality of analysis and the quality of
132 any interpretive framework applied were particularly relevant, especially in relation to how
133 the findings were discussed and the extent to which primary data were used to confirm the
134 findings.

135

136 **Data summary and synthesis**

137 We used two main approaches in order to analyse the data: summary and thematic synthesis.
138 First, we summarised each study (see Table 2). Second, using QSR NVivo 11 for Mac, a
139 qualitative data analysis software package, we conducted an inductive thematic analysis, as
140 broadly proposed by Braun and Clarke (2006), using the method of constant comparison
141 (Lincoln and Guba 1985) to produce a synthesis of men's views and experiences of infant
142 feeding. While there are many methods that can be employed in the systematic review of
143 qualitative studies (Thomas & Harden 2008; Barnett-Page & Thomas 2009), we used the
144 findings of each paper and the primary data (quotes) contained therein to carry out the line-
145 by-line coding. SE read the selected studies three times and then analysed inductively,
146 generating 65 initial codes; we discussed these initial codes together. Using a dynamic
147 process of constant comparison, or 'going back and forth' (Lincoln & Guba 1985: 342), we
148 reviewed the codes and collapsed some of them. After completing this process, 48 codes
149 remained and we grouped them into descriptive categories. We then compared the codes and
150 categories for completeness and robustness. At this stage some of the categories were
151 collapsed and some codes were moved between categories. In the final stage of analysis, the
152 categories were grouped into five main analytical themes as described in the findings below.
153 As Thomas & Harden (2008) have argued, while the line-by-line coding and the descriptive
154 categories remain 'close' to the primary studies included in the review, the analytical themes

155 represent a stage of interpretation that goes beyond this while still remaining rooted in the
156 data.

157

158 **FINDINGS**

159 The included studies (19 papers in peer-reviewed journals and one dissertation) were based
160 on a range of qualitative methods including interviews (n13), focus groups (n7),
161 questionnaires (n2) and online surveys (n1) and provided data for 457 men. The majority of
162 studies were based in the UK (n8), six were based in the USA, two in Australia and one each
163 in Brazil, Canada, Eastern Uganda and Pakistan. The earliest paper was published in 2000 but
164 the majority were published from 2009 onwards. Two of the papers (Sherriff *et al.* 2009;
165 Sherriff & Hall 2011) reported data from the same study but reported sufficiently different
166 qualitative data to include them both. Men were recruited to the studies using a variety of
167 methods and sometimes used multiple methods due to difficulties with recruitment. Eleven
168 studies recruited participants through service providers (including ante- and post-natal,
169 gynaecology and obstetrics), six advertised at local settings and events; three studies relied on
170 social networks and snowballing and one study recruited from the general population. Eleven
171 studies were designed to recruit men only and the remainder (n9) to recruit both men and
172 women. In all but two of the studies data were gathered from men on their own, or with other
173 men (for example, in focus groups). In one study, it was clear that men were interviewed as
174 part of a couple (Hoddinott *et al.* 2012) and in another, some men participated in mixed-sex
175 group discussions (Pontes *et al.* 2009). See Table 2 and Appendix 1 for further details.

176

177 Our analysis of the 20 included papers revealed five analytical themes: men's knowledge of
178 infant feeding; men's perceptions of their role in infant feeding; positive views on
179 breastfeeding; negative views on breastfeeding; and, men's experiences of health promotion

180 and support. See Table 3 for a summary of the analysis. As discussed above, these themes are
181 derived from an analysis of the findings and the primary data found in the included studies.
182 The analysis aim was to remain ‘close’ to the original primary data while allowing a
183 synthesis of the studies to emerge and so quotes are used to illustrate each analytical theme.

184

185 **Men’s knowledge of infant feeding**

186 The majority of studies (n17) were concerned with men’s knowledge of infant feeding and
187 referred specifically to the ways in which men learn about breastfeeding. While some men
188 sought to inform themselves, the primary data suggest that men do not generally consider
189 themselves experts in the matter of infant feeding. All but three of the studies (Okon 2004;
190 Smith *et al.*, 2006; Pontes *et al.*, 2009) stated that men learned about breastfeeding from
191 books, health promotion materials (e.g. posters and pamphlets), the internet and from classes.

192 For example, one man said:

193

194 *‘I went on the internet and did some reading myself.’ (Brown & Davies 2014:*
195 *517)*

196

197 Men described how they went about finding information out for themselves and seldom
198 reported receiving information directly from health professionals (Sweet & Darbyshire 2009;
199 Anderson *et al.* 2010; Avery & Magnus 2011). When they did, it tended to be in very specific
200 contexts. For example, one father described receiving advice from doctors about the benefits
201 of breast milk for his pre-term baby:

202

203 *‘I think the information we got was quite sufficient. [...] it’s like, you know, best*
204 *for the baby, immune system and, you know’ (Sweet & Darbyshire 2009: 545).*

205

206 The selected studies also highlighted how men greatly valued experiential knowledge, be it
207 their own (Sweet & Darbyshire 2009), Anderson *et al.* 2010), their partners (Sweet &
208 Darbyshire 2009) or that of family and friends (Schmidt 2000; Anderson *et al.* 2010; Brown
209 & Davies 2014). Some men valued advice more from health professionals that also possessed
210 personal experiential knowledge of raising children. For example, in the study by Anderson
211 *et al.* (2010) one man questioned the value of professional advice:

212

213 *[...] You know, like is this person telling me this and they probably don't even*
214 *have any children? You know?' (Anderson et al. 2010: 527)*

215

216 Many men learned about breastfeeding directly from their partners (Rempel & Rempel 2011;
217 Mitchell-Box & Braun 2012; Brown & Davies 2014; Mithani *et al.* 2015). For example, one
218 man said *'she knows all that stuff'* (Mitchell-Box & Braun 2012: E44) and another remarked
219 that: *'It is easy to feel that the mother knows what to do and for the dad to stand back...'*
220 (Tohotoa *et al.* 2009: 9). Women were seen to be better informed and more knowledgeable
221 about infant feeding than men.

222

223 **Men's perceptions of their role in infant feeding**

224 Given that men consider themselves less knowledgeable than women about infant feeding,
225 the data show that most men leave decision-making to women. Thirteen of the selected
226 studies reported men's views and experiences on infant feeding decisions (Schmidt &
227 Sigman-Grant 2000; Okon 2004; Sherriff *et al.* 2009; Sweet & Darbyshire 2009; Anderson *et*
228 *al.* 2010; Engebretson *et al.* 2010; Harwood 2011; Avery & Magnus 2011; Rempel &
229 Rempel 2011; Datta *et al.* 2012; Mitchell-Box & Braun 2012; Brown & Davies 2014;

230 Sherriff, Hall & Panton 2014). Regarding the decision to breastfeed or not, one of the men
231 summarises his perspective thus:

232 *I don't think that really concerns me because the way I look at it, I mean, she's*
233 *carrying the child and she's got to deliver the child and she's the one that's got*
234 *the milk so I, I feel that I don't think I really have a say' (Sweet & Darbyshire*
235 *2009: 544)*
236

237 Some men said that their views were taken into account and that they were entitled to offer an
238 opinion or encouragement (to breastfeed), although views were in the minority. Occasionally,
239 men reported making decisions jointly with their partner (Anderson *et al.* 2010; Datta *et al.*
240 2012). Very rarely men said that they were entitled to exert a stronger influence. For
241 example, in the Canadian study by Rempel and Rempel (2011), which included fathers of
242 breastfed babies, some men had quite strong views about initiating and maintaining
243 breastfeeding and were prepared to push their views:

244
245 *'I have always pushed it with her to. Even if she would want to stop I don't think*
246 *I would just let her stop right away.'* (Rempel & Rempel 2011: 117)
247

248 More rarely still, Engebretsen *et al.* (2010) reported data from a study carried out in Eastern
249 Uganda where a decision not to breastfeed would carry sanctions. In a society where
250 breastfeeding is an important part of the local infant feeding culture and where not
251 breastfeeding is perceived as a neglect of maternal responsibility, men reported that they
252 would be prepared to take extreme (including violent) action should the mother not
253 breastfeed:

254
255 *'I would report her to the LCs [local chairman] and she will cease being my*
256 *wife.'* (Engebretsen *et al.* 2010: 8)

257

258 Most commonly, interfering with women's infant feeding decisions was largely considered
259 unthinkable. As one man commented:

260

261 *'I'd like to see her face if I walked in and said, you know, "I've decided."'*

262 *(Avery & Magnus 2011: 151)*

263

264 Many of the studies we analysed considered men's role in breastfeeding (n13) (Schmidt &
265 Sigman-Grant 2000; Okon 2004; Smith *et al.* 2006; Pontes *et al.* 2009; Sherriff *et al.* 2009;
266 Sweet & Darbyshire 2009; Anderson *et al.* 2010; Avery & Magnus 2011; Harwood 2011;
267 Rempel & Rempel 2011; Datta *et al.* 2012; Sherriff *et al.* 2014; Mithani *et al.* 2015). The
268 majority of men described how they provided practical support to women and this included
269 taking on more of the household chores and caring for other children (Schmidt & Sigman-
270 Grant 2000; Okon 2004; Smith *et al.* 2006; Sherriff *et al.* 2009; Anderson *et al.* 2010; Avery
271 & Magnus 2011; Datta *et al.* 2012). Men also said that they tried to provide assistance to
272 women during breastfeeding (Pontes *et al.* 2009; Rempel & Rempel 2011; Sherriff *et al.*
273 2014; Harwood 2011; Avery & Magnus 2011; Mithani *et al.* 2015). One man described his
274 role:

275

276 *'She's got two objectives: to look after the baby and to look after herself. My*

277 *objectives are to look after everything else. [...]' (Datta et al. 2012: 7)*

278

279 Six of the papers referred specifically to men's role in supporting breast pumping or men's
280 involvement in bottle feeding babies with expressed breast milk (Schmidt & Sigman-Grant
281 2000; Okon 2004; Sweet & Darbyshire 2009; Harwood 2011; Rempel & Rempel 2011; Datta

282 *et al.* 2012). Men spoke with enthusiasm about taking responsibility for the various tasks
283 involved in breast-pumping (for example, cleaning and transporting equipment) and spoke
284 about the enjoyment of feeding their babies.

285

286 Approximately half of all the selected studies discussed the role that men played in the
287 provision of emotional support for women that were breastfeeding (Okon 2004; Smith *et al.*
288 2006; Sweet & Darbyshire 2009; Tohotoa *et al.* 2009; Anderson *et al.* 2010; Harwood 2011;
289 Rempel & Rempel 2011; Datta *et al.* 2012; Sherriff *et al.* 2014; Mithani *et al.* 2015) . For
290 some men this meant being patient and understanding of their partners because breastfeeding
291 was a ‘gender-specific role’, as one man said:

292

293 *‘It meant waiting and hoping this period of breastfeeding...should have ended.’*
294 *(Okon 2004: 390)*

295

296 For the majority of men, providing emotional support meant taking on a ‘cheer-leader’ role
297 and providing encouragement when women felt tired, upset or felt like ‘giving up’
298 breastfeeding (Okon 2004; Smith 2006; Sweet & Darbyshire 2009; Harwood 2011; Datta *et*
299 *al.* 2012; Sherriff *et al.* 2014; Mithani *et al.* 2015). In two of the studies men also talked
300 about being an advocate for their breastfeeding partner, and defending their decision to
301 breastfeed (Tohotoa *et al.* 2009; Anderson *et al.* 2010). In the Australian study conducted by
302 Tohotoa *et al.* (2009) one father explained the importance of breastfeeding to his extended
303 family:

304

305 *‘This is our parenting journey. Please be respectful, we feel it's best to do it this*
306 *way [breastfeed]. Thank you for understanding.’ (Tohotoa et al. 2009: 8)*

307

308 To summarise, the primary data indicate that men's role in infant feeding is to provide
309 practical and emotional support rather than to take the lead in infant feeding decisions.

310

311 **Positive views on breastfeeding**

312 Our analysis highlights that positive views on breastfeeding were expressed by men where a
313 culture of breastfeeding is normalised. We think this is an important analytical theme because
314 the studies we reviewed associated men's positive views on breastfeeding with women's
315 likelihood to initiate and maintain breastfeeding. For example, in Okon's (2004) UK study,
316 which included men from different ethnic backgrounds, normalised cultures of breastfeeding
317 had a positive impact on the decision to breastfeed. One man said:

318

319 *'At home (Nigeria)...most of the time our parents did breastfeed.'* (Okon 2004:
320 390)

321

322 Similarly, in the study carried out in Hawai'i by Mitchell-Box and Braun (2012) men from
323 Brazil and Indonesia commented on how they supported breastfeeding because they had
324 grown up surrounded by breastfeeding women. In the Pakistani study by Mithani *et al.*
325 (2015) religious beliefs were seen to be a major facilitating factor for initiating breastfeeding,
326 as one father commented:

327

328 *'... because I want to follow the guidance of the Quran ... if God has given*
329 *diet for the child, how can we human beings disrespect and devalue the child's*
330 *right [...]?' (Mithani et al. 2015: 254)*

331

332 In five of the studies, men specifically referred to the ideology of 'breast is best' although
333 were not always able to specify why they believed this was so (Sherriff *et al.* 2009; Sweet &

334 Darbyshire 2009; Henderson *et al.* 2011; Sherriff & Hall 2011; Brown & Davies 2014). In
335 other studies (n13), men described breastfeeding as something that was ‘natural’:

336

337 *‘It is the most natural way of feeding a newborn baby.’ (Okon, 2004: 389)*

338

339 *‘I don’t know, it’s just a normal part of life, nature’s way of feeding the babies,*

340 *so, yeah, it’s just the normal thing to do.’ (Sweet & Darbyshire 2009: 545)*

341

342 Many men also regarded breastfeeding as being healthier for babies and mothers:

343

344 *‘I’ve heard BF [breastfeeding] reduces the chances of food allergies.’ (Schmidt*

345 *& Sigman-Grant 2000: 36)*

346

347 Men described many reasons for their positive views on breastfeeding. Breastfeeding was
348 also seen by some men as being cheaper and more convenient than formula feeding (Schmidt
349 & Sigman-Grant 2000; Brown & Davies 2014), as having a positive impact on women’s
350 bodies postnatally (Henderson *et al.* 2011) and as being a transient phase (Pontes *et al.* 2009).

351

352 **Negative views on breastfeeding**

353 The findings of our analysis revealed that men sometimes held negative views on
354 breastfeeding either because they felt discomfort about breastfeeding in public; had a lack of
355 support from the wider family; had feelings of exclusion; were concern for partners; or
356 because they believed that bottle-feeding was better or more convenient. This analytical
357 theme seemed important in so far as the studies we reviewed regarded men’s negative views
358 on breastfeeding as a barrier to the initiation and continuation of breastfeeding. Eight of the
359 studies discussed men’s concerns with breastfeeding in public, which men found

360 embarrassing and made them feel uncomfortable (Pontes *et al.* 2009; Tohotoa *et al.* 2009;
361 Henderson *et al.* 2011; Avery & Magnus 2011; Rempel & Rempel 2011; Mitchell-Box &
362 Braun 2012; Brown & Davies 2014; Sherriff *et al.* 2014). It is interesting to note that, in this
363 context, this does not just refer to breastfeeding in public spaces in the company of strangers,
364 but breastfeeding in front of family and friends, and in the private space of the home. Men
365 often acknowledged that while breastfeeding was ‘natural’, it still made them feel
366 uncomfortable and were concerned that it could be seen as socially unacceptable:

367

368 *‘I would be a little uncomfortable with my wife doing it in public, you know....I*
369 *think society sort of is not really that welcoming to that sort of thing [...]*’ (Avery
370 *& Magnus 2011: 151)*

371

372 In the study by Henderson *et al.* (2011), the authors commented on the way that men often
373 used humour to deal with embarrassment. This study reported the experiences of men living
374 in socially deprived areas in England and Scotland, including the experiences of younger men
375 and potential fathers. It was clear that there was a tension between the sexualisation of
376 women’s breasts and their role in infant feeding. Breastfeeding was sometimes seen as
377 morally inappropriate and some young men described women who breastfed as ‘slappers’
378 (morally loose) (Henderson *et al.*, 2011: 66).

379

380 A lack of family support also influenced men’s views of breastfeeding in a quarter of the
381 studies (Pontes *et al.* 2009; Tohotoa *et al.* 2009; Anderson *et al.* 2010; Sherriff *et al.* 2014;
382 Mithani *et al.* 2015). The evidence suggests that families can undermine efforts to breastfeed
383 or can encourage the use of formula milk. Some men sought to defend their decision to

384 breastfeed against interference from family. In the study by Mithani *et al.* (2015) one man
385 described the pressure from extended family:

386

387 *'My family [elder sister] did not support our breastfeeding decision, and my wife*
388 *was pressured to keep the baby on both [breastfeeding and bottle feeding].'*

389 *(Mithani 2015: 254)*

390

391 Thirteen of the studies we reviewed highlighted men's feelings of exclusion from
392 breastfeeding (Schmidt & Sigman-Grant 2000; Okon 2004; Pontes *et al.* 2009; Sweet &
393 Darbyshire 2009; Tohotoa *et al.* 2009; Harwood 2011; Sherriff & Hall 2011; Avery &
394 Magnus 2011; Rempel & Rempel 2011; Hoddinott *et al.* 2012; Mitchell-Box & Braun 2012;
395 Brown & Davies 2014; Sherriff *et al.* 2014). As one man succinctly said: 'I felt very much
396 excluded' (Pontes *et al.* 2009: 199). Whilst most men supported women's decision to
397 breastfeed and often believed that 'breast was best' they wanted more opportunities to 'bond'
398 with their babies and breastfeeding was seen as a barrier to bonding. Men talked about how
399 feelings of exclusion lead to tensions in their relationships with partners, as one man said:

400

401 *'I'm really ashamed at it now but I did take it out on my partner sometimes by*

402 *being miserable with her or even shouting sometimes. I felt excluded and*

403 *stressed but it wasn't her fault. [...]'(Brown & Davies 2014: 517)*

404

405 However, men also expressed concern for their partners, particularly when breastfeeding was
406 difficult to establish, when problems occurred, or when partners were feeling tired or upset.

407 Men sometimes said that they felt 'helpless' and 'guilty' because they could not help to

408 overcome these problems (Avery & Magnus 2011; Brown & Davies 2014). One of the

409 participants in the study by Sherriff *et al.* (2014) advised his partner to ‘give up’ trying to
410 breastfeed:

411

412 *‘I said to her “just give up”. A friend of mine she tried for a few days it didn’t*
413 *work for her and she stopped... [my wife] was more determined to persevere*
414 *with it than me...I could see the agony she was in.’ (Sherriff *et al.* 2014: 674)*

415

416 Discontinuation of breastfeeding, moving to mixed feeding or introducing solids was often a
417 pragmatic response to perceived problems. Seven of the studies indicate that some men
418 believed that formula feeding was better or more convenient than breastfeeding (Mithani *et*
419 *al.* 2015), describing it as ‘a lot safer’ or as something that ‘gives you independence’. It was
420 often assumed that breastfeeding would come ‘naturally’ and be ‘easy’ and when this was not
421 so, bottle-feeding was the solution (Sweet & Darbyshire 2009; Sherriff *et al.* 2009; Sherriff &
422 Hall 2011; Hoddinott *et al.* 2012) Even when breastfeeding was the preferred choice of infant
423 feeding, formula-feeding was often introduced when women returned to work, as one man
424 comments:

425

426 *‘Ultimately, we’ve preferred breastfeeding. The only reason we switched over*
427 *was because she had to go back to work. [...]’ (Mitchell-Box & Braun 2012: 45)*

428

429 This pragmatic approach was often a barrier to breastfeeding.

430

431 **Men’s experiences of health promotion and support**

432 Many of the studies (n10) discussed men’s experiences of health promotion and support,
433 especially those that sought to explore this issue in order to make recommendations for

434 practice (Anderson *et al.* 2010; Brown & Davies 2014; Datta *et al.* 2012; Hoddinott *et al.*
435 2012; Mithani *et al.* 2015; Okon 2004; Sherriff *et al.* 2009; Sherriff & Hall 2011; Sherriff *et*
436 *al.* 2014; Tohotoa *et al.* 2009). Some men reported that they felt excluded and wanted to be
437 included in health promotion related to breastfeeding. Many men said that they felt either
438 directly or indirectly excluded:

439

440 *'The information was all aimed at my wife. What she could eat, do, experience*
441 *etc. I know she was the key player here but I felt that it was nothing to do with*
442 *me. When we went to antenatal classes they did a session on breastfeeding. They*
443 *sent all the dads down the pub that night.'* (Brown & Davies 2014: 518)

444

445 They also said that they sometimes felt patronised by health professionals:

446

447 *'One midwife actually told me in front of my wife that breastfeeding was a good*
448 *thing as it would make her breasts bigger. I'm not that shallow.'* (Brown &
449 *Davies 2014: 519)*

450

451 Even when men were explicitly included they often felt like 'the odd one out':

452

453 *'[...] It felt a bit weird cos I was the only bloke there at the class, at the*
454 *breastfeeding one...They say on the letter "partners welcome", but I was the*
455 *only male, it was a bit funny: "am I supposed to be here?"* (Sherriff & Hall
456 *2011: 471)*

457

458 In five of the studies, men said that they wanted health promotion to be more ‘father-friendly’
459 and more focused on their needs; this ranged from scheduling classes at appropriate times
460 (for example in the evenings) to showing positive images of men and breastfeeding in health
461 promotion literature (Sherriff *et al.* 2009; Sherriff & Hall 2011; Sherriff *et al.* 2014;
462 Mitchell-Box & Braun 2012; Brown & Davies 2014).

463

464 The studies suggest that men value two particular types of information above all others. First,
465 all of the men that discussed their information needs said that they wanted information that
466 was ‘factual’ and ‘specific’ rather than vague. They were critical of information that claimed
467 ‘breast was best’ without explaining how and why this was the case. For example:

468

469 *‘I read somewhere that if you breastfed you saved £500 a year on formula and*
470 *bottles and things and were saving the NHS money too. I like figures.’ (Brown &*
471 *Davies 2014: 518)*

472

473 Second, men said that they valued pragmatic and realistic advice that would help them
474 support their partners and would help prepare them for the realities of breastfeeding (Schmidt
475 & Sigman-Grant 2000; Smith *et al.* 2006). Men were consistent in their request for ‘warts and
476 all’ information:

477

478 *‘A no bullshit idea of what to expect and how to help even if that means doing*
479 *nothing but being there with her and the baby.’ (Tohotoa et al. 2009: 9)*

480

481 Some men talked negatively about information that was overly idealistic or ideological and
482 which put pressure on women to breastfeed at all costs, for example:

483

484 *'My partner got very distressed when she gave up breastfeeding [...] I got quite*
485 *angry at people telling my wife she had to breastfeed when they couldn't give me*
486 *evidence that it wasn't as catastrophic to formula feed as they implied.'* (Brown
487 *& Davies 2014: 518)*

488

489 As discussed earlier, men valued experiential knowledge, and given their preference for
490 information that was realistic, some men said that they would welcome peer education and
491 support (Brown & Davies 2014). In the study by Hoddinott *et al.* (2012), one man suggested:

492

493 *'If you had mums with babies coming along (to classes before birth) I'd be*
494 *interested to see where difficulties lay so that I could be there to support and*
495 *say, "well that's kind of normal" and "d'you remember that woman had that*
496 *particular issue for a couple of months but then it kind of came good in the*
497 *end?"', kind of thing.'* (Hoddinott 2012: 6)

498

499 Very generally men said that they wanted to be included more in health promotion. The
500 literature suggests they wanted to be supported and wanted their feelings to be
501 acknowledged. However, men said that they needed information that was factual, specific
502 and realistic.

503

504 **DISCUSSION AND CONCLUSION**

505 This review provides a synthesis of the qualitative literature on men's views and experiences
506 of infant feeding and has identified five major analytical themes. It is interesting to note that
507 while our review focuses on men and *infant feeding*, in the majority of studies, infant feeding
508 was synonymous with breastfeeding. We imagine that this focus reflects the concerns of

509 funders and policy-makers as well as national and international imperatives and targets
510 (World Health Organisation 2016b; 2016c) that set out to promote exclusive breastfeeding.
511

512 In contrast to previous literature, which suggested that men are important in decisions
513 concerning infant feeding (Freed *et al.* 1992, Bar-Yam & Darby 1997; Earle, 2000; Shaker *et*
514 *al.* 2004, Mueffelmann *et al.* 2015), our review found that men are seldom the decision-
515 makers. Rather, men tend to see their role as supporting the decisions made by women, rarely
516 exerting influence even when they might feel strongly on the matter, thus reinforcing the
517 view that infant feeding is ‘women’s business’. This was particularly so in relation to
518 breastfeeding initiation. Only very exceptionally did men offer strong opinions or advice
519 contrary to their partner’s views (for example, see Engebretsen 2010 and Rempel & Rempel
520 2011). Our findings are generally consistent with previous research which indicated that men
521 are significant in the continuation of breastfeeding (Giugliani *et al.* 1994). Although men do
522 not decide on whether breastfeeding should continue or be discontinued, the studies we
523 reviewed showed that men play an important role in supporting women, providing practical
524 and emotional support, and advocacy. Men were also instrumental in the discontinuation of
525 breastfeeding as a pragmatic response to perceived problems, but their role is one of
526 facilitator, rather than decision-maker.

527

528 Our review indicates that men could feel excluded from the business of infant feeding and
529 feel excluded from the process of breastfeeding. In some of the studies (Schmidt and Sigman-
530 Grant 2000; Okon 2004; Sweet and Darbyshire 2009; Harwood 2011; Rempel and Rempel
531 2011; Datta, Graham and Wellings 2012), authors reported men’s enjoyment of bottle-
532 feeding and breast-pumping, both of which provided opportunities for involvement and
533 ‘bonding’ with their infants. Men rarely learn about infant feeding from health professionals

534 and health promotion rarely speaks to their needs. The findings show that men often learn
535 about breastfeeding from their partners and appear to value experiential knowledge over
536 information that is overly idealistic or theoretical again highlighting their preference for
537 information that is practical and specific.

538

539 This review has a number of limitations. We set out to carry out the review because we were
540 interested in the increasing focus on men and infant feeding. Consequently, we wanted to
541 explore men's views and experiences and how far they were involved in the process. Given
542 this specific focus, the review has focused on papers that have collected primary qualitative
543 data exploring men's perceptions, opinions, experiences, views and conceptualisations of
544 infant feeding. For pragmatic reasons, we only included studies published in English or
545 Spanish and published between January 2000 and March 2016. Although systematic reviews
546 of qualitative research are not necessarily driven by the imperative to find every single
547 published paper in the field (Thomas & Harden 2008), we may have missed some studies
548 published before 2000 and those written in languages other than English or Spanish. That
549 said, there was limited interest in men and infant feeding before this time and the majority of
550 studies have been published since 2009. It is also worth noting that the studies are relatively
551 homogenous in so far as they tended to involve men that were planning to/or were involved
552 in breastfeeding. The homogeneity of these studies no doubt affects our findings and
553 knowledge of this field in general. There is no one agreed approach to conducting a
554 qualitative systematic review and this paper is based on a summary and thematic analysis of
555 the primary research findings. As other researchers have argued (for example, Lorenc 2012:
556 354) this method may have 'under-estimated the complexity and diversity of individuals'
557 views' and other approaches may have yielded qualitatively different findings from those
558 presented here. We must also note that we did not exclude papers on the basis of quality

559 appraisal. Given that there is no agreed methodology by which to do this within a qualitative
560 framework (Thomas & Harden 2009) we chose to include them all, but note that in the
561 synthesis stage the poorer quality studies tended to contribute less to the synthesis.

562

563 In spite of these limitations, to our knowledge, this review on men and infant feeding is the
564 first of its kind to draw solely on primary qualitative data that focus on men's views and
565 experiences, rather than on studies that infer about men from research conducted
566 predominantly with women (for example, see Bar-Yam & Darby 1997). As such, this paper
567 presents important findings for clinical practice. It highlights men's role in supporting infant
568 feeding (especially breastfeeding continuation) but indicates that women are key to infant
569 feeding decisions more generally. The findings also indicate that more targeted health
570 promotion for men is required which addresses their needs for factual, specific and practical
571 information while also speaking to their emotional needs and potential feelings of anxiety,
572 helplessness and exclusion.

573

574 Future research in this area might benefit from focusing on infant feeding in its broadest
575 sense rather than focusing on breastfeeding, as though these practices were synonymous. This
576 would allow for a deeper understanding concerning decisions, motivations, practices and
577 experiences of formula-feeding, bottle-feeding and mixed-feeding methods. There is also
578 scope to widen research to include men who have no experience of breastfeeding or who are
579 against the idea of breastfeeding. The current literature is informative because it tells us about
580 the factors that influence breastfeeding but there is, no doubt, much to be gained from
581 exploring men's views and experiences of breastfeeding when they have no experience of it
582 or reject it entirely. Health practitioners may gain more from understanding the views and

583 experiences of these men than from those men who are already ‘warm’ to the idea of
584 breastfeeding.

585

586

587 REFERENCES

588 Anderson, K., Spence, M. and Kavanagh, K.F. (2010) Roles, perceptions and control of
589 infant feeding among low-income fathers. *Public Health Nutrition*, **13**, 522-530.

590 Avery, A.B. and Magnus, J.H. (2011) Expectant Fathers’ and Mothers’ Perceptions of
591 Breastfeeding and Formula Feeding: A Focus Group Study in Three US Cities. *Journal of*
592 *Human Lactation*, **27**, 147-154.

593 Bar-Yam, N.B. and Darby, L. 1997. Fathers and breastfeeding: a review of the literature.
594 *Journal of Human Lactation*, **13**, 45-50.

595 Barnett-Page, E. and Thomas, J. (2009) Methods for the synthesis of qualitative research: a
596 critical review. *BMC Medical Research Methodologies*, 9(59)

597 <https://doi.org/10.1186/1471-2288-9-59> [last accessed 17th August 2017].

598 Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Research in*
599 *Psychology* 3(2): 77-101.

600 Britton, C., McCormick, F.M., Renfrew, M.J., Wade, A. and King, S.E. 2007. Support for
601 breastfeeding mothers. *Cochrane Database of Systematic Reviews*, Issue 4.

602 <http://apps.who.int/rhl/reviews/langs/CD001141.pdf> [last accessed 2nd Sept 2016).

603 Brown, A. and Davies, R. (2014) Fathers’ experiences of supporting breastfeeding:
604 challenges for breastfeeding promotion and education. *Maternal and Child Nutrition*, **10**,
605 510-526.

606 Centre for Reviews & Dissemination (2009) Systematic Reviews: CRD’s guidance for
607 undertakings systematic reviews in health care,

608 https://www.york.ac.uk/media/crd/Systematic_Reviews.pdf [last accessed 12 August
609 2017].

610 Datta, J., Graham, B. and Wellings, K. (2012) The role of fathers in breast-feeding: decision-
611 making and support. *British Journal of Midwifery*, **20**, 159-167.

612 Earle, S. 2000. Why some women do not breast feed: bottle feeding and fathers' role.
613 *Midwifery*, **16**, 323-330.

614 Earle, S. 2002. Factors affecting the initiation of breastfeeding: implications for breastfeeding
615 promotion. *Health Promotion International*, **17**, 205-214.

616 Engebretsen, I.M.M., Moland, K.M., Nankunda, J., Karamagi, C.A., Tylesskär, T. and
617 Tumwine, J.K. (2010) Gendered perceptions on infant feeding in Eastern Uganda:
618 continued need for exclusive breastfeeding support. *International Breastfeeding Journal*,
619 **5**(13), <http://www.internationalbreastfeedingjournal.com/content/5/1/13> [last accessed 16
620 August 2016].

621 Freed, G.L., Fraley, J.K. and Schanler, R.J. 1992. Attitudes of expectant fathers regarding
622 breast-feeding. *Pediatrics*, **90**, 224-227.

623 Gibson-Davis, C.M. and Brooks-Gunn, J. 2007. The Association of Couples' Relationship
624 Status and Quality with Breastfeeding Initiation. *Journal of Marriage and Family*, **69**,
625 1107–1117. doi:10.1111/j.1741-3737.2007.00435.x.

626 Giugliani, E.R., Caiaffa, W.T., Vogelhut, J., Witter, F.R. and Perman, J.A. 1994. Effect of
627 breastfeeding support from different sources on mothers' decisions to breastfeed. *Journal*
628 *of Human Lactation*, **10**, 157-161.

629 Harwood, K. (2011) Intent of Expecting Fathers to Encourage Breastfeeding, Perceptions of
630 Support and Barriers to Encouraging Breastfeeding. *Nutrition & Health Sciences*
631 *Dissertations & Theses*. Paper 22.

632 Henderson, L., McMillan, B., Green, J.M. and Renfrew, M.J. (2011) Men and Infant Feeding:
633 Perceptions of Embarrassment, Sexuality, and Social Conduct in White Low-Income
634 British Men. *Birth*, **38**, 61-70.

635 Hoddinott, P., Craig, L.C.A., Britten, J. and McInnes, R.M. (2012) A serial qualitative
636 interview study of infant feeding experiences: idealism meets realism. *BMJ Open*,
637 **2**:e000504. doi:10.1136/bmjopen-2011-000504.

638 Hoffman, J. (2011). *Father Factors. What social science research tells us about fathers and*
639 *how to work with them*. Peterborough, Canada: Father Involvement Research Alliance,
640 <http://www.fira.ca/cms/documents/211/FatherFactorsFinal.pdf> [last accessed 2nd
641 September 2016].

642 Leeming, D., Marshall, J. and Locke, A. (2017) Understanding process and context in
643 breastfeeding support interventions: The potential of qualitative research. *Maternal &*
644 *Child Nutrition*, e12407. <https://doi.org/10.1111/mcn.12407>.

645 Liberati Alessandro, Altman Douglas G, Tetzlaff Jennifer, Mulrow Cynthia, Gøtzsche Peter
646 C, Ioannidis John P A et al. The PRISMA statement for reporting systematic reviews and
647 meta-analyses of studies that evaluate healthcare interventions: explanation and
648 elaboration *BMJ* 2009; 339 :b2700. <https://doi.org/10.1136/bmj.b2700> [last accessed 12
649 August 2017]

650 Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic Enquiry*. Beverly Hills, CA: Sage.

651 Lorenc, T., Jamal, F. and Cooper, C. (2012) Resource provision and environmental change
652 for the prevention of skin cancer: systematic review of qualitative evidence from high-
653 income countries. *Health Promotion International*, **28**(3), 345-356

654 Mitchell-Box, K. and Braun, K.L. (2012) Fathers' Thoughts on Breastfeeding and
655 Implications for a Theory-Based Intervention. *Journal of Obstetric, Gynecologic &*
656 *Neonatal Nursing*, 41, E41-E50; 2012. DOI: 10.1111/j.1552-6909.2012.01399.x

657 Mithani, Y., Premani, Z.S., Kurji, Z. and Rashid, S. (2015) Exploring Fathers Role in
658 Breastfeeding Practices in the Urban and Semiurban Settings of Karachi, Pakistan. *The*
659 *Journal of Perinatal Education*, **24**, 249-260.

660 Molzan Turan, J.H., Nalbant, H., Bulut, A. and Sahip Y. (2001) Including expectant fathers
661 in antenatal education programmes in Istanbul, Turkey. *Reproductive Health Matters*,
662 **9**(18), 114-125.

663 Morrison, L., Reza, A., Cardines, K., Foutch-Chew, K. and Severance, C. 2008.
664 Determinants of infant-feeding choice among young women in Hilo, Hawaii. *Health Care*
665 *for Women International*, **29**, 807-25.

666 Mueffelmann, R.E., Racine, E.F., Warren-Findlow, J. and Coffman, M.J. 2015. Perceived
667 Infant Feeding Preferences of Significant Family Members and Mothers' Intentions to
668 Exclusively Breastfeed. *Journal of Human Lactation*, **31**, 479-489.

669 Noyes, J., & Lewin, S. (2011). Extracting qualitative evidence. In J. P. T. Higgins & S.
670 Green (Eds.), *Supplementary guidance for inclusion of qualitative research. Cochrane*
671 *handbook for systematic reviews of interventions. Version 1*. The cochrane collaboration.
672 Available: www.cochrane-handbook.org [last accessed 11 August 2017].

673 Okon, M. (2004) Health promotion: partners' perceptions of breastfeeding. *British Journal of*
674 *Midwifery*, June **12**, 387-393.

675 Pontes, C.M., Osório, M.M. and Alexandrino, A.C. (2009) Building a place for the father as
676 an ally for breast feeding. *Midwifery*, **25**, 195-202.

677 Rempel, L.A. and Rempel J.K. (2004) Partner influence on health behavior decision-making:
678 Increasing breastfeeding duration. *Journal of Social and Personal Relationships* **21**(1), 92-
679 111.

680 Rempel, LA. and Rempel J.K. (2011) The Breastfeeding Team: The Role of Involved Fathers
681 in the Breastfeeding Family. *Journal of Human Lactation*, **27**, 115-121.

682 Renfrew, M.J., Pokhrel, S., Quigley, M., McCormick, F., Fox-Rushby, J., Dodds, R., ...
683 Williams, A., 2012. *Preventing disease and saving resources: the potential contribution of*
684 *increasing breastfeeding rates in the UK* [Online]. London: UNICEF UK. Available:

685 http://www.unicef.org.uk/Documents/Baby_Friendly/Research/Preventing_disease_saving
686 [resources.pdf](#) [last accessed 2nd September 2016].

687 Roll, C.L. and Cheater, F. 2016. Expectant parents' views of factors influencing infant
688 feeding decisions in the antenatal period: A systematic review. *International Journal of*
689 *Nursing Studies*, **60**, 145-155.

690 Rollins, N.C., Bhandari, N., Hajeebhoy, N., Horton, S., Lutter, C.K., Martines., ... and
691 Victora, C.G. 2016. Why invest, and what it will take to improve breastfeeding practices?
692 *The Lancet*, **38**, 491-504.

693 Schmidt, M.M. and Sigman-Grant, M. (2000) Perspectives of Low-income Fathers' Support
694 of Breastfeeding: An Exploratory Study. *Journal of Nutrition Education*, **32**, 31-37.

695 Shaker, I., Scott, J. A. and Reid, M. 2004. Infant feeding attitudes of expectant parents:
696 breastfeeding and formula feeding. *Journal of Advanced Nursing*, **45**, 260-268.

697 Sherriff, N., Hall, V. and Pickin, M. (2009) Fathers' perspectives on breastfeeding: ideas for
698 intervention. *British Journal of Midwifery*, **17**, 223-227.

699 Sherriff, N. and Hall, V. (2011) Engaging and supporting fathers to promote breastfeeding: a
700 new role for Health Visitors? *Scandinavian Journal of Caring Sciences*, **25**, 467-475.

701 Sherriff, J., Hall, V. and Panton, C. (2014) Engaging and supporting fathers to promote breast
702 feeding: A concept analysis. *Midwifery*, **30**, 667-677.

703 Smith, J.R., Jamerson, P.A. and Bernaix, L.W. (2006) Fathers' perceptions of supportive
704 behaviours for the provision of breast milk to premature infants. *Advances in Neonatal*
705 *Care*, **6**, 341-348.

706 Sweet, L. and Darbyshire, P. (2009) Fathers and breast feeding very-low-birthweight preterm
707 babies. *Midwifery*, **25**, 540-553.

708 Thomas, J. and Harden, A. (2008) Methods for the thematic synthesis of qualitative research
709 in systematic reviews. *BMC Medical Research Methodology*, **8**(45)
710 <https://doi.org/10.1186/1471-2288-8-45> [last accessed 16th August 2017].

711 Tohotoa, J., Maycock, B., Hauck, Y.L., Howat, P., Burns, S. and Binns, C.W. (2009) Dads
712 make a difference: an exploratory study of paternal support for breastfeeding in Perth,
713 Western Australia. *International Breastfeeding Journal*, **4**,
714 [http://internationalbreastfeedingjournal.biomedcentral.com/articles/10.1186/1746-4358-4-](http://internationalbreastfeedingjournal.biomedcentral.com/articles/10.1186/1746-4358-4-15)
715 [15](http://internationalbreastfeedingjournal.biomedcentral.com/articles/10.1186/1746-4358-4-15) [last accessed 16th August 2016].

716 Victora, C.G., Bahl, R., Barros, A.J.D., França, G.V.A., Horton, S., Krasevec, J., ... Rollins,
717 N. 2016. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong
718 effect. *The Lancet*, **387**, 475-490.

719 Walsh, D. and Downe, S. (2006) Appraising the quality of qualitative research. *Midwifery*,
720 **22**, 108-119.

721 World Health Organisation. 2016a. *Global Nutrition Targets 2025: Policy brief series*
722 [Online]. Available:
723 http://www.who.int/nutrition/publications/globaltargets2025_policybrief_overview/en/
724 [last accessed 2nd September 2016].

725 World Health Organisation. 2016b. *Infant and young child feeding* [Online]. Available:
726 <http://www.who.int/mediacentre/factsheets/fs342/en/> [last accessed 2nd September 2016].

727 World Health Organisation. 2016c. *The World Health Organization's infant feeding*
728 *recommendation* [Online]. Available:
729 http://www.who.int/nutrition/topics/infantfeeding_recommendation/en/ [last accessed 2nd
730 September 2016].
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733 **Figure captions**

734 Figure 1 Flow diagram showing review process

735

736 **Table captions**

737 Table 1 Search terms used for review

738 Table 2 Summary of characteristics of included studies

739

740 **Supplementary material**

741 Appendix 1 Quality appraisal of included studies