

# The lactation skill gaps of multidisciplinary paediatric healthcare professionals in the United Kingdom

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## Abstract

**Background:** Breastfeeding is an important public health priority and may be particularly beneficial for medically complex infants and children. However, childhood illness and disability are associated with increased challenges and lower breastfeeding rates. The Baby Friendly Initiative has been shown to increase initiation of breastfeeding and improve health professional skills although as yet the standards have not been adopted in paediatrics. Previous studies have found breastfeeding knowledge gaps among paediatric nurses, and a recent systematic review highlighted insufficient lactation support, discouragement by healthcare professionals and lack of resources. The aim of this survey of UK paediatric professionals was to establish their self-defined confidence and skills supporting breastfeeding.

**Methods:** An online survey was developed to explore associations between level of training and staff confidence and perceived skill, to establish whether there is evidence that more training and/or higher breastfeeding training credentials improve skill. In total, 409 professionals, including paediatric doctors at all grades, paediatric nurses and allied health professionals, were included in the analysis.

**Results:** This study identified specific skill gaps among professionals. Many healthcare professionals felt that different skills and specific training are required to support medically complex children. Several professionals noted that existing breastfeeding training focuses on establishing breastfeeding in healthy newborns rather than sick children in paediatrics. Participants were asked about 13 clinical competencies, and an aggregate skill score was calculated. Multiple univariate analysis of variance found that more extensive training and higher credentials are correlated with higher skill scores ( $p \leq 0.001$ ), whereas type of professional was not.

**Conclusions:** Despite this being a relatively motivated sample of healthcare professionals, the findings of this study suggest that breastfeeding skills are patchy and inconsistent, and particularly lacking when it comes to more complex clinical scenarios. This is significant, because it may mean that children who have more significant illness or medical complexity are disproportionately affected by gaps in knowledge and skill. Medically complex children encounter many barriers to optimal feeding – including absence of designated paediatric lactation staff, resources and support – and may have challenges such as low tone, higher calorie need and transitioning to the breast after ventilation or enteral feeding. Current skill gaps indicate that existing

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training would be insufficient, and bespoke paediatric breastfeeding training based on identified clinical challenges is thus justified.

#### KEYWORDS

breastfeeding, clinical competencies, infant nutrition, paediatrics, public health

#### Key points

- Currently, there is no mandatory undergraduate breastfeeding training for paediatric healthcare professionals. Current optional training is weighted towards the initiation of breastfeeding in healthy term infants and supporting breast milk feeding in preterm infants, rather than sick infants and children admitted to paediatrics.
- Breastfeeding skill gaps in paediatric multidisciplinary healthcare professionals are widespread even in a relatively motivated sample.
- More extensive breastfeeding training is significantly associated with greater confidence and higher self-defined skills.
- Mandatory breastfeeding training for paediatric healthcare professionals should include not only basic breastfeeding principles but also additional training that is nuanced for the needs of the paediatric population.

## INTRODUCTION

Breastfeeding is known to provide optimal nutrition and immunological support to young children. There are many systems in place to facilitate and protect breastfeeding, including policies, training programmes and specialist practitioners employed. One of the most well-known is the UNICEF Baby Friendly Initiative (BFI) standards which aim to improve the standard of breastfeeding support through training, benchmarking and audit. When BFI is implemented, it has been found to increase rates of breastfeeding initiation.<sup>1</sup>

However, breastfeeding support and training available is typically weighted towards the initiation of breastfeeding in healthy newborns, as well as supporting the preterm population. Comparable support for older infants and children admitted to paediatric care is often missing despite the World Health Organisation recommendation to breastfeed children for up to 2 years and beyond,<sup>2</sup> with arguably a greater need for immunological protection in unwell children. For example, although BFI standards are implemented in many maternity and neonatal departments, there are no BFI-accredited children's hospitals or wards, and there is often a lack of investment in training, policy and staff expertise.<sup>3</sup>

It is not only that a lack of training and policy can have a broad impact upon supporting breastfeeding but also that within paediatrics, different breastfeeding challenges exist. Knowledge and skills acquired on a postnatal ward may not be sufficient to effectively support families where a child has medical complexity. Without designated specialist paediatric lactation support, the task of supporting breastfeeding is therefore likely to fall to clinical staff on the ward. However, several studies have found that breastfeeding training for physicians and nurses is inadequate,<sup>4-6</sup> lacks clarity

regarding the optimal educational approach,<sup>7</sup> and many healthcare professionals default to their own experiences of breastfeeding.<sup>8-10</sup> Moreover, training for staff such as those working in dietetics and speech and language therapy, who often support medically complex feeding, is patchy and may be formula industry-funded.<sup>11-16</sup>

Despite this situation, little research examines this issue and its impacts within paediatric settings. Research examining healthcare professionals' breastfeeding training and skill typically focuses on maternity and neonatal settings which misses the added complexity of the multidisciplinary nature of the paediatric environment. This lack of training and skill exacerbates the challenges for mothers breastfeeding their baby or child in paediatric care, increasing the risk of stopping breastfeeding at a crucial nutritional and emotional timepoint.<sup>17</sup> The aim of the current study was, therefore, to explore the current state of experience, training and self-defined clinical lactation skills of UK healthcare professionals in the paediatric setting, to identify potential skill gaps and make recommendations for further training.

## METHODS

### Study design

This study used a self-report online questionnaire consisting of closed and open questions to explore paediatric health professional attitudes, perceived skills and confidence level. Online surveys are an efficient way to reach a large number of participants across the United Kingdom, which was important because of the very limited data available from the United Kingdom, as well as lack of data from multidisciplinary paediatric settings.

## Participants

The survey was open from November 2020 to March 2021, to all UK health care professionals working in the paediatric setting. Inclusion criteria were:

- Participants aged 18 or over.
- Resident and working in the United Kingdom.
- Able to complete the questionnaire in English.
- Medical, nursing or allied health professionals currently working within paediatrics.
- Able to give informed consent.

Midwives, neonatal nurses and health visitors were excluded, even if they were currently working on a paediatric ward because these professionals may have different experiences and training if they come from a BFI-accredited unit.

Ethical approval was sought and granted by the Swansea University School of Health and Social Care Ethics Committee. All participants provided consent prior to completing the survey. Ethical considerations were made with respect to the principles for research on human subjects as outlined in the Declaration of Helsinki.<sup>18</sup>

## Measures

Participants completed an online survey consisting of five sections which was hosted online on Qualtrics UK. Sections included:

- Demographic and professional background of participants, including job role and length of service.
- How confident professionals feel about supporting breastfed infants and children.
- Undergraduate training and experience.
- Self-defined skills in supporting different aspects of lactation.
- Post-registration training and continuing professional development, including obtaining breastfeeding credentials such as peer supporter, breastfeeding counsellor and International Board Certified Lactation Consultant (IBCLC).

Survey questions were developed based on identified challenges from a recent systematic review<sup>3</sup> to explore themes around perception of experience and confidence, as well as the extent to which professionals felt equipped by their training (Appendix A). Level of experience with 13 specific clinical lactation skills and correlations between training and breastfeeding expertise were also explored because they are likely to have an impact on breastfeeding exclusivity and duration among medically complex infants and children. Specific clinical lactation skills responses were summed up to give an overall skills score.

Responses to questions were collected using 5-point Likert scales (strongly agree to strongly disagree) with further options to add free text for some questions.

## Procedure

The study was advertised using social media posts via Facebook, Twitter and Instagram. Posts were shared on the pages of the authors who have combined followers of over 200,000 across Instagram, Facebook and Twitter with encouragement for interested viewers and organisations to share further. During the study period the advert was shared over 170 times across social media platforms. Brief details of the study background and inclusion criteria were included with a link to the survey participant information. If interested, professionals clicked on the link in the post, which contained details of the inclusion and exclusion criteria, along with further information about the study.

## Data analysis

Descriptive and inferential statistical analysis was performed using IBM Statistical Package for the Social Sciences (SPSS) 28.0. Frequencies and percentages of demographic data, including gender, ethnicity, profession and post-qualification years of experience as well as a number of other descriptors, were calculated. Correlations between variables were calculated using Spearman's and Pearson's correlation coefficients, as well as one-way analysis of variance (ANOVA) to establish whether there were statistically significant differences between groups. Given that a substantial number of professionals chose to include further details in the free text boxes, a thematic analysis was undertaken using a simple descriptive approach.<sup>19</sup> Themes were generated from the qualitative data relating to reasons for not undertaking further breastfeeding training. To develop the themes, the first author read and re-read the comments from professionals, assigning each comment with a code until no new codes were required to understand the data. Subthemes were developed from these codes, and themes were discussed between authors until agreement was reached.<sup>20</sup>

## Reliability and validity

Validity and reliability are important aspects to consider when designing a questionnaire for a survey.<sup>21</sup> There was no pre-existing validated tool fit for purpose, as previous surveys have used a pre- and posttest measurement after specific training,<sup>5</sup> or have measured very specific breastfeeding knowledge.<sup>22</sup> Neither of these tools was appropriate for the purpose

of the study. For this reason, questions around specific areas of clinical lactation challenge raised by parents in previous studies<sup>3</sup> were developed to gauge the level of skill and awareness. The questionnaire validity was improved by being reviewed by a nurse, IBCLC, paediatrician and two senior academics, and their feedback refined the questions. The questions were also reviewed by three parents of sick children to check that issues pertinent to their experience were covered. To enhance the validity of the qualitative data, themes from the participants were discussed between authors where there was ambiguity.

To test the reliability of the combined skills score in the survey, a Cronbach's  $\alpha$  was performed and found to have excellent internal consistency.

## RESULTS

### Participant demographics and location

A total of 496 professionals with unique IP addresses started the survey. Three participants were excluded because they were midwives or neonatal nurses. A further 84 people started the questionnaire but only completed the initial non-clinical questions and were therefore excluded. In total, 409 professionals completed all or most of the questionnaire. Those who answered at least 80% of the questions were included, but as responses to individual questions were not compulsory, the overall participant response rate for each question varies slightly.

Most of the participants were female (94.1%), and the most common profession represented was paediatric nursing (59.9%). The participants had a mix of ethnicities that was approximately representative of the UK population.<sup>23</sup> Approximately half (50.5%) of the sample had been qualified within their role for more than 10 years. Overall, there was a varied spread of geographical location and clinical environments, including theatre and recovery, outpatients, oncology and other specialist wards. The most common clinical area was the general paediatric medical or surgical ward (55.6%), but many respondents reported working in the high dependency unit or paediatric intensive care unit (21.3%). There were also three people who worked in a senior clinical role across all departments, or in an educational capacity.

### Training and qualifications

When asked about their undergraduate training, 66.5% ( $n = 246$ ) reported not having any training at all in breastfeeding, and a further 25.7% ( $n = 95$ ) had just 1–2 h of training. Only 3.2% ( $n = 12$ ) had a

whole day or more as part of their training. In terms of whether the health professionals felt that their undergraduate training had equipped them to be able to support families with breastfeeding in the paediatric setting, 71% ( $n = 264$ ) felt that they had not been equipped and only 15.3% ( $n = 57$ ) felt that their undergraduate breastfeeding training was sufficient.

### Breastfeeding credentials, skills and training

The professionals were asked about whether they had undertaken any additional training or had specific breastfeeding qualifications or credentials. Although breastfeeding training is not a core competency of health professionals in paediatrics, some choose to pursue additional training – either funded and facilitated by their healthcare institution or self-funded. A variety of breastfeeding training programmes are currently available, including short courses lasting between 1 and 3 days. Peer supporter training involves approximately 12 weeks of study with supervised practice, and opportunities thereafter to work in paid or voluntary roles in a variety of clinics, community and maternity settings. Breastfeeding counsellor (BFC) training usually lasts approximately 2 years and has a broader curriculum than that of a peer supporter. BFCs, like peer supporters, have a nonmedical, counselling focus. IBCLCs must meet the criteria of having provided 1000 verifiable hours of supervised breastfeeding support and completed 95 h of lactation specific training before passing an exam.

Some of the professionals reported having completed training lasting 1–3 days. Several professionals (11.49%,  $n = 47$ ) had accessed peer supporter training. Fewer professionals had undertaken BFC training (4.9%,  $n = 20$ ), and even less had accessed IBCLC preparation courses or other extensive breastfeeding training providing 50–90+ h of tuition (1.9%,  $n = 8$ ). Because of the small numbers of professionals who had more extensive training, particularly at BFC and IBCLC levels, training was coded as 'extensive' at peer supporter level and up. Professionals who had attended between 1 and 3 days' training were considered to have had 'some' training, and those who had not attended any were coded as 'none' (Table 1).

As Table 1 shows, most of the sample (81.8%,  $n = 294$ ) felt they would benefit from further training in breastfeeding. Despite the high numbers of professionals agreeing that they would benefit from further training, 69% ( $n = 245$ ) had not asked for it. A free text box (see Table 2) enabled professionals to provide reasons for not asking for training. In total, 165 professionals left comments, which were coded into 16 unique themes, showing the complexity of the issue. Many did not ask for training because it was not perceived to be appropriate or felt to be a priority, with many deferring to their own experience.



TABLE 1 Postqualification training and breastfeeding credentials.

Question	Variable	n	%
Do you have any breastfeeding credentials?	IBCLC	8	1.9
	BFC	20	4.9
	PS	47	11.49
	None	334	81.6
Have you attended any breastfeeding training?	Extensive (PS and above)	75	18.3
	Some	71	17.3
	None	263	64.3
Have you been provided with breastfeeding training?	It is mandatory	59	16.6
	It is offered, but not mandatory	114	32.1
	It is not provided	165	46.5
	Not sure	17	4.8
I feel I need or could benefit from breastfeeding training	Strongly agree/ Agree	294	81.8
	Strongly disagree/ Disagree	13	3.3
Have you asked for breastfeeding training from your manager?	Asked, and received	71	20.2
	Asked, but refused	38	10.8
	Not asked	243	69.0
In paediatrics, you need different or additional skills, compared with healthy children	Strongly agree/ Agree	331	93.3
	Strongly disagree/ Disagree	1	0.3

Abbreviations: BFC, breastfeeding counsellor; IBCLC, International Board Certified Lactation Consultant; PS, peer supporter.

## Confidence and experience in supporting breastfeeding

Participants were asked to rate how experienced and confident they felt supporting breastfeeding. Response options were via a 5-point Likert scale (strongly agree to strongly disagree). In terms of how experienced the professionals felt they were at supporting parents to breastfeed, 53.8% ( $n = 205$ ) agreed that they felt experienced with 25.2% ( $n = 96$ ) feeling that they lacked sufficient experience. Likewise, when asked 'On an average shift, I feel confident about being able to answer any questions about breastfeeding?' 53.1% ( $n = 198$ ) agreed and 23.6% ( $n = 88$ ) disagreed. One-way ANOVAs found that there was no statistically significant difference between professional groups and how confident they felt ( $F(4, 366) = 1.159$ ,  $p = 0.329$ ) or between professional groups and how experienced they felt ( $F(4, 375) = 1.661$ ,  $p = 0.158$ ).

A one-way ANOVA then explored whether different professions were more or less likely to believe that breastfeeding was not part of their job description. In this sample, there was no statistically significant difference between professional groups in the belief that supporting breastfeeding is part of their role ( $F(4, 349) = 474$ ,  $p = 0.755$ ).

Questions also explored how experienced professionals felt they were in supporting breastfeeding, whether they had any additional responsibility for infant feeding on their ward or unit and the source of their knowledge (Table 3).

When asked about the source of their breastfeeding knowledge, some of the professionals (12.6%,  $n = 62$ ) had personally funded additional training, whereas others reported that their training came from their personal experience (44.4%,  $n = 219$ ), another colleague on the ward (27.8%,  $n = 137$ ), NHS funded training (25.4%,  $n = 125$ ) and websites or books (25.8%,  $n = 127$ ). About 12.4% ( $n = 61$ ) reported that their undergraduate training was the source of their knowledge, and 5.9% ( $n = 29$ ) felt they didn't have any specific knowledge.

## The relationship between attitudes to breastfeeding, training and confidence

It is feasible that professionals who value breastfeeding seek out more training and feel more confident in supporting families. Pearson's correlations were used to explore these relationships, finding a significant positive correlation between a belief that breastfeeding is important and breastfeeding support confidence ( $r(371) = 227$ ,  $p < 0.001$ ) and similarly a significant positive correlation was found between the belief that breastfeeding is important and desire for more training ( $r(354) = 209$ ,  $p < 0.001$ ). Additionally, those who believed that supporting breastfeeding goals was part of the job were significantly more likely to also have a higher desire for more training ( $r(354) = 31$ ,  $p \leq 0.001$ ), and a higher level of confidence in supporting breastfeeding ( $r(371) = 33$ ,  $p \leq 0.001$ ).

In terms of training received (which was grouped by 'none', 'some' [1–3 day training] and extensive [peer supporter, BFC and IBCLC]), a Spearman correlation coefficient calculation found a significantly positive correlation between a belief that supporting breastfeeding is part of the job and more extensive training in breastfeeding ( $r(355) = 115$ ,  $p = 0.03$ ) suggesting that those most committed to supporting breastfeeding on the ward also demonstrate this commitment through accessing further training.

In terms of perceived health professional confidence, it could be expected that greater experience and training would lead to greater levels of confidence. Spearman's correlation found a significant positive correlation between confidence and higher breastfeeding credentials ( $r(373) = 322$ ,  $p < 0.001$ ). Those who felt more confident also had a higher level of experience, measured using participant self-report with Likert scales

TABLE 2 Reported reasons for not asking for breastfeeding training.

Reasons	Examples
1. Lacking confidence to ask	‘My manager isn’t approachable’ (Paediatric nurse) ‘Know they wouldn’t think it was important enough’ (Paediatrician)
2. Unaware	‘Don’t see it [breastfeeding] often on PICU so rely on my own experiences, and didn’t know courses exist’ (Paediatric nurse) ‘There is no training for this in paediatrics’ (Nursery nurse) ‘Didn’t know it was available’ (Paediatrician)
3. Not invested	‘It does not particularly interest me’ (Paediatric nurse) ‘One expects that the training one is given is already appropriate and complete. I don’t think trainees should be expected to know what the gaps in their training are – this should come from deaneries/trainers/supervisors’ (Paediatrician)
4. Limited exposure to breastfeeding	‘Very rare to have a breastfed baby on the ward’ (Paediatric nurse)
5. Hostility	‘Because it is not my job! Would rather not have the breastfeeding police infiltrating paediatrics!’ (Paediatrician) ‘Current unit not pro breastfeeding’ (Paediatrician)
6. Not felt to be necessary	‘Most children are established with breastfeeding already or are receiving other methods of feeding (i.e., enteral)’ (Paediatric nurse) ‘Always “got by” without it’ (Paediatric nurse)
7. Already feel skilled	‘Not needed as previous role was Health Visitor’ (Paediatric nurse)
8. Cessation of training due to COVID-19 pandemic	‘Asked and was due to attend but it was cancelled as it was during lockdown. It has not been rescheduled’ (allied health professional [AHP])
9. Training isn’t helpful	‘The course we get put on isn’t helpful and my own knowledge from teaching myself and feeding my babies is more than the course gives’ (Adult nurse working in paediatrics)
10. Being newly qualified	‘Only qualified for year and a half, unaware of what is extra training’ (Paediatric nurse)
11. Delegate to midwives/neonatal team	‘I feel that if I ever have a problem that I need sorting with breastfeeding, I contact NICU and the midwives there and they can give advice and come help the mum personally. So, there is expertise available, it just may not be me’ (Paediatric nurse)
12. Lack of time, or the training would be undertaken on annual leave	‘Breastfeeding training is available but in your own time and very limited availability’ (Paediatric nurse) ‘Lack of time/opportunity’ (Paediatrician)
13. Existing training focuses on establishing feeding in healthy newborns and sick neonates	‘Some is provided via neonatal training, but breastfeeding seems relatively forgotten about in the paediatric setting’ (Paediatrician) ‘Only basic training available (1/2 day)’ (AHP)
14. Not felt to be applicable to their role	‘Not obligated for role’ (Paediatrician) ‘Not applicable to job role’ (AHP)
15. Other clinical priorities	‘Often we don’t have time, and more pathological conditions take precedent’ (Paediatrician)
16. Rely on personal experience of breastfeeding to get through any questions that arise	‘Personal experience of breastfeeding difficulties I feel I have a good knowledge. Breastfeeding training (in neonates) roughly every 6 m focuses on the benefits of BF rather than how to overcome any of the difficulties’ (Paediatrician) ‘I have learnt a lot through my own breastfeeding journeys’ (Paediatrician)

**TABLE 3** Participant responsibility for and experience of supporting breastfeeding.

Question	Response option	<i>n</i>	%
Do you have any additional responsibility for infant feeding on your ward/department?	Yes	64	17.9
	No	293	82.1
Where does your experience come from?	My undergraduate training	61	12.4
	Additional courses provided by my NHS employer	125	25.4
	Private courses or training I have funded myself	62	12.6
	My personal breastfeeding experience	219	44.4
	A colleague on the ward	137	27.8
	Websites/books	127	25.8
	I don't feel like I have a specific information	29	5.9
Is there someone who has been identified as having additional expertise on the ward?	Yes	229	64.5
	No	84	23.7
	Not sure	42	11.8

( $r(371) = 76$ ,  $p < 0.001$ ). Those who had greater confidence were also significantly more likely to recognise that differences in skills could be needed to support a paediatric population ( $r(353) = 16$ ,  $p = 0.002$ ) and that different or additional tools and skills are required to adequately support breastfeeding, compared to supporting healthy children ( $r(371) = 16$ ,  $p \leq 0.002$ ).

Awareness of the need for training was also linked to experience. Pearson's correlations found a significant relationship between professionals' self-identified need for training and whether they felt there was enough support on their unit ( $r(343) = -0.262$ ,  $p \leq 0.001$ ), suggesting that those who feel they need more training are more likely to feel that families are not well supported – possibly due to increased awareness of the information and support *not* being provided on their ward or unit.

### Specific lactation support skills

Based on many of the areas of challenge elucidated from previous research, professionals were asked if they had any experience supporting 13 specific breastfeeding skill areas (response options: yes, lots, yes, a little and no). Table 4 shows the proportion of participants who agreed that they had different levels of experience supporting specific breastfeeding challenges.

Respondents were more likely to identify having lots of experience in simple aspects of breastfeeding support such as supporting parents to express milk and providing encouragement. The skills that professionals felt they had generally less experience with

included identifying poor milk transfer through a feed assessment and supporting hypotonic infants. Less than 9% of respondents ( $n = 348$ ) had lots of experience supporting infants with orofacial anomalies and relaxation.

### Aggregate skill score

As there were numerous breastfeeding skills rated by participants, an overall skill score was calculated by combining responses for each individual skill. Responses were scored as 'Yes, lots' [3], 'Yes, a little' [2] and 'No' [1] giving a potential score from 13 to 39. The range of the scores was 13–39, with a median score of 23, and a mean score of 24.544 (SD  $\pm 6.622$ ). To test the internal consistency of these items as a combined scale, Cronbach's  $\alpha$  was computed ( $\alpha = 0.916$ ) demonstrating excellent internal consistency across these items.

Next the relationships between perceived level of skill and experience and training and other factors that might have impacted breastfeeding skills were examined. Table 5 shows the differences in skill score across different aspects of experience, responsibility and training. Several tests were used to explore skill differences by different training aspects. Spearman's correlations found that skill scores were significantly correlated with post-qualification years of experience ( $r(408) = 125$ ,  $p = 0.016$ ) and extent of training ('Extensive', 'Some' and 'None') ( $r(368) = 423$ ,  $p \leq 0.001$ ). Pearson's correlation found a significant positive correlation between skill level and perception of having greater experience in supporting breastfeeding ( $r(386) = 676$ ,  $p \leq 0.001$ ).

Specific breastfeeding skills	Lots		Some		None	
	N	%	N	%	N	%
Providing encouragement to breastfeed	193	50.8	152	40.0	35	9.2
Supporting mothers to express milk	152	40.0	162	42.6	66	17.4
Able to identify adequate milk intake	123	32.5	160	42.2	96	25.3
Able to provide information about the benefits of non-nutritive sucking	116	30.4	176	46.2	89	23.4
Helping mothers to protect or increase their milk supply	111	29.1	170	44.6	100	26.2
Improving latch to reduce nipple pain	96	25.2	170	44.6	115	30.2
Supporting infants with high caloric need	78	20.4	145	38.0	159	41.6
Helping mothers to restart breastfeeding after tube feeding	75	19.8	158	41.7	146	38.5
Supporting common breastfeeding challenges, such as mastitis	70	18.4	150	39.4	161	42.3
Experience with hypotonic/sleepy infants	68	17.9	151	39.8	160	42.2
Identifying poor milk transfer through a feed assessment	60	15.8	145	38.2	175	46.1
Experience supporting infants with orofacial anomalies	34	8.9	121	31.7	227	59.4
Supporting relactation (restarting breastfeeding after a gap)	33	8.7	91	25.1	257	67.5

TABLE 4 Participants' perceptions of own breastfeeding clinical skills.

Significant differences in skill score were also found between those who had additional responsibility and those with no additional responsibility for infant feeding. A one-way ANOVA test showed that those with additional responsibility had higher self-assessed skills ( $F(1, 344) = [59.870], p \leq 0.001$ ). However, there was no statistically significant difference in skill scores by profession ( $F(4, 362) = [2.226], p = .066$ ), or amount of undergraduate training ( $F(4, 356) = [1.621], p = .168$ ).

## DISCUSSION

This study, which explored the perceived skills, training and experience of professionals working in paediatric wards and units in the United Kingdom, recruited more than 400 healthcare professionals, including paediatric nurses, doctors at all grades and allied health professionals. The relatively high levels of positivity towards breastfeeding were anticipated given that this was a self-selecting sample exploring breastfeeding. Nevertheless, despite this being a motivated sample, there were many gaps in knowledge, with very few being confident and experienced to support a full range of clinical lactation challenges. Some of the skills could be classified as specialist – for example, supporting the return to direct breastfeeding after tube feeding. It could therefore be argued that not all staff would be expected to be competent in all skills. However, the sample included 133 professionals who worked in an intensive care environment and therefore could reasonably be expected

to have some exposure to these scenarios. Additionally, more than half the sample reported that they would feel confident to answer *any* questions that arose during their work with breastfeeding families, yet this was not borne out when they were subsequently asked about specific clinical skills. This may suggest that these clinical scenarios had not occurred to them prior to being prompted, or that they were unaware of their own gaps in knowledge.

Worryingly, the gaps in skill were not limited to more complex clinical scenarios such as relactation, but also to breastfeeding fundamentals. For example, only about 15% of the sample had lots of experience identifying poor milk transfer through undertaking a feeding assessment – which is far lower than might have been expected for a sample that self-identified as being relatively experienced. Given the likely overrepresentation of more informed and skilled professionals, the implication is that a more representative sample is likely to have greater skill and knowledge gaps as well as more negative attitudes.

### Attitudes, confidence and experience with breastfeeding support

In this study, more than half the sample felt they were experienced with supporting breastfeeding, and a similar number felt confident about addressing most questions that arose on their shift. Many of the professionals reported that their experience comes from their own personal breastfeeding journey. This was reflected in



TABLE 5 Comparisons of skill scores by different indicators of experience and responsibility in infant feeding support.

Question	Variable	N (368)	%	Mean skill score $\pm$ SD 24.543 $\pm$ 6.622	Significance
Skill by credential	IBCLC	8	2.17	36.125 $\pm$ 3.136	$F(3, 364) = [24.730]$ , $p \leq 0.001$
	BFC	19	5.16	30.842 $\pm$ 5.510	
	PS	46	12.5	27.717 $\pm$ 5.698	
	None	295	80.16	23.328 $\pm$ 6.198	
Skill by level of training	Extensive	65	17.66	29.461 $\pm$ 5.929	$r(368) = 423$ , $p \leq 0.001$
	Some	77	20.92	26.597 $\pm$ 6.341	
	None	226	61.41	22.429 $\pm$ 6.622	
Skill by profession	Paediatric nurse	224	60.86	24.821 $\pm$ 6.508	$F(4, 362) = [2.226]$ , $p = 0.066$
	Health Care Assistant (HCA)	9	2.44	22.111 $\pm$ 7.896	
	Paediatrician	92	25.0	23.217 $\pm$ 5.217	
	Allied health professional (AHP)	39	10.59	26.435 $\pm$ 8.567	
Skill by number of years post qualification	<2 years	23	6.25	23.826 $\pm$ 5.449	$r(408) = 125$ , $p = 0.016$
	2–5 years	59	16.03	23.118 $\pm$ 6.028	
	5–10 years	98	26.63	23.806 $\pm$ 6.223	
	10–15 years	79	21.46	24.683 $\pm$ 6.115	
	15+ years	108	29.34	24.504 $\pm$ 6.588	
Skill by extent of agreement of having lots of experience	Strongly agree	63	17.11	32.158 $\pm$ 5.562	$r(386) = 676$ , $p \leq 0.001$
	Agree	137	37.22	26.379 $\pm$ 5.009	
	Neutral	73	19.83	21.739 $\pm$ 4.790	
	Disagree	77	20.92	19.389 $\pm$ 4.069	
	Strongly disagree	17	4.61	17.058 $\pm$ 6.630	
Skill by additional infant feeding responsibility	Additional responsibility	63	17.11	30.031 $\pm$ 5.710	$F(1, 344) = [59.870]$ , $p \leq 0.001$
	No additional responsibility	283	76.90	23.413 $\pm$ 6.230	

Abbreviations: BFC, breastfeeding counsellor; IBCLC, International Board Certified Lactation Consultant; PS, peer supporter.

many of the comments left in the free text boxes, with several professionals stating that they did not feel the need for training as they had their own personal experience. This has previously been highlighted by several other studies exploring training and attitudes of general practitioners,<sup>24,25</sup> obstetricians and gynaecologists,<sup>26</sup> medical students<sup>27</sup> and paediatricians.<sup>8,28</sup> However, many of these studies have also found that knowledge is lacking, clinicians do not feel confident and practice may not be evidence-based.<sup>9</sup> This is problematic because parents are more likely to receive conflicting or inaccurate information which may make achieving their breastfeeding goals harder. Biases and negative attitudes can be hard to change, and studies in other clinical settings have found that personal experience of breastfeeding not only can impact the care

provided but also highlight the differences between theory and practice.<sup>6,10</sup> In this study, there was no significant difference between groups of professionals and the belief that breastfeeding was part of their job, so despite the speculation by some of the professionals in the sample, no single professional group appeared to believe that supporting breastfeeding was someone else's job.

Notably, there were some hostile comments and some professionals who felt strongly that breastfeeding support was *not* part of their job, or that it was not important for children. Although these attitudes were relatively rare in this sample, they are concerning given that this study is likely to have an overrepresentation of breastfeeding advocates. It is therefore unknown how prevalent these hostile attitudes are more broadly in UK

paediatric settings. Negative attitudes are potentially damaging to families, given that hospitalisation can significantly impact breastfeeding.<sup>29,30</sup> One study found that nurses' attitudes towards breastfeeding were strongly influenced by whether they themselves were breastfed, and many nursing students felt that encouraging mothers to breastfeed is synonymous with pressurising them.<sup>31</sup>

Some of the participants in this study demonstrated ambivalence – with 4% of the sample selecting the 'neither agree nor disagree' option for the questions relating to the importance of breastfeeding. Ambivalence has previously been found to discourage breastfeeding.<sup>32</sup> Active support and encouragement are known to promote breastfeeding, especially when this comes from a health professional<sup>33,34</sup> and thus the attitude of not appearing to have an opinion on infant feeding may have a detrimental impact on the maintenance of breastfeeding during illness.

## Undergraduate training

It is important to consider undergraduate training as the first potential exposure to information that may shape practice. Very few respondents had received at least a whole day of training on breastfeeding, with the majority expected to learn on the job. Yang et al.<sup>35</sup> found that a common issue is that most health professional students learn from supervising colleagues in the clinical setting, which introduces a considerable degree of variability and bias. A minority of respondents felt that their undergraduate training had adequately prepared them for supporting families on the ward. The sense that undergraduate training is insufficient to prepare clinicians for the practicalities of supporting breastfeeding was echoed in a study by Brzezinski et al.,<sup>36</sup> which similarly found many skill gaps and lack of confidence among paediatric nurse practitioners, despite them having a positive attitude towards breastfeeding.

The low rates of provision of breastfeeding training to undergraduate healthcare professional students are unsurprising given the absence of oral infant feeding on any clinical competency but are nevertheless concerning and are likely to be contributing to the widespread lack of confidence among practitioners.<sup>8,37–39</sup>

## Credentials, skills and postqualification training

In terms of postqualification training, only a minority had extensive breastfeeding training, and the majority had not received *any* breastfeeding training. Breastfeeding credentials provided by different training organisations are varied, with different curricula and inconsistent assessment or credentialing procedures.<sup>40</sup> Training may also be provided by nonclinical BFCs and IBCLCs, but there are no studies that have explored the effectiveness of this training by lay

professionals, or indeed joint training.<sup>41</sup> The skill sets of clinical and nonclinical lactation supporters are likely to be different, even though they may attend similar lactation training. This is because clinicians' breastfeeding knowledge and how to apply or adapt this knowledge to sick children is likely to be augmented by their clinical training and experience. It is therefore important to acknowledge that although many nonclinical lactation professionals provide effective support to lactating mothers of healthy children, it is unclear where *their* skill gaps are when working with medically complex children.

Only 15% of the participants in this study were dual-qualified healthcare and lactation professionals, and the ones who were had consistently higher levels of skill. There is a paucity of research on these dual-qualified professionals, but one study found that compared with visiting a paediatrician, parents had more confidence and trust when receiving support from a dual qualified paediatrician and IBCLC.<sup>42</sup> Other areas in the United Kingdom have established specialist clinics within health visiting and midwifery services that are staffed by dual-qualified health professionals and IBCLCs.<sup>43–46</sup> However, extensive breastfeeding training requires significant investment which is not always realistic alongside clinical work. Having 1–3 days of training did not increase skill scores as significantly; however, this is likely to be a much more realistic time commitment alongside busy NHS roles.

When asked about what would help professionals support parents better, more people selected specific breastfeeding training relating to sick children than any other intervention. Interestingly, professionals with higher skill scores were more likely to agree that they need or would benefit from training. Indeed, this awareness of the need for training has previously been found among studies of junior doctors<sup>37</sup> and medical students.<sup>38</sup> Despite the clear perception that training would be beneficial, most of the respondents had not asked their manager for training. When asked why, the responses included the training not being easy to access, pitched at an inappropriate level, not fit for purpose or hard to prioritise amidst other competing clinical needs. A small study in a large children's hospital found that current training focused on healthy infants, rather than supporting breastfeeding in complex cases.<sup>8</sup> Another study found that there is a lack of practical skills-based training provided to healthcare professionals.<sup>39</sup> This issue was raised numerous times by the participants of this study, with many pointing out that their knowledge of breastfeeding from their own experience of overcoming challenges had provided more information than that which would be gained from currently available training.

## Breastfeeding clinical skills

Despite relatively high numbers of professionals having additional training and credentials, there were

many skill gaps. In this study, *any* training was associated with having skill scores above the mean, and participants were able to select 'some' experience in terms of their skill, which does not necessarily equate to full competence.

Many studies have previously found that breastfeeding training improves clinical skills and knowledge of healthcare professionals.<sup>5,9,22,47–49</sup> One randomised controlled trial found that a 14-min educational DVD significantly increased professionals' skills in positioning and attachment and hand expressing.<sup>50</sup> To try to reduce the levels of breastfeeding modification after hospitalisation for bronchiolitis, a programme of training, as well as investment in more breast pumps and better signage and health promotion posters, was implemented. The researchers in the study found that following this programme, only 20% of mothers had unwanted breastfeeding modification after discharge from hospital, compared with 50% before the training programme.<sup>29,51</sup>

More training has been clearly shown to increase skills in a general sense, but no study has so far explored the impact of different levels of training on skills. In this study, different levels of training had a clear impact on subsequent skill scores. There was more consistency and breadth of skill with higher credentials. The skill scores were higher in the IBCLC group compared to the other groups, yet this was not statistically significant and because the number of IBCLCs in this sample was small, their scores were combined with those of the BFCs and peer supporters.

No significant correlations exist between level of skill and profession, although some groups such as allied health professionals may be too small to see differences. Although caution is required as this may not be representative of the broader situation on paediatric wards, it suggests that multi-disciplinary learning may be a valid option, as there may not necessarily be a professional group that stands out as being significantly more or less clinically competent with breastfeeding support.

The difference between the professionals who felt they were the most experienced and those who felt they were the least experienced represents a significant clinical skill shortfall which has the potential to impact the care a breastfeeding family receives on a very practical level. These skill gaps additionally are likely to impact children with more serious illness disproportionately because the clinical skill scores were generally lower for more complex lactation challenges. The feeding needs of critically ill children are under-researched, and this is also evident within this study. It is particularly notable that breastfeeding competence with critically sick children is lacking because challenges such as feeding intolerance is known to be a significant problem,<sup>52–54</sup> as well as both fluid overload<sup>55</sup> and undernutrition,<sup>56</sup> and human milk may be easier to digest.<sup>57,58</sup>

## LIMITATIONS

There were several limitations of this study. Firstly, this study recruited healthcare professionals via an online advert for practical access reasons during the COVID pandemic, and also to reach a large sample of professionals. Online surveys are a popular and cost-effective way of reaching a large sample within a population of interest, partly because technology has become more accessible but also because they are convenient to complete at a time that suits the respondent – which may increase the response rate.<sup>59</sup> The disadvantages include the lack of opportunity for a researcher to clarify questions, survey fraud and the bias towards people who can access the Internet.<sup>60</sup> Selection bias can be mitigated by predicating it and understanding that those most invested in making a phenomenon better are more likely to complete a survey relating to the phenomenon.<sup>61</sup> Predicting this selection bias influenced the choice of questions to increase the generalizability of the results. Nevertheless, despite the fact that this study is likely to have recruited an overrepresentation of breastfeeding advocates, level of skill was still generally low, which highlights a major gap within paediatrics.

Another limitation is the lack of quantification of level of experience with clinical skills. Asking professionals whether they had 'some' or 'lots' of experience was a deliberate use of language chosen to avoid professionals being put off answering through feeling embarrassed or unsure. It is also impossible to accurately quantify these skills without a practical skills test or in-depth individual audit. Thus, the use of the words 'some', and 'lots' was a pragmatic solution. Although these words are subjective, they are also non-threatening, and the completion rate of these questions was high. The usefulness of this question was increased by further questions that have, in combination, suggested that participants were generally honest about their abilities. However, future studies should attempt to quantify this with more objective accuracy.

Finally, not all the data are complete, due to some professionals exiting the survey before completing it or omitting questions. One of the problems with online research is that the researcher is unable to prompt the participant, ask for clarification or encourage them,<sup>62,63</sup> but on balance, with controversial topics, online research may enhance the acceptability of the questions because of anonymity.

## CONCLUSION

In terms of what is important to families, we know that they need timely, accurate information<sup>64</sup> and individualised support based on their needs.<sup>49</sup> The findings of this study suggest that breastfeeding skills are patchy and inconsistent, and particularly lacking when it comes to

more complex clinical scenarios. The potential skill gaps may be explained by the fact that in general, most health professionals defer to their personal experience when trying to answer questions about breastfeeding challenges, and the currently available training is focused on healthy term infants, rather than populations with more complex needs. Although professionals are obliged to take responsibility for their own ongoing development and learning needs, in reality, although breastfeeding training is not mandatory, it is likely that only those who are already invested will choose to attend further training. Mandatory infant feeding training is likely to be the only way to ensure that all those who are involved with sick infants and children have a minimum standard of breastfeeding awareness and training. This training should not only cover basic principles of infant feeding but also equip professionals to refer families to specialist resources if these are needed. In addition, paediatric infant feeding leads should be appointed, and these individuals should receive additional training in some of the more unique and specialised lactation skills identified as skill deficits in this study.

Despite this being a relatively invested sample, there was evidence of some antagonism towards breastfeeding, and many professionals not only did not know how to support families with lactation challenges but also did not know to whom they could refer. Skill deficits identified in this study indicate that existing training is insufficient, and bespoke paediatric breastfeeding training based on the identified clinical challenges is justified.

#### AUTHOR CONTRIBUTIONS

Lyndsey Hookway and Amy Brown were responsible for study conception. Lyndsey Hookway was responsible for data collection, analysis and draft manuscript completion. Amy Brown was involved in supervision of statistical analysis. Lyndsey Hookway and Amy Brown were both involved with critical revisions.

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#### CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

#### TRANSPARENCY DECLARATION

The lead author affirms that this manuscript is an honest, accurate and transparent account of the study being reported. The reporting of this work is compliant with STROBE. The lead author affirms that no important

aspects of the study have been omitted and that any discrepancies from the study have been explained.

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#### PEER REVIEW

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## APPENDIX A: HEALTH CARE PROFESSIONAL SURVEY QUESTIONS

### Section 1: About your clinical experience and where you work

#### 1.1 What is your ethnicity?

White/White British	White/White Irish	Gypsy/Traveller	Asian or Asian British: Bangladeshi	Asian or Asian British Indian	Asian or Asian British: Pakistani
Asian or Asian British: Chinese	Asian or Asian British: Other	Black or Black British	Mixed or Multiple	Other	Prefer not to say

#### 1.2 What is your gender?

- Female
- Male
- Trans \*male
- Trans \*female
- Gender non-binary
- Self-defined (please state)
- Prefer not to say

#### 1.3 What is your profession? (Choose one)

- Paediatric nurse
- Health care assistant working in paediatrics
- Paediatrician (consultant)
- Paediatrician (clinical fellow)
- Paediatrician (ST 1-6)
- Physiotherapist
- Occupational therapist
- Speech and language therapist
- Dietician
- Other

#### 1.4 How long have you been qualified? (Choose one)

- Less than 2 years
- 2–5 years
- 5–10 years
- 10–15 years

- 15+ years

#### 1.5 Do you work in a specialist (tertiary) paediatric referral centre, or a local hospital? (Choose one)

- Specialist centre
- Local hospital

#### 1.6 Which region best describes where you work?

- England – North
- England – South
- England – East
- England – South West
- England – Central
- England – London
- Wales
- Scotland
- Northern Ireland
- Ireland

#### 1.6 Within your hospital, what kind of environment(s) do you work in? (Allow more than one)

- General paediatric medical/surgical ward
- Ambulatory care/rapid assessment unit
- Emergency department
- PICU
- Cardiac intensive care unit
- Children's outpatients

- Theatre/recovery
- Other

1.7 Do you regularly care for infants and children under the age of 2 (Choose one)

- Every shift
- Nearly every shift
- Hardly ever
- Not at all

## Section 2: How you feel about supporting families of breastfed infants and children

2.1 How much would you agree with this statement: "I have a lot of experience supporting breastfeeding"? (Choose one)

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

2.2 Where does your breastfeeding information largely come from? (Allow more than one)

- My undergraduate training
- Additional courses provided by my NHS employer
- Private courses or training I have funded myself
- My personal breastfeeding experience
- A colleague on the ward
- Websites
- I don't feel like I have any specific information

2.3 Do you have any experience supporting families with any of the following issues: (Allow more than one)

- Providing encouragement to breastfeed
- Positioning, improving latch to help with nipple pain
- Identifying poor milk transfer
- Identifying adequate milk intake
- Supporting common breastfeeding parental challenges, such as mastitis, blocked ducts
- Supporting parents to express their milk
- Helping parents who need to be able to protect or increase their milk supply
- Re-starting breastfeeding, or inducing lactation
- Supporting infants with higher caloric need
- Supporting infants with low tone or sleepiness
- Supporting infants with anatomical challenges such as oro-facial anomalies
- Supporting infants to return to breastfeeding after tube feeding
- Providing information to families about the non-nutritive benefits of breastfeeding

## Section 3: Your experience and training within infant feeding

3.1 Do you have any kind of additional responsibility specifically related to infant feeding on your ward? (Choose one)

- Yes (please specify)
- No

3.2 Do you have any of the following breastfeeding credentials? (Allow more than one)

- IBCLC
- Breastfeeding counsellor
- Peer supporter
- Something else
- None of the above

3.3 Have you attended any of the following training? (Allow more than one)

- IBCLC preparation courses
- Online lactation training courses providing 50–90 hours of training
- Peer support training
- UNICEF 2-day breastfeeding training
- UNICEF eLearning for paediatric nurses
- Other training

3.4 During the course of an average week, how often do you provide clinical care to a breastfed child? (Choose one)

- Every shift
- Most shifts
- Rarely
- Never

3.5 On an average shift, I feel confident about being able to answer any questions about breastfeeding that arise. (Choose one)

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

3.6 When you remember your initial training, how much education did you receive in relation to breastfeeding? (Choose one)

- We had a whole day of training
- We had 1–2 hours of basic training
- It was assumed we would learn on the job
- I can't remember having any information about breastfeeding
- Other

3.7 Thinking back to the training you have received (not including any personal experience), to what extent do you agree that your training equipped you to be able to support breastfeeding families on the ward? (Choose one)

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

## Section 4: Post-registration training and continuing professional development

4.1 Thinking about the training you have received *after* qualifying, is breastfeeding training something that you have been provided with? (Choose one)

- Yes, it is mandatory
- It is offered, but not mandatory
- No, it is not provided

4.2 Is there someone on the ward or department where you work who has been identified as someone with additional infant feeding/breastfeeding expertise? (Choose one)

- Yes
- No
- I'm not sure

4.3 I feel that breastfeeding training is something I need or could benefit from. (Choose one)

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

4.4 In paediatrics, you need different skills and tools to be able to adequately support breastfeeding to continue, compared with people supporting healthy infants and children. (Choose one)

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

4.5 Have you ever asked for breastfeeding training from your ward manager? (Choose one)

- Yes, and I have received it
- Yes, and I wasn't given any
- No, I've not asked

4.6 If you have not asked for breastfeeding training, could you explain your reasons for this?

4.7 In your opinion, what would help you to be better able to support breastfeeding families on the ward or department where you work? (Allow more than one)

- A breastfeeding policy
- Better undergraduate training
- Specific breastfeeding training that relates to the care of sick children
- Leaflets and handouts available to give to parents on the ward
- A designated paediatric infant feeding team
- Something else?
- I'm not sure

4.8 I believe that breastfeeding is important for children, whether they are unwell or healthy

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

4.9 I believe that supporting parents to reach their breastfeeding goals is an important part of my job

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Thank you, this is the end of the questionnaire. Thank you for your time, your responses are very much appreciated.

If as a result of taking part you have any questions or concerns about your wellbeing, we encourage you to contact your midwife, health visitor or GP who can provide you with further information and support. If you have questions about the support or training provision in your department, you can ask your manager.

If you have any questions about your own personal feeding experience, you can also contact one of the breastfeeding organisations:

- National Breastfeeding Helpline 0300 100 0212.
- Association of Breastfeeding Mothers 0300 330 5453.
- La Leche League 0345 120 2918.
- National Childbirth Trust (NCT) 0300 330 0700.
- The Breastfeeding Network Supporter line in Bengali and Sylheti: 0300 456 2421.

## AUTHOR BIOGRAPHIES

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