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1 **Abstract**

2 An uncontrolled study with process evaluation was conducted in three UK community  
3 maternity sites to establish the feasibility and acceptability of delivering a novel  
4 breastfeeding peer-support intervention informed by Motivational Interviewing  
5 (Mam-Kind). Peer-supporters were trained to deliver the Mam-Kind intervention that  
6 provided intensive one-to-one peer-support, including: i) antenatal contact ii) face-to-  
7 face contact within 48 hours of birth; iii) proactive (peer-supporter led) alternate day  
8 contact for 2 weeks after birth, and; iv) mother-led contact for a further 6 weeks. Peer-  
9 supporters completed structured diaries and audio recorded face-to-face sessions with  
10 mothers. Semi-structured interviews were conducted with a purposive sample of  
11 mothers, health professionals, and all peer-supporters. Interview data were analysed  
12 thematically to assess intervention acceptability. Audio-recorded peer-support  
13 sessions were assessed for intervention fidelity and the use of MI techniques, using  
14 the MITI 4.2 tool. Eight peer-supporters delivered the Mam-Kind intervention to 70  
15 mothers in three NHS maternity services. Qualitative interviews with mothers (n=28),  
16 peer-supporters (n=8), and health professionals (n=12) indicated that the intervention  
17 was acceptable, and health professionals felt it could be integrated with existing  
18 services. There was high fidelity to intervention content; 93% of intervention  
19 objectives were met during sessions. However, peer-supporters reported difficulties in  
20 adapting from an expert-by-experience role to a collaborative role. We have  
21 established the feasibility and acceptability of providing breastfeeding peer-support  
22 using a MI-informed approach. Refinement of the intervention is needed to further  
23 develop peer-supporters' skills in providing mother-centred support. The refined  
24 intervention should be tested for effectiveness in a randomised controlled trial.

25

26

27 **Key words: breastfeeding, peer-support, pregnancy, infant feeding, motivational**

28 **interviewing, feasibility.**

29

30

31 **Introduction**

32 Randomised controlled trials (RCTs) of breastfeeding peer-support (BFPS)  
33 interventions in low and middle-income countries have demonstrated improvements  
34 in breastfeeding maintenance, reducing the risk of non-exclusive breastfeeding by up  
35 to 28% (Jolly, Ingram, Khan, et al., 2012). However, UK-based RCTs of BFPS  
36 interventions have not been found to increase breastfeeding continuation rates  
37 (Graffy, Taylor, Williams, & Eldridge, 2004; Jolly, Ingram, Freemantle, et al., 2012;  
38 Muirhead, Butcher, Rankin, & Munley, 2006; Watt et al., 2009). There are several  
39 possible explanations why the UK-based studies of BFPS have shown no effect.  
40 These include the use of low intensity interventions (Graffy et al., 2004; Jolly,  
41 Ingram, Freemantle, et al., 2012; R. J. McInnes, Love, & Stone, 2000) and a lack of  
42 contact with the mother during the first few days after birth (Graffy et al., 2004;  
43 Muirhead et al., 2006; Watt et al., 2009), when many women stop breastfeeding  
44 (Victora et al., 2016). Some studies reported difficulties in achieving the intended  
45 number of contacts, low uptake of the intervention, and low adherence to intervention  
46 protocol as possible reasons for lack of effect (Graffy et al., 2004; Jolly, Ingram,  
47 Freemantle, et al., 2012; R. J. McInnes et al., 2000; Scott, Pritchard, & Szatkowski,  
48 2016).

49

50 The literature highlights the need for a proactive intensive face-to-face peer support  
51 with contact in the antenatal and early post-natal period (*self-citation, removed for*  
52 *peer-review*). We therefore used a systematic and user-informed approach to co-  
53 develop and characterise a novel Motivational Interviewing (MI) informed peer-  
54 support intervention for breastfeeding maintenance, which included increased  
55 proactive contact during the early post-natal period (*self-citation, removed for peer-*

56 *review*). MI is a person-centred counselling approach designed to strengthen internal  
57 motivation and promote behaviour change (Miller & Rollnick, 2012). MI may have a  
58 role in helping women to continue breastfeeding by increasing their intrinsic  
59 motivation to breastfeed and working with any ambivalent feelings they may have  
60 (Wilhelm, Flanders Stepan, Hertzog, Callahan Rodehorst, & Gardner, 2006).

61 Several healthcare and public health interventions have integrated MI with peer-  
62 support (Abeyapala, Chalmers, & Trute, 2014; Allicock et al., 2013; Heisler et al.,  
63 2007; Leanne Kaye MPH, Johnson, Carr, Alick, & Mindy Gellin RNC, 2012). Studies  
64 indicate that lay peer-supporters can achieve MI proficiency, but report challenges  
65 with the development of skills such as reflective listening (see Table 1) (Allicock et  
66 al., 2013; Leanne Kaye MPH et al., 2012). They also find it challenging to change  
67 their practice from the expectation of first sharing one's own success stories rather  
68 than understanding the needs, goals, and motivations of the participant (Allicock et  
69 al., 2013). We took account of these challenges when co-designing the intervention  
70 and adjusted the training to concentrate on reflective listening and how to avoid the  
71 'righting reflex' (i.e. the desire to fix a situation).

72 In line with MRC guidance (Craig et al., 2008) for developing and testing complex  
73 interventions, we aimed to explore the feasibility and acceptability of providing a MI  
74 based BFPS intervention to mothers who were considering breastfeeding.  
75 Specifically, we were interested in;

- 76 • the extent to which peer-supporters utilised MI techniques in their interactions  
77 with the mothers they support
- 78 • uptake, acceptability, and adherence to Mam-Kind by mothers
- 79 • the number and duration of one-to-one contacts with peer-supporters

80 • how mothers transition to independence/other sources of support/community  
81 based support at the end of the intervention.

82 • **Key messages**

The Mam-Kind intervention was acceptable and feasible to deliver within NHS maternity services and should be tested for effectiveness in a multi-centre randomised controlled trial.

The feasibility study highlighted the need to strengthen strategies for the recruitment and retention of participants.

Practice challenges associated with integration of MI in an information-rich intervention and variability in peer supporter MI skill acquisition have led to intervention refinements.

83

## 84 **Methods**

### 85 *Design*

86 The Mam-Kind study was an uncontrolled multi-site feasibility study with an  
87 embedded process evaluation.

88

### 89 *The Mam-Kind Intervention*

90 The Mam-Kind intervention was user informed, and designed in collaboration with:  
91 mothers (n=14), fathers (n=3) peer-supporters (n=15) and health professionals (n=14).

92 The Behaviour Change Wheel (Michie, Atkins, & West, 2014) framework was used  
93 as a guide in developing the intervention and specifying the proposed mechanisms for  
94 change. This is described in full elsewhere (*self-citation, removed for peer-review*).

95

96 The Mam-Kind intervention was characterised by antenatal face-to-face contact with  
97 a peer-supporter, contact at 48 hours after birth, proactive alternate day one-to-one  
98 peer-supporter led contact for 2 weeks, and mother led contact between 2 weeks and 6  
99 weeks. In our intervention, peer-supporters were provided with training in MI to  
100 equip them with the skills required for MI based interventions (Miller & Rollnick,  
101 2012), to provide high quality, mother centred interactions when supporting mothers  
102 in the context of infant feeding (see web appendix for training outline). These skills  
103 are described in Table 1. The training also included breastfeeding information and  
104 met all local NHS Trust induction policies. The peer-supporters addressed six  
105 objectives in their antenatal contact with mothers and five objectives at each of the  
106 postnatal time points (see Table 3). They received supervision from an expert in MI  
107 and a midwife, who provided breastfeeding advice.

108

109 Table 1: MI skills used by the peer-supporters (Miller WR, 2012)

110

## 111 **Participants**

### 112 *Site selection*

113 The study was conducted in three sites in Wales and England. These sites were  
114 chosen because they served areas that had high levels of socio-economic deprivation  
115 (as defined by English and Welsh Indices of Multiple Deprivation) and low levels of  
116 community breastfeeding rates (<70% breastfeeding initiation). All mothers in these  
117 areas received usual midwifery and health-visiting care, including community based  
118 antenatal and postnatal care.

119

### 120 *Recruitment of mothers*

121 Nineteen community midwives were asked to introduce the study at routine antenatal  
122 appointments from 28 weeks gestation onwards to English speaking mothers who  
123 were considering breastfeeding. Mothers who were unable to provide written  
124 informed consent, unable to use conversational English, who did not plan to  
125 breastfeed, had a clinical reason that precluded breastfeeding, or had a planned  
126 admission to neonatal unit following birth were excluded from the study. Recruitment  
127 took place between September and December 2015.

128

### 129 *Recruitment and training of peer-supporters*

130 Six peer-supporters were recruited to work in two sites that did not have a pre-  
131 existing intensive paid peer-support service. These peer supporters were employed  
132 via the university due to the short duration of the study and supervised by a  
133 community midwife who facilitated their integration into the NHS setting. In the third  
134 site the existing BFPS service was modified and delivered by the two existing paid  
135 staff. This allowed us to test the feasibility of implementing the intervention within an  
136 existing service, which required a shift in the way of working to deliver Mam-Kind as  
137 specified in the context of a research study.

138

### 139 **Data collection**

#### 140 *Peer-supporter in-field data collection*

141 To obtain data on uptake and adherence, the peer-supporters completed a diary  
142 documenting their contacts with the mothers they were supporting. The diaries  
143 provided data on the timing, location, and type of contact (telephone call, text or face-  
144 to-face), including who initiated the contact (see Table 3).

145



146 Peer-supporters were asked to audio record all of their face-to-face sessions with  
147 mothers who had consented to being recorded. A purposive sample of these audio-  
148 recordings were chosen to assess content fidelity to ensure full representation of all  
149 key intervention time points (antenatal, 48 hours, 2-13 days and 2 -6 weeks). An  
150 additional two sessions per peer supporter were analysed to assess MI fidelity at the  
151 beginning and end of the intervention period.

152

### 153 *Quantitative data*

154 Baseline data included socio-demographic variables, infant feeding intentions, and  
155 maternal health and well-being (Edinburgh postnatal depression scale, Generalised  
156 anxiety disorder scale (GAD-2) and EQ-5D-5L).

- 157 • Telephone follow-up at 10-days post-birth, women were asked about skin-to-  
158 skin contact, feeding method and breastfeeding self-efficacy (Breastfeeding  
159 self-efficacy scale short form), support received, and sources of influence  
160 (comprehensive list of sources of support/influence rated on a scale of 0 to 4).
- 161 • Telephone follow-up at 8-10 weeks post-birth collected data relating to the  
162 duration of breastfeeding, breastfeeding attitudes, use of healthcare  
163 professionals or groups, maternal and child health and well-being.
- 164 • A telephone 10-day minimum data-set questionnaire was completed at 8-10  
165 weeks for participants who could not be contacted by telephone at 10 days.

166

### 167 *Qualitative interviews*

168 All eight peer-supporters, 12 health professionals (two midwives [one midwife who  
169 was a high recruiter into the study and one midwife who was a low recruiter, as  
170 defined by the supervising midwife], one health visitor and one service manager from

171 each of the three sites, and 29 mothers took part in semi-structured interviews to  
172 explore their experiences of the Mam-Kind intervention. Of the 70 women who took  
173 part in the study, 67 consented to take part in the interviews when they enrolled for  
174 the study. From these, mothers who were invited for an interview were purposively  
175 sampled based on four factors: study site; allocated peer-supporter; breastfeeding  
176 continuation status at 10 days, and; level of engagement with the intervention  
177 determined by peer-supporter diary records. All of those who were invited to an  
178 interview agreed to take part. The semi-structured interviews were conducted via  
179 telephone by two experienced qualitative researchers (LC and LM). The two  
180 qualitative researchers on this study came from either a psychology or midwifery  
181 background. Both researchers were aware that their backgrounds may influence their  
182 interpretation of the data especially the researcher with a midwifery background,  
183 however the use of double coding aimed to mitigate this potential bias. Interviews  
184 were facilitated by a topic guide, which included questions on recruitment,  
185 intervention delivery and acceptability, and social support. The interviews were  
186 audio-recorded and transcribed verbatim by a professional transcription company.  
187 The duration of interviews ranged between 15 minutes to 75 minutes.

188

### 189 **Data analysis**

190 Descriptive summary statistics (frequencies/percentages and means/standard  
191 deviations) were tabulated for the Mam-Kind diary data and the questionnaire data.

192

193 Interviews were analysed using inductive thematic analysis (Clarke & Braun, 2014).  
194 An initial coding framework for the interview data was developed based on three  
195 interviews with participants. The themes were further updated and refined throughout

196 the analysis until all themes were deemed to have been adequately captured. The  
197 coding framework was then applied to all the interviews and independently coded by  
198 two researchers using NVivo 10. The team discussed any new analytic themes that  
199 emerged; these were added to the framework and previous transcripts were re-coded  
200 accordingly until all the data had been coded.

201

202 One researcher used content analysis to analyse audio recordings of peer-support  
203 sessions (Clarke & Braun, 2014), facilitated by NVivo 10. The coding framework  
204 corresponded to time-specific objectives, as described in the intervention content  
205 guide (see Table 3, first 3 rows under respective time points). Following the content  
206 coding, session content was mapped against the objectives in the intervention content  
207 guide to produce a matrix that indicated whether objectives had been met, and  
208 whether the content of the session was appropriate to the stage of the intervention.

209

210 Fidelity to MI was assessed using the MITI 4.2 (Moyers, Rowell, Manuel, Ernst, &  
211 Houck, 2016). The MITI 4.2 rating tool comprises a number of count and score  
212 variables. This measure was developed and validated to measure MI practitioner's  
213 skills. The MITI 4.2 requires the coder to identify the behaviour change focus within  
214 the sessions (i.e. breastfeeding) and to assign ratings in relation to whether talk is  
215 about the identified behaviour change. 'Global' ratings are assigned to each session  
216 and are divided into 1.) technical: 'cultivating change talk', 'softening sustain talk',  
217 and 2.) relational: 'partnership', 'empathy' (see Table 1 for description of MI skills).  
218 These items are scored on a scale from one to five, with five indicating more skilful  
219 practice. Behaviour count scores are also provided. While MITI4.2. offers some  
220 expert-led guidance regarding competency thresholds, we did not expect peer

221 supporters to reach these thresholds. Rather the assessments were used to understand  
222 the extent to which the peer-supporters were able to develop and use MI in their  
223 contacts with the mothers.

224

225 We modified our use of the MITI 4.2. Usually the MITI 4.2 MI skills adherence  
226 assessment uses a randomly selected continuous 20-minute segment of recording for  
227 coding. However, during intervention sessions peer-supporters shifted focus across a  
228 number of different topic areas, which meant that there was not necessarily a  
229 continuous 20-minute section in which they talked about ‘feeding baby’, the  
230 identified target behaviour. Therefore, following the content analysis of the audio  
231 recordings, sections of audio files where the conversation focused on relevant  
232 ‘feeding baby’, content was identified, and the MITI 4.2 was applied to a 20 minute  
233 collection of these segments.

234

### 235 **Ethical considerations**

236 Ethical approval for the study was granted by the NHS Health Research Authority,  
237 Wales REC 3 Panel, in June 2015 (Reference: 15/WA/0149). All participants  
238 provided written informed consent. Health professionals provided audio-recorded  
239 verbal consent prior to interview and consent to use anonymised quotations in  
240 publications.

241

### 242 **Results**

#### 243 *Participant Recruitment*

244 Of the 292 mothers who were assessed and met the eligibility criteria for the study,  
245 39% (n=115) expressed an interest in taking part (Figure 1). The expressions of

246 interested that were collected by the introducing community midwives ranged from 1  
247 to 18. The majority of mothers (94%, n=108) who expressed an interest were  
248 successfully contacted by the study team. Of those contacted by the study team, 35%  
249 (n=38) declined to participate. Seventy-eight out of the 149 (52%) face-to-face peer-  
250 support sessions were audio recorded (range 3 - 26 sessions per peer-supporter), and a  
251 sample of 21 were used in the analysis based on purposive sampling. The variation in  
252 number of audio recorded sessions per peer-supporter was due to a combination of  
253 factors. Some peer-supporters felt less comfortable about recording their sessions, in  
254 some cases the circumstances meant it was inappropriate for the session to be  
255 recorded or there were time constraints that made a recording less feasible.

256

257 Figure 1: Recruitment Flow diagram

258

259

260 *EDD=Expected delivery date*

261

262 *Peer-supporter recruitment*

263 We recruited seven peer-supporters who had previously successfully completed  
264 accredited BFPS training, and one peer-supporter was new to the role who was  
265 provided with BFPS training as part of the study. Five of the eight peer-supports lived  
266 in the geographical area in which they were supporting participants, two lived within  
267 a 10-mile radius, and one lived approximately 20 miles away. The peer-supporters  
268 ranged in age from 30 to 44 years, and were all of white British origin.

269

270 *Follow-up data collection*

271 Baseline data were collected for 99% of participants (n=69). Data collection at 10  
272 days follow-up by telephone was successful for 63% (n=44) of participants. Sixty  
273 four per cent of participants (n=45) completed the 8-10 week telephone follow-up.  
274 The interviews indicated that overall, telephone data collection at 10 days postnatal  
275 was acceptable to participants, although some who had a longer stay in hospital or a  
276 difficult birth expressed that 10 days felt too early to be contacted. At 8 weeks, 51.1%  
277 of participants followed up were breastfeeding, with 42.2% exclusively breastfeeding.  
278

### 279 *Uptake of the Mam-Kind intervention*

280 All mothers were offered an antenatal contact with their peer-supporter (face-to-face  
281 or by telephone). The offer of antenatal contact was accepted by 66% (n=35) of  
282 primiparous and 72% (n=18) of multiparous mothers. The majority of mothers  
283 engaged with the intervention: 67% (n=35) of primiparous, and 68% (n=17) of  
284 multiparous mothers accepted at least one antenatal and one postnatal contact.  
285 Mothers who engaged with the intervention reciprocated contact from peer-supporters  
286 either by texting back, answering the telephone call, or meeting the peer-supporter  
287 face-to-face.

288

### 289 *Contact within 48 hours of birth*

290 Seventy-three per cent of mothers (n=51) received a contact within 48 hours of birth.  
291 Peer-supporters reported that the main reason for not achieving any form of contact  
292 within 48 hours of birth was a lack of notification of the baby's birth by either the  
293 mother or the midwife. The main reason for limited face-to-face contact at hospital  
294 sites was that it was not possible for peer-supporters to acquire the required approval  
295 to work on NHS sites within the time available for this study. Any delay could

296 potentially have a detrimental effect on mothers' subsequent engagement with their  
297 peer-supporter and motivation to continue with breastfeeding:

298

299 *"I had the sticker on the front of the folder, but nobody (from the hospital) had*  
300 *actually rung (the peer-supporter). And then it was, I think it was two, two or three*  
301 *days after he'd been born, because I just completely forget really to be honest. Yeah,*  
302 *so then she didn't really get a chance to come up, but then we'd switched over (onto*  
303 *infant formula) in the hospital."* [Mother, PID 201]

304

305 Peer-supporters suggested that they could have visited the wards to introduce  
306 themselves to the staff, engage with mothers, and increase awareness of the  
307 intervention. In site 3, mothers received peer-support on the ward from a different  
308 peer-support service as this was the usual care available in that site, and were  
309 transferred to the care of the Mam-Kind peer-supporter when they returned home.

310

### 311 *Mode and timing of contact*

312 Data from the peer-supporter diaries demonstrated that the majority of contacts in  
313 sites 1 (n= 216, 52%) and 2 (n=373, 73%) were made via mobile phone text message.  
314 In site 3 the majority of contacts were made via phone call (n=144, 68%) (see Table  
315 2). Mothers reported the text message contacts were especially helpful as they could  
316 express their feelings at a time appropriate for them in the knowledge that a peer-  
317 supporter would reply to them as soon as they could.

318

319 *M: “I was able to do that, and even writing it down saying “This is what I’m*  
320 *struggling with”. Makes a big difference with how you’re coping with it.” [Mother,*  
321 *PID109]*

322

323 Table 2: Method and location of contacts between Mam-kind buddies and  
324 participating mothers

325 \*missing data due to incomplete data entry at site 3.

326

327 The majority of contacts averaged across all sites were initiated by the peer-  
328 supporters (n=269, 74% of contacts), consistent with the requirement for pro-active  
329 contact in the Mam-Kind specification. During the interviews health professionals  
330 reported that they received positive feedback from mothers about the amount of  
331 contact, although some of the mothers expressed that the pro-active contact was too  
332 intense for them.

333

334 *“One of the other mums had said it was too much... whereas another mum loved it,*  
335 *and just lapped it up, she could have been visited 100 times and would have enjoyed*  
336 *it.” [Health professional 001]*

337

338 *Quality and content of contact*

339 During the interviews, mothers reported that the antenatal contact helped them to feel  
340 comfortable with their peer-supporter, discussing personal and sensitive information,  
341 and facilitating the peer-supporter-mother relationship.

342



343 *“I think, you see beforehand I would have thought, oh, no it would have been better to*  
344 *have a few meetings to get to know her before I could start giving her personal*  
345 *information and looking to her for support, ....., but one meeting before the baby*  
346 *came it all seemed to work perfectly.”* [Mother PID 102]

347 During the postnatal period, mothers reported that the peer-supporters provided  
348 guidance and signposting to appropriate forms of support on problems such as thrush  
349 on the nipple, mastitis or colic.

350

351 *“When I had thrush it was such a nightmare and one day I even phoned her like half*  
352 *past 6 in the evening she was there to help me, you know she was always there.”*

353 [Mother, PID 103]

354

355 Participants stated that the peer-supporters pre-empted problems they thought mothers  
356 might develop based on what the mothers were telling them, for example strategies  
357 around cluster feeding or feeding in public. Some of the mothers reported feeling  
358 listened to, and that the peer-supporter helped them to think about their breastfeeding  
359 options.

360

361 *“And when you think that somebody can validate your feelings almost, it was like,*  
362 *well I, I didn’t feel happy and I wasn’t comfortable, but somebody saying “No*  
363 *actually, you’re allowed to feel like this”* [Mother, PID 109]

364

365 Participants reported that the peer-supporters helped to build their confidence,  
366 provided reassurance and emotional support.

367

368 *Adherence to intervention content*

369 Content analysis was conducted for 21 peer-support sessions. Findings are presented  
370 in Table 3, in which column headings indicate pre-specified objectives from the  
371 intervention content guide, organised by time point.

372

373 Overall, peer-supporters met 109 out of 117 total objectives. Ten of the 21 sessions  
374 met all objectives and included breastfeeding support that was relevant to the stage of  
375 the intervention. Eight sessions did not cover one of the objectives, and five included  
376 breastfeeding information that was beyond the scope of the session (time-  
377 inappropriate).

378

379 Table 3: Content domain analysis: peer-supporter sessions and objective addressed at  
380 time point

381 *MI skills adherence*

382 Sixteen recordings from eight peer-supporters were rated to assess how peer-supporters were  
383 able to integrate MI in their conversations about breastfeeding maintenance (see web  
384 appendix for inter-coder reliability). For the technical global measures we found a median 2.5  
385 (range 2-4, IQR 2.4-3.5) on a 5-point scale. Peer-supporters achieved higher scores for the  
386 softening sustain talk global measure and lower scores for the cultivating change talk global  
387 measure. Within the relational global scores, we found a median of 3.0 (range 1-4, IQR 1.5-  
388 3.5). Peer-supporters generally had lower partnership scores compared with empathy scores.

389

390 The median ratio of reflective listening statements to questions was 1.2:1 median (range 0:1 -  
391 3.5:1, IQR 0.5:1 to 2.25:1). Of the reflective listening statements used, a median of 37%  
392 (range 0%-75%, IQR 17%-60%) were complex compared with simple. All the peer-  
393 supporters demonstrated both MI adherent (behaviours consistent with MI practice) and non-  
394 adherent behaviours (behaviours not consistent with MI practice).

395

396 The peer-supporters reported that they found it challenging to use MI in the context of  
397 breastfeeding.

398

399 *“Sometimes it felt a little bit uncomfortable, the way sometimes I think MI is worded because*  
400 *we’re not proficient at it yet ... I felt a little bit of a pressure on us to use it ... instead of trying*  
401 *to focus on what the mum was saying, it’s quite hard to explain really.” [PS1 01]*

402

403 Peer-supporters felt they needed practice to increase proficiency. They also found the concept  
404 of focusing on talk about change (change talk) difficult for them, as they felt conflicted in  
405 their role and did not want the participants to perceive them as having a feeding preference.

406

407 *“Because then we also were supposed to be supporting people if they’re bottle-feeding, so ...*  
408 *and also just empowering mums. And if we’re empowering mums, the change talk might be*  
409 *that they do decide to bottle-feed, and that they become happier... So in terms of the training*  
410 *and clarity of what was ... what are we listening for, you know...” [PS1 02]*

411

412 The peer-supporters reflected that they wanted to help fix the participant’s issues by giving  
413 them information. If a participant needed practical help with breastfeeding the peer-  
414 supporters struggled to use MI skills taught to them to provide information or advice in a MI  
415 adherent manner.

416

417 *“The main problem with breastfeeding mums is the latch, getting the positioning right and*  
418 *once that’s right, the feeding tends to flow. But with that it’s less MI because you need to fix*  
419 *it really and give the information.” [PS2 03]*

420

421 Although the peer-supporters did struggle with elements of MI they did express it was  
422 beneficial to their practice.

423

424 *“And I think it was, you know ... beneficial then to ... to ... to the way we came across.”[PS 2*  
425 *02]*

426

#### 427 *Concluding the Mam-Kind Intervention*

428 Two weeks after birth, peer-supporters were asked to facilitate the transition of support to  
429 other community support services such as breastfeeding groups. Some mothers felt they did  
430 not receive a graded exit from the intervention, while others did.

431

432 *“Well I don’t know, maybe it could be phased out a bit more. Erm, maybe you know not full*  
433 *on support, but just you know have a conversation...”* [Mother, PID 102]

434

435 *“And by six weeks, you’ve figured that (breastfeeding latch and routine) out. I think it’s er,*  
436 *it’s a sensible time to do it, any sooner and you’re still a bit lost in the haze.”* [Mother,  
437 PID109]

438 Some mothers felt supported by their peer-supporter in attending groups and described this  
439 experience as helping them to normalise breastfeeding and also provided some structure to  
440 their day.

441

442 *“And I think it was a good place to start feeding in public there because everybody else was*  
443 *feeding as well...So it was nice to see other mums feeding and then you wasn’t as anxious to*  
444 *do it yourself.”* [Mother, PID 315]

445

446 In some cases, the peer-supporter supported mothers for longer than six weeks, with some  
447 mothers reporting that they received contact from their peer-supporter at eight weeks and 15  
448 weeks. This was also reflected in the peer-supporters’ Mam-Kind diary data.

449

## 450 **Discussion**

451 This study established that it is possible to deliver most of Mam-Kind as per the intervention  
452 specification, with good levels of intervention uptake and high acceptability to participating  
453 mothers. There were some challenges around achieving contact between mothers and peer-  
454 supporters at 48 hours post-birth, and improvement in the systems for notifying peer-  
455 supporters of birth and enabling contact on the post-natal wards need to be investigated.

456

457 Peer-supporters demonstrated the use of a range of MI adherent behaviours, but also used  
458 non-adherent behaviours. Refinement of the training is required to ensure that they are given  
459 sufficient support in developing their person-centred communication skills.

460

461 Wide variation in uptake and adherence have been reported in previous RCTs of BFPS  
462 interventions, with some describing low uptake and adherence (Muirhead et al., 2006; Watt et  
463 al., 2009). Other studies have reported more success with uptake and adherence (Graffy et al.,  
464 2004; Jolly, Ingram, Freemantle, et al., 2012), with antenatal contact rates of 80% and  
465 postnatal contact rates of 62% respectively. Despite the challenges reported in a number of  
466 other studies, our results demonstrate that uptake and engagement with Mam-Kind was high,  
467 with 75% of participants having received and reciprocated antenatal and postnatal contacts.

468

469 The majority of mothers were contacted by their Mam-Kind peer-supporter within 48 hours  
470 of the birth of their baby. Birth notification is an issue identified in this study and other  
471 studies (Hoddinott, Craig, Maclellan, Boyers, & Vale, 2012; Rhona J McInnes & Chambers,  
472 2008). By employing peer-supporters through the existing health services this would allow  
473 them access to postnatal wards and potentially allows a peer-supporter to be available 7 days  
474 a week on the ward. This would provide participants with support within 24 hours of birth  
475 similar to other interventions (Hoddinott et al., 2012), however there would be cost  
476 implications attached to this availability.

477

478 The average number of contacts each mother received in the current study was 16, the  
479 majority of which were by text (n=207, 64%), although a range of other methods were used.  
480 Our qualitative interviews showed that the flexibility in method of contact was valued by

481 mothers, and was feasible for peer-supporters to provide. The peer-supporters, consistent with  
482 the requirement for pro-active contact, initiated the majority of contacts. The content analysis  
483 demonstrated that pre-specified objectives were met in most peer-support antenatal and  
484 postnatal sessions. However, provision of a graded exit from the intervention to help  
485 participant's transition to autonomy or to the use of other sources of support (e.g.  
486 breastfeeding groups) could be improved.

487

488 MI informed the Mam-Kind intervention, and our fidelity assessment suggests variability  
489 among peer supporters in their ability to develop MI skills. About a third of peer-supporters  
490 evidenced an ability to listen, affirm, seek collaboration, emphasise autonomy and avoid  
491 confrontation. However, there was also evidence of peer supporters trying to persuade  
492 mothers (MI non-adherent behaviour) to breastfeed by offering opinions or advice without  
493 explicitly reinforcing participants' autonomy. These results are similar to other studies that  
494 have assessed MI skills adherence using the MITI (Bennett, Roberts, Vaughan, Gibbins, &  
495 Rouse, 2007; Mounsey, Bovbjerg, White, & Gazewood, 2006; Tollison et al., 2008),  
496 including one peer-support study (Tollison et al., 2008). In these studies practitioners  
497 demonstrated higher levels of skill in relational competencies, such as empathy and  
498 collaboration, than the peer-supporters in the Mam-Kind study achieved. However, peer-  
499 supporters in the Mam-Kind study demonstrated higher reflections to questions ratios than in  
500 previous studies (Mounsey et al., 2006; Tollison et al., 2008).

501

502 We noted two key challenges related to the integration of MI in our intervention. First, peer-  
503 supporters provided information in a way that was often not MI-adherent, that is, without  
504 supporting mother's autonomy and choice and without tailoring the information to the  
505 mother's knowledge and need. Peer supporters developed breastfeeding expertise during

506 training and were enthusiastic to share this in their sessions. They also, at times, shared their  
507 own success stories rather than understanding the needs, goals, and motivations of the mother  
508 (Allicock et al., 2013). Disclosing personal details has been suggested as part of the peer-  
509 supporter's approach, which can inspire trust, dispel stigma, and instill hope (Oh, 2015). Self-  
510 disclosure can be consistent with MI, where people have asked for this or permission to share  
511 a reflection has been sought by the person providing MI, but peers rarely self-disclose in a  
512 manner that is consistent with MI (Oh, 2015). A second challenge we noted was in the peer  
513 supporter's ability to ensure the conversation stayed focused on breastfeeding. In some  
514 interactions there were many tangential issues that were discussed with long periods of  
515 discussion that were not focused on breastfeeding. Focusing is an important phase of MI as it  
516 identifies the direction of the conversation in order to cultivate change talk (Miller &  
517 Rollnick, 2012). This challenge has been echoed in other research, which has found that it is  
518 difficult for practitioners to focus on one risk factor in "hard-to-reach" populations as their  
519 clients may have multiple needs (Velasquez et al., 2000). It is self evident that, in order to  
520 support mothers regarding breastfeeding maintenance, the conversational focus should be on  
521 breastfeeding for a significant period of time in order to make progress. These observations  
522 reflect underlying challenges with the professionalization of the peer supporter role and have  
523 also led to re-design of key aspects of the Mam-kind intervention.

524

### 525 *Strengths and limitations*

526 This study included a comprehensive process evaluation of the Mam-Kind intervention using  
527 data from qualitative interviews, diaries and audio-recording of intervention delivery, and  
528 quantitative data. The combination of data has allowed for a greater understanding of MI and  
529 intensive peer-support within the context of breastfeeding as we reliably measured MI  
530 fidelity. However, there are some limitations. We only interviewed one woman who



531 disengaged with the intervention resulting in a positive bias in our assessment of  
532 acceptability. The recruitment of eligible mothers to the study was lower than anticipated,  
533 follow up at 8 weeks was lower than expected, and these issues would need to be addressed  
534 in any further study evaluating the effectiveness of the Mam-Kind intervention. In terms of  
535 the content analysis the majority of contacts the peer-supporter had with the participants were  
536 via phone or text, therefore the content that was coded as missing may have been provided to  
537 the mother via another medium other than face-to-face.

#### 538 *Recommendations for refinement of the Mam-Kind intervention*

539 These findings have informed our plans for future research. Given that a proportion of  
540 trainees are more receptive to developing MI skills (Berg-Smith, 2014), recruitment of peer-  
541 supporters could include an empathy pre-screen to aid candidate selection. Cognitive  
542 empathy has been found to account for variance in treatment outcome thought to be of a  
543 clinically meaningful effect (Moyers & Miller, 2013). Although it is possible to observe  
544 empathic listening during an interview there is no reliable measure to assess this (Moyers &  
545 Miller, 2013). The peer-supporter role description could be reframed to allow the peer-  
546 supporter to measure their success based on collaboration rather than information giving. The  
547 tension between this role and system drivers (e.g. the belief that more knowledge alone is the  
548 key to maintaining breastfeeding) for information provision would need to be addressed  
549 during training and supervision.

550 In order to aid MI integration, sessions at each of intervention time point (antenatal,  
551 postnatal, and ending session) can be structured to facilitate focus and use of skill. This  
552 process may help to negate the usage of the MI non-adherent behaviours that can be harmful  
553 to a motivational interview (Magill et al., 2014), as manualised MI interventions have rare  
554 occurrences of MI-non adherent behaviors (Magill et al., 2014). However, it has also been  
555 hypothesised that using a manual may lead to some practitioners to approach talking about

556 behaviour change plans before the client is ready, leading to client resistance and poorer  
557 outcomes (Miller & Rollnick, 2004). The structure of the sessions must take this into account,  
558 allowing the peer-supporter to be flexible, to work with the mother at her pace, in terms of  
559 thinking about behaviour change.

## 560 **Conclusions**

561 We have tested and established the feasibility of delivering the Mam-Kind intervention with  
562 high uptake of the intervention within those that took part in the study. The mothers who  
563 were not lost to follow up and engaged reported that it was acceptable, and found that the  
564 peer-supporters provided them with guidance and reassurance. The combination of  
565 quantitative and qualitative results have highlighted key areas for improvement in  
566 recruitment, training and supervision of those delivering MI within a public health  
567 intervention. Currently, there is a lack of high quality UK-based evidence of effective peer-  
568 support interventions for breastfeeding maintenance. Future research needs to test the  
569 effectiveness of a refined version of the Mam-Kind intervention in a randomised controlled  
570 trial.

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