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Research dissemination and impact: Reflections on the Doctoral Midwifery Research Society's Spotlight on Breastfeeding Research

Key words: Breastfeeding, Doctoral Midwifery Research Society, congenital anomalies, population data collection, evidence-based midwifery

The sound of exuberant chattering and the vision of sheer joy, manifested in noisy and prolonged hugs was a truly awesome phenomenon to experience at the recent Doctoral Midwifery Research Society (DMRS) event in Ulster in November, when we held our second 'Spotlight on Breastfeeding Research' event. We had anticipated a small group of approximately 50 but this was doubled and we were delighted.

Being a facilitator in bringing people together who share the same passion for a subject is a marvelous gift. I am deeply grateful to the HSC, Public Health Agency, Research and Development Office in Northern Ireland for continuing to support our research dissemination through the DMRS. A small amount of funding can go an incredibly long way and the impact is invisible at the time but you know it is a long-term investment.

Breastfeeding is one of the key areas for research and development within the remit of the DMRS and this second public outreach event on breastfeeding was another great opportunity for networking, sharing new knowledge and disseminating multidisciplinary research.

Last year, we presented the interim results of our breastfeeding literature search review at the DMRS event and we are pleased to be publishing the full paper in this edition of *EBM* (Sinclair et al, 2018). This paper is the product of almost two years' work from a multidisciplinary and multiprofessional team.

The important point to note is the focus of the paper was to identify which interventions, if any, had been tested in the UK or Ireland and had impacted positively on the breastfeeding initiation rates. This was a very narrow focus but it was deliberately tailored to pick up the successful interventions so that we could build on the research knowledge that was already evident. Although we identified over 2000 potential papers, only 12 met the initial screening criteria and of these, three met the full criteria for review. This was a sobering find for us and one that has demonstrated a true lack of targeted, experimental research in the UK. We concluded the review by stating that future studies should also examine the contextual issues alongside the development and implementation of interventions and we hope to see Northern Ireland being involved in new national and international experimental studies.

At this event we presented some crude, preliminary data from an online survey of 100 parents across Europe who had a child born with either spina bifida, Down's syndrome, severe heart disease or cleft lip (Eurolinkcat, 2017). We asked: 'How did you feed your baby?' We were surprised to find that 44% had breastfed, 18% had bottle fed their baby breastmilk and 9% fed their baby breastmilk through a nasogastric tube. The findings were unexpected and we are still completing the analysis. What stands out is the determination of some mothers across Europe to provide their baby with breastmilk. This small data set demonstrates how important it is for those of us collecting data on infant feeding to really listen to parents. We can do this by providing a space for their voices to be heard in the midst of the

noisy data collection process by leaving signposted data entry options in our surveys and by undertaking further exploratory research of a more qualitative nature.

As usual, we have offered the presenters at the DMRS event an opportunity to share their research with all of you by having a fast track to publication option from *EBM*. We envisage further illuminating detail from Clare Relton on her research methodology that demonstrates a positive impact on breastfeeding from the use of financial incentives to be published in the March 2019 edition of *EBM*. Furthermore, data from the live event will soon be posted on the DMRS website (doctoralmidwiferysociety.org) and will include abstracts, biographies, powerpoints and video clips from presenters.

The research questions that need to be formulated to address gaps in our knowledge base require targeted and ring-fenced time set aside for us to focus on key questions that can be answered using appropriate research designs. Funding for breastfeeding research is a requirement if our governments really want to give every baby the best possible start to life and have a long-term sustainable and evidence-based impact on the health of our populations. Collecting infant-feeding data from parents who have a child with a congenital anomaly is a public health surveillance issue and those responsible for population data need to be cognisant of the longer term health statistics that can be obtained from a data entry of this type. These parents are a minority group who can gain an enormous benefit from us seeking small data collection changes at population level.

We concluded our presentation by asking for routine data collection to be more inclusive so that appropriate outcome data can be obtained on the longer term health benefits of breastfeeding infants with congenital anomalies. Pooled and integrated data on child health systems, vaccination records, hospital admissions and prescriptions can provide robust evidence for us on the longer term benefits of breastfeeding. However, we need to have tools for data collection that are sensitive and specific and we need government policies to drive forward change.

In summary, we need to keep talking to each other at events such as the DMRS and we need to articulate our concerns and those of parents to the commissioners and policy makers if we really want to see change.

Reference

- Eurolinkcat. (2017) *Work Package 7 – ConnectEpeople*. See: eurolinkcat.eu/wp7-connectepeople (accessed 4 December 2018).
- Sinclair M, McCullough JEM, Armstrong M, et al. (2018) Interventions to increase the initiation of breastfeeding: a systematic review of studies conducted in the UK and Ireland. *Evidence Based Midwifery* 16(4): 112-9.

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Interventions to increase the initiation of breastfeeding: a systematic review of studies conducted in the UK and Ireland

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4. 4-17 Further details for the members of the Breastfeeding Strategy Implementation Steering Group are available on the RCM website.

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Abstract

Background. The benefits of breastfeeding are well documented and the World Health Organization (WHO) specifically recommends exclusive breastfeeding for six months and up to two years with complementary food. The UK and Ireland continue to report the lowest rates of breastfeeding in the world. Ireland has the lowest reported rate of 'having ever breastfed' (55%) and the UK has the fifth lowest (81%).

Aim. This review was conducted to evaluate interventions that aimed to improve breastfeeding initiation rates in the UK and Ireland as a foundation for developing breastfeeding initiatives in Northern Ireland (NI).

Method. A systematic literature review was conducted using the Population, Intervention, Comparison, Outcomes, Study design (PICOS) Model to define the review question: Which interventions have been tested in the UK or Ireland to improve Breastfeeding initiation rates? The following electronic databases were searched: CINAHL, Cochrane Central Register of Controlled Trials, Embase, MIDIRS, Medline, ProQuest, PsycInfo and Scopus. Groups of search terms were combined relating to 'breastfeeding' and 'initiation' over the time period (2005-18). Intervention studies were eligible for inclusion if breastfeeding initiation was the primary outcome and they were conducted in the UK or Ireland and published in English. Hand searches of article reference lists were also undertaken to ensure no relevant studies were missed. Each paper was independently assessed by five members of the team and verified for inclusion by consensus. A risk of bias analysis of the included studies was also completed.

Findings. In total, 2055 papers were retrieved: 2029 were not eligible. A further 13 duplicates were removed leaving 12 papers for review. Three papers, involving 3316 participants, met the full inclusion criteria. The evidence from these papers of the impact on breastfeeding initiation rates in response to peer, group and one-to-one support interventions conducted was inconclusive.

Conclusion. This review highlights the small number of intervention studies conducted in the UK and Ireland evidencing the need to invest in future research focused on improving breastfeeding initiation rates. Future studies should also examine the contextual issues alongside the development and implementation of interventions.

Key words: breastfeeding, initiation, duration, intervention, systematic literature review, evidence-based midwifery

Background

The health, nutritional, economic, and psychological benefits of breastfeeding for babies and mothers are well documented (Victora et al, 2016). Breastfeeding has been reported to lessen the risk of sudden infant death syndrome and reduce the risk of many illnesses such as ear and chest infections, gastroenteritis and leukaemia (Amitay and Keinan-Boker, 2015; Bowatte et al, 2015; Horta and Victora, 2013; Hauck et al, 2011). In addition, breastfeeding has been linked to an increase in children's intelligence (Horta et al, 2015), fewer dental malocclusions (Peres et al, 2015), reduction in the likelihood of developing child and adult obesity (Victora et al, 2016; Horta et al, 2015) and the reduced likelihood of developing non-communicable diseases such as diabetes (Horta et al, 2015). For women who breastfeed, there is evidence that breastfeeding reduces their risk of developing diabetes, and breast or ovarian cancers (Gunderson et al, 2018, Chowdhury et al, 2015, Luan et al, 2013). On a

worldwide scale, it is estimated that breastfeeding could prevent 823,000 annual deaths of children under five years and 20,000 deaths from breast cancer (Victora et al, 2016). The financial impact on the global economy of not breastfeeding is estimated at £242 billion, and in the UK it is estimated that not breastfeeding results in £23.6 million additional treatment costs each year (Rollins et al, 2016). Pokhrel et al (2014) estimates that increasing breastfeeding could lead to health care savings in the UK of £38.33 million on treatments such as gastrointestinal and lower respiratory tract infections, otitis media and necrotising enterocolitis, and breast cancer in women. The psychological benefits of breastfeeding include enhancing the physical and emotional attachment of mother and baby, and the release of oxytocin, which promotes mothering and bonding (Baber, 2015).

Despite considerable evidence supporting the potential benefits of breastfeeding, a recent paper reported breastfeeding rates in the UK and Ireland to be among the lowest in the

Figure 1. Systematic literature search PRISMA flow diagram

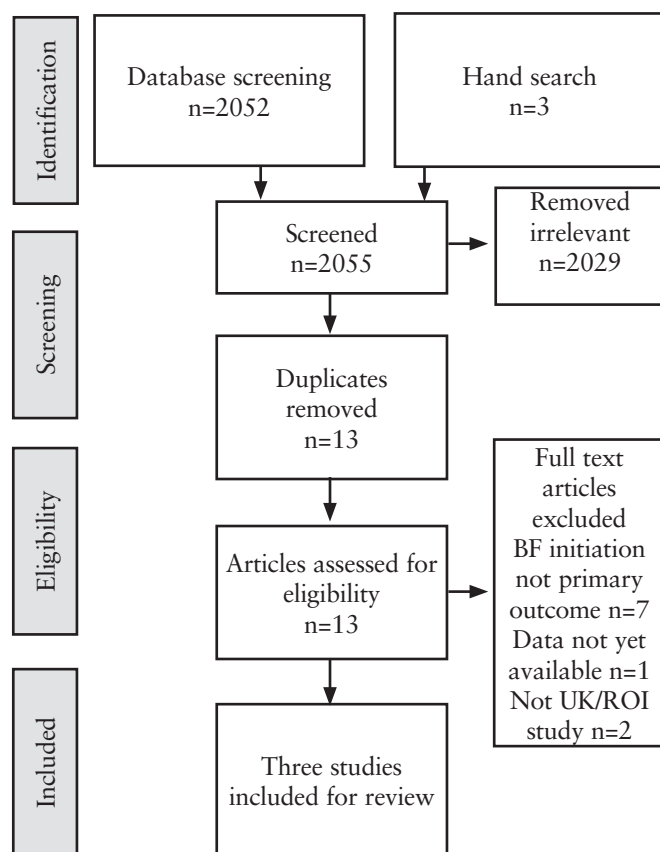


Table 1. PICOS table

PICOS	Description
Population	Mother and infant dyads in the UK or Ireland
Intervention	Any
Comparisons	Any
Outcomes	Initiation of breastfeeding
Study design	Experimental and original research

Table 2. Breastfeeding systematic literature review inclusion and exclusion criteria

Inclusion	Exclusion
Publication date 1 January 2005 to 21 May 2018	Research funded by a milk formula company to ensure no author competing interests led to bias
Published in peer-reviewed journal or Cochrane Central Register of Controlled Trials or index to these	Article not available in English

world. Ireland has the lowest reported rate of ‘having ever breastfed’ (55%) and the UK has the fifth lowest (81%). Breastfeeding initiation rates (within an hour of birth) in the UK are the fourth lowest (74%). The rates at six months drop to 34%, and at 12 months the UK is ranked as the lowest in the world at 0.5%. Ireland is joint second lowest at 12 months with Saudi Arabia (2%) (Victora et al, 2016).

Compared to the other three countries within the UK, Northern Ireland (NI) has the lowest initiation (64%) and exclusive breastfeeding rates (13%) at six weeks post-delivery. While there has been an increase in the prevalence of breastfeeding at six months across the UK, there has been no significant increase in NI: 14% in 2005 compared to 16% in 2010 (McAndrew et al, 2012). However, caution needs to be applied as the data collated comes from surveys with different response rates, breastfeeding definitions and original purposes.

The most recent data for NI suggest that 57% of mothers attempted to breastfeed in 2015 (Purdy et al, 2017); this compares to 73% (2015-16) in England and 58% (2015) in Ireland. By the time of hospital discharge only 46% of infants born in NI (2015-16) were breastfed, a proportion that has remained stubbornly stable for the last five years (Public Health Intelligence Unit, 2017). Contrary to the survey data used by Victora et al (2016), 6.9% of infants born in 2014-15 were still breastfed at 12 months in NI (Public Health Intelligence Unit, 2017).

A recent NI Assembly Briefing Paper reported deterrents to breastfeeding as being social and cultural attitudes, work

related issues and the way in which breastfeeding is promoted (Betts et al, 2017). Social and cultural barriers may include religious identity (Bernard et al, 2016) and negative attitudes towards breastfeeding from family and the wider community, leading to breastfeeding mothers experiencing feelings of embarrassment, worry and shame (Bird, 2017; Leahy-Warren et al, 2017; Bennet et al, 2016).

Addressing this issue is a challenge and *Breastfeeding – a great start. A strategy for Northern Ireland 2013-2023* (DH, 2013) sets out to ‘provide the necessary knowledge and skills to effectively protect, promote, support and normalise breastfeeding’. Recent exploratory work commissioned by the Northern Ireland Public Health Agency (Glass, 2016; 2015) provided evidence of the problems new mothers were experiencing. These included a lack of practical breastfeeding support and continuity of care in the postnatal period, receiving inconsistent and inadequate general practitioner information, unhelpful attitudes of hospital midwives, and women feeling pressurised into bottle feeding.

The research workstrand of The Breastfeeding Strategy Implementation Steering Group (BSISG) sought to identify effective interventions to enhance breastfeeding initiation rates. Although there are breastfeeding interventions that have demonstrated effectiveness on initiation rates, the majority of research has taken place in the US, is of variable quality, and on populations based around ethnicity or income level, which may resist further generalisation (Balogun et al, 2016). One objective of the BSISG research workstrand is to explore interventions to enhance breastfeeding initiation rates in NI. This systematic review arose as a first step from this task.

Methods

Aim of the review

The aim of this literature review was to collate and synthesise available evidence on interventions that have been evaluated to

Table 3. Risk of bias of included studies

Study	Type of study	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data assessment (attrition bias)	Selective reporting (reporting bias)	Other bias
Hoddinott et al 2006 [38]	Action research	High	High	High	High	Unclear	Low	Unclear
Muirhead et al 2006 [39]	RCT	Low	Unclear	High	Unclear	Low	Unclear	Unclear
MacArthur et al 2009 [40]	Cluster RCT	Low	Low	High	Low	Low	High	Unclear

improve breastfeeding initiation rates in the UK and Ireland, in order to develop evidence-based interventions to increase breastfeed initiation in NI. Breastfeeding initiation is defined as 'any baby who is put to the breast, even if only once'.

Eligibility criteria

Modelled on the Cochrane PICOS (population, intervention, comparison, outcomes, study design) tool (O'Connor et al, 2016) a clearly defined review question and eligibility criteria were developed (Table 1). The search criteria were further refined by the inclusion and exclusion criteria (Table 2). The primary outcome was breastfeeding initiation from intervention studies of any design that had taken place in the UK or Ireland, not funded by milk formula companies, and published in peer-reviewed journal or the Cochrane Central Register of Controlled Trials or index to theses since 2005. This was a pragmatic decision that assumed earlier research had been captured in existing reviews and considered changes in maternity provision/set up in UK. The search terms 'Breastfeeding', 'Initiation' and 'Intervention' were chosen as they represent the key underlying principles of *The Breastfeeding Strategy 2013-2023* (DH, 2013) (Supplementary).

Literature search

The following databases were searched from 1 January 2005 until 21 May 2018: CINAHL, Cochrane Central Register of Controlled Trials (Trials and Technology assessment), Embase, MIDIRS, Medline, ProQuest (PhD abstracts Index to theses), PsycInfo and Scopus. PubMed was not searched as these citations are now contained within Medline. A literature search strategy (Supplementary) was developed with assistance from two subject matter expert librarians. Search terms were derived from those agreed by the BSISG research workstrand. Searches were performed using both free-text terms and Medical Subject Headings (MeSH). Groups of search terms that expressed the concepts of 'breastfeeding' were combined, and the time period (2005-2018) and act of 'initiation'. Search filters were used to exclude animal studies, those not in the English language and studies completed outside the UK or Ireland. Hand searches of citation papers identified from relevant full texts were also undertaken to ensure comprehensive coverage of all relevant literature.

Literature selection

Identified publications were read independently by two reviewers (MS and JMcC) either as abstracts or full texts. Once the initial searches and screening for relevancy according to the PICOS and inclusion/exclusion criteria were completed and the data collated, those papers that were deemed suitable were distributed equally to the BSISG research project team members for verification. Details of excluded studies were collated and can be reviewed in the supplementary material on the RCM website.

Data extraction and analysis

The resulting papers emanating from the above process were then presented to four groups comprising of three BSISG research project team members for review. All potential results were therefore screened by a total of five independent reviewers. Differences in opinion were resolved through discussion to reach consensus. The methodological quality of each included study was determined by carrying out a risk of bias (RoB) assessment following guidelines in the Cochrane Handbook for Systematic Reviews (Higgins et al, 2011). RoB was assessed independently by two members of the review team. The RoB is detailed in Table 3. Data from the selected papers were extracted and are presented in Table 4.

Results

A total of 2055 papers were retrieved from the database and hand searches. Twenty-six studies remained after the exclusion of 2029 studies that did not meet the inclusion criteria following review of titles and abstracts. The majority of these studies were excluded because there was no intervention and they were not completed in the UK or Ireland.

A small number of duplicates (n=14) were also removed. Of the 12 papers under group review, one was excluded as it was a protocol (Relton et al, 2016) and eight were excluded as breastfeeding initiation was not the primary outcome (Relton et al, 2017; Bick et al, 2012; Hoddinott et al, 2012; Jolly et al, 2012; Gregson et al, 2011; Hoddinott et al, 2010; Stockdale et al, 2008 Lavender et al, 2005) (Supplementary data).

Table 4. Characteristics of included studies

Study/ methodology/ location	Participants	Intervention	Comparison	Power calculation	Primary outcome measure	Results	Comments
Hoddinott et al [38]	1,218 eligible 1,155 analysed	Antenatal group and/ or one-to-one breastfeeding peer support	National breastfeeding data from 2000 (usual care)	Sample size calculated from baseline data of 500 would give ±4% of true breastfeeding rates	Breastfeeding initiation at birth and duration at discharge, 1, 2, 6 weeks, and 4 and 8 months	Initiation rates increased from 53.3% to 57.3% (p=0.405). Participants who had given birth at a MLU initiation increased from 37.6% to 58.2% after intervention (p=0.001)	Increase in breastfeeding at 8-9 months in the study area compared to the rest of Scotland. Breastfeeding higher for women attending midwife-led community hospitals
Muirhead et al [39]	225 recruited 207 analysed 18 dropouts	Minimum of one antenatal peer-support visit, and additional visits if requested. 16 weeks' group peer support for women still breastfeeding on discharge	Usual care, i.e. community midwife for the first 10 days, health visitor after 10 days, breastfeeding support groups and breastfeeding workshops	Power calculation= 320 recruits Actual study power=87%	Breastfeeding initiation and duration	Non- significant increase in initiation rates for intervention, 54.5% vs control 53.1%	Primiparous and those intending to breastfeeding had higher duration of breastfeeding following peer support
MacArthur et al [40]	2,511 pregnant women from 66 antenatal clinics. Mainly non-white minority ethnic population	2x antenatal one-to-one breastfeeding peer support and postnatal follow up. Ethnically matched peer support	Usual care which may have included peer support	For a 6% change in breastfeeding initiation 3000 women were required for 90% power	Initiation of breastfeeding	No difference in breastfeeding initiation between intervention and control (69% vs 68.1%)	Initial antenatal contact was at 24- 28 weeks' gestation and at 36 weeks' gestation; only 42% took up both sessions

Included studies

Three studies (MacArthur et al, 2009; Hoddinott et al, 2006; Muirhead et al, 2006) met all the inclusion criteria. These papers were reviewed and critically appraised by the full team (Table 4). All eligible studies were conducted in the UK: two in Scotland and one in England with a total of 3316 pregnant and breastfeeding women taking part. Although the type of intervention was not restricted, all eligible studies used an intervention of additional support with a range of approaches (one-to-one, peer and/or group breastfeeding support). RoB analysis showed an overall unclear risk for the two included randomised controlled trials (RCT) (Muirhead et al, 2006; MacArthur et al, 2009) and a high RoB for the action research study (Hoddinott et al, 2006) as would be expected

for this type of study. Blinding of participants and personnel is particularly difficult in these studies as once participants are recruited they are aware of their allocation.

The evaluation of interventions to improve breastfeeding initiation rates from each of the three studies will now be discussed in chronological order.

Hoddinott et al (2006) carried out an intervention study in north east Scotland, involving newly set-up midwife or health visitor-led breastfeeding support groups. Pregnant and breastfeeding women were invited to attend the groups to offer support to each other and to observe and learn breastfeeding skills. Data were recorded by midwives and collected in two nine-month phases, namely before the intervention in 2000 (control), referred to as baseline, and

during the intervention (2001-02). Data were collected at birth; discharge from hospital; one, two and six weeks, and four and eight months post-delivery from 1155 participants in four rural postcode areas. The intervention group leaders received training to ensure consistency of the information being given to women. However, the groups were pragmatic by nature with each having flexibility regarding location, timing and style of information delivery. Breastfeeding group facilitators and participants also gave written feedback.

The primary outcome measure was breastfeeding initiation and duration measured at one, two and six weeks, and four and eight months postnatal. Initiation of breastfeeding for this study was defined as any baby put to the breast even if this occurred only on one occasion.

Breastfeeding rates increased at all-time points in the intervention group: initiation rates increased from 53.3% to 57.3% ($p=0.405$). Participants giving birth in district maternity units demonstrated an increase in initiation from 46.6% to 49.5% ($p=0.555$). However, the research team reported a significant increase of 6.8 percentage points in any breastfeeding at two weeks post-birth ($p=0.017$) and duration (58.2%) compared to a district general hospital (49.5%). Women reported they found the support enjoyable and helpful. This particular study was funded by Grampian Primary Care NHS Trust and The Chief Science Office, Scottish Executive Research Practice Scheme.

Muirhead et al (2006) carried out an RCT investigating breastfeeding peer support in Ayrshire, south west Scotland. Women of 28 weeks' gestation ($n=225$) were recruited to receive either usual breastfeeding support or usual breastfeeding support, plus, if they were still breastfeeding at discharge ($n=112$), up to 16 weeks (additional) supervised peer support from two trained assigned workers. Peer support included contact with the participant at least every two days by telephone or home visit. Usual breastfeeding support consisted of community midwife support up to day 10, health visitor support from day 10-20 and breastfeeding support groups and workshops. Breastfeeding initiation and duration were the primary outcome measures and data were collected via questionnaires at day 10, and at eight and 16 weeks post-birth.

In the intervention group peer support workers with personal breastfeeding experience met participants at least once during their pregnancy to provide antenatal peer support. In the postnatal period they only made contact with women once they had been discharged from hospital and therefore had no involvement with initiation. Initiation was not defined in this study. While breastfeeding rates at all time points were higher for the intervention group there was no significant difference reported for any outcome measure between groups. Peer support was found to be more successful for first time mothers and those who were intending to breastfeed. This study was funded by Ayrshire and Arran Health Board.

MacArthur et al (2009) carried out a cluster RCT in Birmingham, with a multi-ethnic population, comparing usual care and usual care plus one-to-one support at 24-28 and 36 weeks' gestation by trained peer supporters and postnatal

follow-up. Usual care consisted of breastfeeding information and advice from a midwife. Participants ($n=2,511$) were multi-ethnic, with 9.4% white and British.

Women in the intervention group ($n=1371$) received antenatal breastfeeding advice and if they initiated breastfeeding, the trained peer support worker continued to give postnatal support. The primary outcome was initiation of breastfeeding, which was defined as '*having had breastmilk at any time from birth until discharge from hospital*', and information was collected via computerised hospital records. There was a slight increase in the initiation of breastfeeding in the intervention group, although not statistically significant (69% vs 68.1%, $p=0.4$). This study was funded by Heart of Birmingham Teaching Primary Care Trust.

Discussion

The findings from this systematic review indicate that there is currently limited evidence for interventions implemented to increase the initiation rates of breastfeeding in the UK and Ireland, also reported by Sutton et al (2016). The lack of high-quality evidence in this area warrants further attention and although the focus of this review was specifically the UK and Ireland, it does represent a 13-year period where only three trials focusing on improving breastfeeding initiation have been conducted. The challenging initiation rates across the UK and Ireland, and specifically in NI, which increased only very slightly in that time period, highlights the need for further investment and development of interventions to improve breastfeeding initiation rates.

The three studies included here have all investigated the effects of antenatal peer support. Hoddinott et al (2006) demonstrated some positive findings for antenatal group and one-to-one support from health professionals and breastfeeding women. In the study by Muirhead et al (2006), although peer support workers who had personal breastfeeding experience were involved with participants antenatally, they only made contact postnatally to provide support following discharge from hospital. The study by MacArthur et al (2009), which intended to test antenatal peer support by women who had personal breastfeeding experience and were ethnically and linguistically matched, had several issues that may suggest implementation failure. There was insufficient exposure to the intervention, as 42% of participants had two sessions (three were planned) and the ethnic group of the mother and peer supporter were not matched as intended. The findings of MacArthur et al (2009) may not be easily transferred to many areas of the UK and Ireland, as the culture and ethnic composition in Birmingham is very different in comparison.

This is important in understanding cultural differences and contexts in pregnancy and breastfeeding. Women not native to the Republic of Ireland have been found to be more likely to breastfeed than their native peers (Castro et al, 2014). Given that the cultural diversity of NI is rapidly changing, this may be an important consideration for future local studies. Non-white women are more likely to breastfeed at discharge than white women (Public Health Intelligence Unit, 2017; Ladewig et al, 2014). However, the risk of acculturation and

dropping breastfeeding rates among those communities, as evidenced in mainland UK, is of concern (Choudhry and Wallace, 2012; Hawkins et al, 2008).

Hoddinott et al (2006) was the only study in this review to identify that breastfeeding support had a significant impact on breastfeeding initiation. However, this result was only for women giving birth in midwife-led units (MLU). Hoddinott et al (2006) reported a 'pragmatic' approach to group support together with one-to-one peer-support increased breastfeeding (mixed and exclusive) at two weeks postnatally. Women who had their babies in a MLU and postnatal care in a MLU were more likely to breastfeeding ($p < 0.001$ for initiation and $P = 0.007$ for breastfeeding at two weeks). Schroeder et al (2017) also reported that women giving birth in a freestanding midwife-led unit (FMU) had 'higher rates of established breastfeeding' and that such units are financially cost-effective.

This is important in the NI context as MLUs are now more readily available, there being eight MLUs – five alongside midwife-led units (AMU) and three freestanding midwife-led units (FMU). Following publication of the regional guidelines on admission to MLU (GAIN, 2018) there is potential to impact on breastfeeding initiation rates (Schroeder et al, 2017; Healy and Gillen, 2016; GAIN, 2018). However, it must be acknowledged that women who choose to give birth in a MLU are often better educated, less deprived and more informed, thus more likely to breastfeed or attempt breastfeeding, though there is some data indicating that birthing in a MLU may lead to unintended initiation of breastfeeding (Sperlich et al, 2016; GAIN, 2018).

For studies involving peer support workers, the timing of interventions may be an important factor for future research. Peer support personnel met women antenatally in each of the three studies. However, the support provided to participants in the studies by Muirhead et al (2006) and MacArthur et al (2009) consisted of one or two meetings antenatally and commenced postnatally once breastfeeding was initiated. In the study by Hoddinott et al (2006) more frequent attendance at antenatal groups was more likely to lead to higher rates of breastfeeding. Women in this study who did not initiate breastfeeding were no longer permitted to attend. It may be that the social aspect of the group and the fear of exclusion had an effect on women's motivation to initiate breastfeeding.

Primiparous women and women intending to breastfeed were more likely to initiate breastfeeding (Muirhead et al, 2006), while previous breastfeeding experience and an intention to breastfeed are predictors for future breastfeeding behaviour (Hoddinott et al, 2010; Bolling et al, 2007). Therefore, while all women must be able to benefit from breastfeeding initiatives, focusing on primigravidas may pay dividends for future pregnancies and building a culture where breastfeeding is the norm. In turn, the impact of seeing other women breastfeeding, which appears to increase the likelihood of breastfeeding, may be the catalyst for raising breastfeeding rates in NI (Hoddinott et al, 2010). Seeing the performance of breastfeeding behaviour from other mothers online, in video clips or at local community groups has untapped

potential. Evidence of the impact of 'seeing' to believe, as in occularcentric theory, requires robust intervention research to obtain evidence of impact (Sinclair, 2011). It would be worth considering how to harness the effects of such an approach to assist with achieving the goals and timelines set within the NI breastfeeding strategy by undertaking research using theories about human behaviour and motivation.

The evidence identified from this review forms the basis of future research in this area, and feeds into the Department of Health's *Breastfeeding – a great start. A strategy for Northern Ireland 2013-2023* (2013). In Ireland, the government policy, *Breastfeeding in a Healthy Ireland: a five-year strategic action plan 2016-2021*, has been launched with similar aims and objectives as the NI breastfeeding strategy to 'support research to inform the promotion, support and protection of breastfeeding in Ireland' (Hourigan et al, 2016). As part of this initiative, a review of reviews focusing on breastfeeding interventions to promote breastfeeding initiation, exclusivity and duration has been published by the Health Research Board (Sutton et al, 2016). This concluded 'there is evidence that education, counselling and support have a major role to play in the promotion of breastfeeding'.

This review has highlighted that evidence for increasing breastfeeding in the UK and Ireland is currently limited and of low quality. Sutton et al (2016) and Balogun et al (2016) investigated the effect of professional and non-professional breastfeeding support interventions to increase breastfeeding initiation and also concluded there was limited evidence and data available was of low quality. In the context of this review it is important to note that Muirhead et al (2006) and MacArthur et al (2009) were included in Balogun's (2016) systematic Cochrane review but not Hoddinott et al (2011) (as it was not an RCT). Sutton et al (2016) is a systematic review of systematic reviews. Both of these key outputs and their recommendations for future research requirements, such as interventions designed to influence public attitudes towards, and support for, breastfeeding are supported by our review which was taking place unknowingly at the same time. Balogun et al (2016) recommended developing studies in low and high-income settings, over various timeframes, and investigating the effectiveness of interventions initiated prior to conception or during the antenatal period. They proposed designing interventions based on health education, early and continuing mother-infant contact and developing initiatives to help women overcome societal barriers to breastfeeding. They stated the importance of clearly defined outcome measures, as we have also recommended.

In order to go some way to addressing the paucity of evidence, the authors of this systematic review have also included a description of the main features of some studies identified as part of this review process but not included, as they were outside the remit of the pre-specified PICOS and inclusion/exclusion criteria (Supplementary data). This approach was ratified through discussion with members of the BSISG team who felt that some of the research was unique and valuable to the wider research communities, in particular the work by Stockdale et al (2008) as it was a funded experimental study carried out in NI.

Limitations

The review was uniquely focused on UK data as the team had a specific objective to identify UK breastfeeding research interventions to establish baseline data. Owing to the poor quality of the studies included and the low number, any quantitative summary of the results was not possible.

Conclusion

This review of UK and Ireland-based interventions identified three studies that focused on improving breastfeeding initiation rates, all of which implemented either peer and group support for pregnant women/breastfeeding women. Currently, there is insufficient evidence to confirm that such interventions offer any significant or measurable impact on raising the breastfeeding initiation rates. The role of timing and format of delivery of peer support still remains unclear.

New evidence and strategies are required to facilitate women, their families and healthcare providers in making informed choices with regard to initiating and sustaining breastfeeding. Increased efficiency in the health service is a priority and is dependent on an effective and efficient evidence-base. Developing interventions that can improve breastfeeding rates in the UK and Ireland will pay dividends.

To develop new evidence-based breastfeeding interventions further investment in research is required. This ought to include more theory-based interventions specifically designed to explore factors that are likely to influence women's decision-making with regard to breastfeeding.

Future systematic reviews may investigate successful interventions carried out in other countries, with careful consideration given to the similarity of the demographic profile and culture of the UK and Ireland populations.

We propose every effort is made to include women on the island of Ireland and in the UK to join study arms of large prospective breastfeeding intervention trials to ensure inclusivity, cultural relevance and robust methods of data collection. Furthermore, we are strongly committed to a belief in the value of listening to, and working with, advocacy groups including maternity services liaison groups, the National Childbirth Trust, La Leche League, and other established and emerging online breastfeeding support communities.

We also need to work on increasing the understanding of the general public, partners, grandparents and teachers about key breastfeeding issues so that breastfeeding becomes normalised.

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Transitional experiences of internationally qualified midwives practising in Australia – an e-survey

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Abstract

Background. Midwifery is an internationally mobile profession, but there is a lack of research investigating the experiences of internationally qualified midwives practising in Australia.

Aim. To investigate the experiences of internationally qualified midwives integrating into the Australian midwifery system.

Methods. Phase one of a two-phased sequential explanatory mixed methods study included an e-survey of 66 internationally qualified midwives who were recruited via a non-probability purposive sampling strategy.

Ethical approval. This study was approved by the University of South Australia Human Research Ethics Committee (protocol number: 0000036397).

Findings. Almost all of the respondents (n=62; 94%) reported diversity in midwifery practices and 51 (77%) reported diversity in the work-based culture between their country of midwifery qualification and Australia. Forty-nine (74%) internationally qualified midwives felt they received adequate support at their workplace and 52 (79%) reported that they experienced respect from women they had cared for. Over half of the respondents (n=41; 62%) perceived inequity of opportunity, and a sixth of respondents (n=11; 17%) felt discriminated against in the Australian midwifery workforce.

Conclusion. This study, while limited in scope, provides insight into specific challenges experienced by internationally qualified midwives and may better inform approaches to support future transition into the Australian multicultural midwifery workforce. Diversity in midwifery practice and work-based culture, as well as the possibility of experience of discrimination and inequity of opportunity can influence negatively on future internationally qualified midwives' professional lives.

Implications. Understanding the challenges that internationally qualified midwives confront in Australia and enhancing strategies to provide a smooth transition for IQMs are necessary. A supportive work environment is critical to ensure that diversity is valued, and internationally qualified midwives are provided equal opportunity

Key words: Internationally qualified midwives, transitional experiences, adjustment, evidence-based midwifery

Introduction

Australia has a growing multicultural population. Approximately, half (49%) of the Australian population had either been born overseas or one or both parents had been born overseas (Australian Bureau of Statistics, 2016). This multicultural population influences the health professional workforce (Australian Institute of Health and Welfare, 2016). For example, 13% (n=4,244) of all registered midwives in Australia (n=32,669), are internationally qualified midwives (IQMs) (Nursing and Midwifery Board of Australia, 2018).

There is a growing reliance on IQMs and internationally qualified nurses (IQNs) as an integral part of health workforces across the world (Sidebotham and Ahern, 2011; Allan et al, 2009; Aboderin, 2007). However, their transition into foreign healthcare systems can come with challenges (McCool et al, 2013; Boylston and Burnett, 2010; Davies et al, 2010).

Pilette (1989) proposed that the adjustment process for IQNs moving to a foreign country comprised four phases over a

12-month period. These phases are acquaintance, indignation, conflict resolution and integration, which is associated with unique challenges. Furthermore, the literature suggests that the adjustment process is likely to be longer for IQNs from culturally and linguistically diverse backgrounds (Kawi and Xu, 2009). During the adjustment, lack of recognition of IQNs' capabilities, previous skills and experiences can cultivate feelings of invisibility and marginalisation, which may have a negative effect on their self-esteem, confidence and wellbeing (Xiao et al, 2014; Higginbottom, 2011; Smith et al, 2006; Jeon and Chenoweth, 2007). Variations in nursing practices, as highlighted in the literature, are major challenges in the transition process of IQNs (Ho and Chiang, 2015; Newton et al, 2012; Smith et al, 2011).

A growing body of research (Ho and Chiang, 2015; Newton et al, 2012) reports multidimensional discrimination experienced by IQNs in the healthcare systems of some destination countries, and this may be similar for IQMs.

Diversity in race, colour, culture or language can be a trigger for inequity of opportunities (Kawi and Xu, 2009; Smith et al, 2006). It has been argued that injustice due to ethnic identity can also lead to intimidation, public humiliation, social exclusion, loss of confidence and loss of professional authority for IQMs and IQNs (Sidebotham and Ahern, 2011; Hood et al, 2010; Likupe, 2006).

A literature search based on Cooper's (1988) Taxonomy was conducted by the authors (Javanmard et al, 2017). Only two studies reported the experiences of midwives working in another country: one from Australia (Sidebotham and Ahern, 2011) and one from New Zealand (Davies et al, 2010). However, these studies only included the experiences of midwives who had moved from the UK. Sidebotham and Ahern (2011) agreed the role of midwives can differ noticeably between countries. Similarly, UK midwives who worked in New Zealand and participated in the study for Davies et al (2010) reported differences in midwifery practices between the UK and New Zealand. For example, within the scope of midwifery practice in New Zealand, midwives have the right of prescribing, as well as the capacity to examine newborn babies, which was not so common in the UK. Moreover, Sidebotham and Ahern (2011) pointed out that midwifery in UK is known to be an autonomous occupation while in Australia it is not. This was confirmed in a survey study conducted by Hildingsson et al (2016) for midwives from Australia, New Zealand and Sweden, where Australia had the lowest score on the domains of 'autonomy' and 'professional recognition' subscales.

While midwifery is an internationally mobile profession, globally published literature appears to have focused mostly on the migration of nurses and doctors. There appears to be a distinct global gap in evidence exploring the experiences of IQMs moving seamlessly between countries (Bourgeault et al, 2011). Hence, there is a need to identify factors that facilitate or hinder IQMs transition into a new foreign health care system, as an independent profession.

Aim

Given the identified gaps in the literature, this study aimed to investigate the transitional experiences of IQMs into the Australian midwifery system. The objectives of this study included to:

- Examine demographic profiles of IQMs practising midwifery in Australia
- Determine challenges that help or hinder a smooth transition process for IQMs into the Australian midwifery system
- Compare transitional experiences of IQMs from English speaking backgrounds (ESB) with those from non-English speaking backgrounds (NESB).

Methods

An e-survey was undertaken to provide information to meet the aim and objectives of phase one of a two-phased sequential explanatory mixed methods study (Creswell, 2014). The target population was a cohort sample of IQMs who received their qualification of midwifery outside of Australia, who had practised at least for one year in their country of midwifery

qualification, and who were currently practising as midwives in Australia.

Data collection tool: an e-survey

The data collection tool was developed by adapting relevant and pre-existing questionnaires by Giegerich (2006) and the Australian Midwifery Workforce Survey (Nursing and Midwifery Board of Australia, 2015).

The adapted descriptive questionnaire consisted of 26 closed-ended and two open-ended questions, and a total of 12 seven-point Likert-scale questions (Supplementary File 1: The adapted questionnaire). Prior to administration of the e-survey, the questionnaire was tested for content and face validity by a panel of three experts who had survey development expertise or experience of working with IQMs in Australia.

The e-survey was administered in English through the web-based survey platform, SurveyMonkey™.

Data collection

Owing to confidentiality, the Nursing and Midwifery Board of Australia (NMBA) declined to disclose contact details of registered IQMs for this study. There were no other registered databases that record contact details for registered IQMs in Australia. Therefore, access to a random sample was not possible and the decision was made to use a 'nonprobability sampling framework' and undertake an opt-in e-survey. The researchers aimed to recruit as many IQMs as possible via the Australian Nursing and Midwifery Federation (ANMF) and Australian College of Midwives (ACM) between July 2017 and January 2018. This time constraint was due to this study being undertaken as a component of a PhD programme of research by the first author.

The head offices and state branches of ANMF and ACM gave consent to advertise the e-survey in the members' newsletters via their professional websites. Due to low collected samples at that time, other approaches to recruitment were used including social media (Twitter, Facebook) and snowball sampling. Moreover, the study was advertised at one national ACM conference and one state research symposium. Recruitment for this study concluded on 31 January 2018 with a total of 66 respondents. A response rate could not be calculated due to the inability to identify a sample frame of IQMs and the inability to identify the IQMs contact details (Fleming and Bowden, 2009; Schonlau et al, 2002).

Ethical considerations

This study was approved by the University of South Australia Human Research Ethics Committee.

Ethical considerations were included on the information page linked to the e-survey. The respondents' consent was implied by their voluntary completion of the anonymous SurveyMonkey™ questionnaire.

Data analysis

Statistical analysis was performed using IBM SPSS version 22. Descriptive statistics were used to determine the sample

Table 1. Current IQMs' competence and fitness to practice in Australia

Current employment	Total IQMs n=63; (95.50%) Missing data n=3 (4.50%)	Current role	Total IQMs n=64; (97.00%) Missing data n=2 (3.00%)
Employed and working full time	35 (53.00%)	Registered midwife	25 (37.90%)
Employed and working part time	17 (25.80%)	Clinical midwife	5 (7.60%)
Employed and working on casual basis	6 (9.10%)	Registered nurse and midwife	3 (4.50%)
Employed, currently on leave	0 (0.00%)	Clinical nurse and midwife	1 (1.50%)
Self employed	1 (1.50%)	Policy/administrator	0 (0.00%)
Unemployed	1 (1.50%)	Educator	16 (24.20%)
Other	3 (4.50%)	Researcher	5 (7.60%)
		Other	9 (13.60%)
Work area	Total IQMs n=63; (95.50%) Missing data n=3 (4.50%)	Current work setting of main job	Total IQMs n=64; (97.00%) Missing data n=2 (3.00%)
Care during labour and birth	13 (19.70%)	Hospital (excluding outpatient services)	33 (50.00%)
Postnatal care	8 (12.10%)	Community health care services	1 (1.50%)
Continuum of midwifery care	8 (12.10%)	Outpatient services	4 (6.10%)
Antenatal care	5 (7.60%)	Tertiary educational facility	17 (25.80%)
Neonatal care	2 (3.00%)	Private midwifery practice	1 (1.50%)
Midwifery management	2 (3.00%)	Other government department or agency	2 (3.00%)
Midwifery education	6 (9.10%)	Aboriginal health services	0 (0.00%)
Midwifery research	2 (3.00%)	Specialist (O&G) practice	0 (0.00%)
I do not work in a health service	10 (15.20%)	General practitioner practice	0 (0.00%)
Other	7 (10.60%)	Other	6 (9.10%)

characteristics such as frequencies, percentages, means and standard deviation of total sample of ordinal outcomes. Ordinal outcomes from Likert scales were analysed using a non-parametric Mann-Whitney U-test to compare transitional experiences between IQMs from ESB and NESB. Statistical significance was identified as $p < 0.05$. Moreover, content analysis was used to identify categories to describe the respondents' responses and views to the open-ended questions (Hsieh and Shannon, 2005). Findings were compared and checked by four members of the research team to reduce the possibility of bias due to different perspectives.

Findings

Demographic data

IQMs were registered midwives whose initial midwifery education was obtained outside of Australia. Sixty-six IQMs completed the e-survey (n=66; 100%). Of these 63 (95.5%) were female and three (4.5%) were male. The biggest cohort of IQM were aged 41-45 (n=18; 27.3%). Midwives from the UK made up the largest group of respondents (n=34; 51.5%) including England (n=29; 43.9%), Scotland (n=4; 6.1%), and Wales (n=1; 1.5%), followed by Iranian midwives (n=13; 19.7%), New Zealand (n=5; 7.6%), Germany (n=3; 4.5%), Japan (n=2; 3%), Timor-Leste (n=2; 3%) and Ireland, Sweden, Canada, Belgium, Bulgaria, Zimbabwe, Zambia each (n=1; 1.5%).

Forty-three (65.1%) IQMs said they had completed their

midwifery education in the English language. In this study they are introduced as those of ESB. Twenty-three (34.9%) were taught their midwifery education in other languages. These respondents are referred to as NESB. Other languages of midwifery education reported by IQMs in this study included Bulgarian (1.5%), Dutch (1.5%), German (4.5%), Japanese (3%), Iranian (21.2%) and Portuguese (3%).

The most commonly reported initial midwifery education was a bachelor's degree (n=28; 42.4%). In general, the respondents represented a highly educated group, with just under half (n=30; 45.4%) having received a master's degree or a doctorate, postgraduate certificate (n=5; 7.6%), postgraduate diploma (n=4; 6.1%). Another 22.7% (n=15) said their highest level of education was an honour's degree.

The majority of respondents (n=42; 63.6%) migrated to Australia between 2003 and 2012, and 62% (n=41) started working in Australia during the same period. The most commonly reported period of practising midwifery in Australia, stated by 29 (43.9%) of the respondents, was 10 years or more in total.

IQMs' reasons for migrating to Australia were wide-ranging and categorised as personal, professional, social and financial. Personal reasons (looking for a better life style and desire to join relatives already in Australia) were a significant consideration for 50% (n=33).

Table 1 also shows details of IQMs' current work arrangement in Australia.

Transitional experiences of midwifery practice in Australia

All IQMs were registered with the NMBA. Evidence of English competency was required by most of the IQMs from NESB. Prior to midwifery registration, almost all IQMs from NESB (n=22; 95.7%) had to sit an English test including International English Language Tests (IELTS) or Occupational English Test (OET). Interestingly, six (14%) IQMs from ESB reported that they had to pass the IELTS test as well.

Formal transition programmes

Before obtaining midwifery registration in Australia, 31 (47%) IQMs reported that they completed some type of formal transition programmes. Findings demonstrated that 16 (24.2%) IQMs reported they were not satisfied with the programmes offered. Satisfaction of transition programmes is demonstrated in Figure 1.

Following obtaining their midwifery registration, 45 (68.2%) IQMs commenced midwifery practice in the public health sector, with the remainder (n=19; 28.8%), starting out in the private health sector.

Transitional experiences of IQMs

To investigate the transitional experience of all IQMs, a seven-point Likert scale was used with the possible response range from one to seven, with one indicating strongly agree to seven indicating strongly disagree.

For ease of reporting, all responses of 'strongly agree, agree and somewhat agree' were summed and compared with responses of 'somewhat disagree, disagree and strongly disagree'. Responses with 'neither agree nor disagree' have been reported separately. Descriptive statistics were used to calculate the mean (M) scores and standard deviation (SD). Table 2 depicts the responses for all IQMs and missing data.

Transitional experiences of IQMs into Australian midwifery

Sixty-four (97%) IQMs reported receiving workplace orientation in Australia. Of those who had orientation, 56% (n=37) agreed that they received a satisfactory orientation, while nearly one third (n=23; 34.8%) disagreed. Four (6.1%) respondents neither agreed nor disagreed (M=3.53, SD =1.727) (Table 2, Item 1). One respondent who was not satisfied with the workforce orientation mentioned: "It was a bit of struggle: few days of supernumerary practice and then in deep end" (ESB IQM, No. 10).

One midwife stated they felt insulted to have to pass this process: "I felt insulted to have to provide paperwork signed off by a mentor with less experience than me, just so I could practise as a midwife in Australia" (ESB IQM, No. 34).

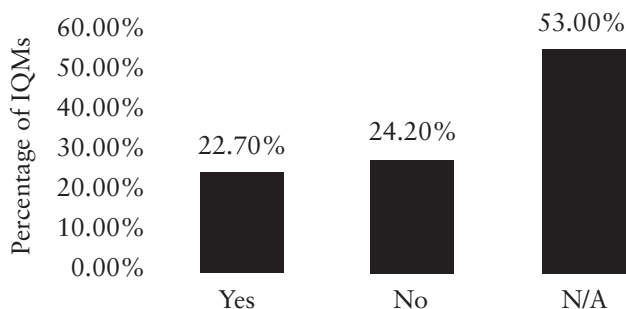
Preparedness for working

After the workplace orientation, 38 (57.6%) IQMs agreed that they were prepared to start work independently in Australia, although nearly a third of IQMs (n=22; 33.3%) disagreed. Four (6.1%) respondents neither agreed nor disagreed (M=3.64, SD=1.693) (Table 2, Item 2).

Support

Support during the transition period was highlighted by

Figure 1. Satisfaction of transition programmes, n=66 (N=100.00%)



49 (74.2%) IQMs: "I felt safe to ask any questions in the supportive work environment" (ESB, IQM – No. 46).

It was noted that 12 (18.2%) IQMs disagreed while two (3.0%) respondents neither agreed nor disagreed (M=2.984, SD=1.518) (Table 2, Item 5).

Respect

The majority of IQMs (n=52; 78.8%) agreed that they felt respected by the women they cared for in Australia. However, seven (10.6%) disagreed. Four (6.1%) respondents neither agreed nor disagreed. (M=2.349, SD=1.449) (Table 2, Item 8)

Similarly, 42 (63.6%) IQMs agreed with the statement 'I felt I was respected by the midwives and doctors I worked with in Australia', and 18 (27.3%) disagreed. Three (4.5%) respondents neither agreed nor disagreed (M=3.063, SD=1.693) (Table 2, Item 9).

Accepted IQMs skills and experiences

More than half of the IQMs (n=39; 59.1%) surveyed agreed that their skills and experiences were fully utilised by their managers when they started working in Australia, while 19 (28.8%) disagreed. Six (9.1%) neither agreed nor disagreed (M=3.546, SD=1.934) (Table 2, Item 10).

Diversity of midwifery practice

Nearly all the respondents agreed that there were some differences between midwifery practice in Australia and their country of midwifery qualification (n=62; 93.9%). Only one (1.5%) disagreed and one (1.5%) neither agreed nor disagreed (M=1.671 and SD=0.960) (Table 2, Item 4). In response to this concern, one midwife from UK mentioned:

"The Australian context is very limited in its midwifery care and practices. Australian midwives are not midwives, they are obstetric nurses" (ESB IQM, No. 63.).

Another respondent mentioned medicalised midwifery:

"Midwifery in Australia is dictated by doctors, this is very different in New Zealand where the midwife is the specialist. Adjusting to this was difficult and ultimately I did not fit in Australian 'mainstream' midwifery" (ESB IQM, No. 15).

Diversity of work-based culture

There was a high level of agreement (n=51; 77.3%) related to the differences between Australian work-based culture and IQMs country of midwifery qualification. Only eight (12.1%) respondents disagreed. Five (7.6%) neither agreed

Table 2. Transitional experiences of IQM

		Strongly agree, Agree, Somewhat agree	Neither agree nor disagree	Somewhat disagree, Disagree, Strongly disagree	Missing data	Overall	
						M	SD
1. I had a satisfactory orientation period in my workplace when I started working as a midwife in Australia.	n%	37 56.10%	4 6.10%	23 34.80%	2 3.00%	3.53	1.727
2. The orientation I received at my workplace prepared me for working independently.	n%	38 57.60%	4 6.10%	22 33.30%	2 3.00%	3.64	1.693
3. When I first started working as a midwife in Australia, I became aware of the differences between the Australian culture and my own culture.	n%	51 77.30%	5 7.60%	8 12.10%	2 3.00%	2.34	1.565
4. When I first started working as a midwife in Australia, I noticed the differences between Australian midwifery care and midwifery care in my country of midwifery registration.	n%	62 93.90%	1 1.50%	1 1.50%	2 3.00%	1.67	.960
5. When I had questions, I knew who to ask or where to get the answer.	n%	49 74.20%	2 3.00%	12 18.20%	2 3.00%	2.98	1.518
6. I experienced some challenges in understanding professional/medical language or ideas in the English language.	n%	19 28.80%	5 7.60%	40 60.60%	2 3.00%	5.01	2.096
7. I experienced language challenges when communicating with colleagues and women I cared for.	n%	26 39.40%	6 9.10%	32 48.50%	2 3.00%	4.42	2.273
8. I felt I was respected as a midwife by the women I cared for and their families in Australia.	n%	52 78.80%	4 6.10%	7 10.60%	3 4.50%	2.34	1.449
9. I felt I was respected as a midwife by the midwives and doctors I worked with in Australia.	n%	42 63.60%	3 4.50%	18 27.30%	3 4.50%	3.06	1.693
10. I believe my manager fully utilised my skills and experiences.	n%	39 59.10%	6 9.10%	19 28.8%	2 3.00%	3.54	1.934
11. I believe I had the same opportunities for advancement and promotion in my career as my colleagues working in the same organisation.	n%	41 62.10%	6 9.10%	17 25.80%	2 3.00%	3.20	1.835
12. I felt discriminated against while working as a midwife in Australia because of my language skills.	n%	11 16.70%	11 16.70%	42 63.60%	2 3.00%	5.28	1.939

nor disagreed (M=2.343 and SD=1.565) (Table 2, Item 3).

The culture of relationships between peers at the workplace was described by an ESB IQM:

“I feel that the workplace environment in Australian hospitals isn’t as friendly as the environment in London hospitals” (ESB IQM, No.16).

Language challenges

Some IQMs (n=19; 28.8%) agreed that they experienced challenges in understanding professional/medical language. However, 40 (60.6%) respondents disagreed. Five (7.6%) neither agreed nor disagreed (M=5.01, SD=2.096) (Table 2, Item 6). One ESB IQM reported difficulties about subtle aspects of language:

“I feel that the communication challenge was probably because of Australian terminologies or the slang words” (ESB IQM, No.11).

Twenty-six (39.4%) IQMs agreed that diversity in languages led to communication challenges in the workplace, while 32 (48.5%) disagreed. Six (9.1%) neither agreed nor disagreed (M=4.42, SD=2.273) (Table 2, Item 7). A lack of knowledge about communication styles, between midwives from linguistically diverse backgrounds and host doctors was

mentioned to be a major source of challenge experienced by one IQM from NESB:

“I had problem to communicate with my colleagues, especially with the doctors. Some doctors got angry when I needed to ask them to repeat what they had said” (NESB IQM, No.4).

Inequity of opportunity

In this e-survey, over half of IQMs (n=41; 62.1%) agreed that they encountered inequity of opportunity in the first year of practising midwifery in Australia, while 17 (25.8%) disagreed. Six (9.1%) neither agreed nor disagreed (M=3.203, SD=1.835) (Table 2, Item 11).

This inequity was described by one IQMs from ESB:

“I applied for a senior position twice, but I wasn’t successful” (ESB IQM, No.39).

Discrimination

The e-survey found that 11 (16.7%) IQMs experienced discrimination while working as a midwife in Australia. However, a total of 42 (63.6%) disagreed. Eleven (16.7%) neither agreed nor disagreed (M=5.281, SD=1.939) (Table 2, Item 12).

Comparing transition experiences of ESB and NESB IQMs

Mann Whitney U-tests were used to assess any differences between IQMs from ESB and NESB, in the ordinal outcomes of all 12 items of transitional experiences within the Likert scale.

A Mann-Whitney U-test confirmed that the challenge of understanding medical language (Item 6) was a major issue for IQMs from NESB (Mdn=2.500) when compared with IQMs from ESB (Mdn=7.000), $U=70.50$, $p < .001$. Similarly, a significant difference was found between IQMs from NESB (Mdn=2.000) and ESB regarding communication challenges with colleagues due to language diversity in the workplace (Item 7) (Mdn=6.000), $U=50.50$, $p < .000$.

Interestingly, findings indicated that there was a significant difference between IQMs from ESB (Mdn=2.000) and NESB (Mdn=4.000) concerning having the same opportunities for advancement and promotion compared with other host colleagues (Item 11), $U=683.0$, $p=0.001$. Furthermore, a significant difference between IQMs from ESB (Mdn=7.000) and NESB (Mdn=4.000) was detected regarding feeling discriminated against (Item 12), $U=263.5$, $p=0.004$.

However, there was not a significant difference between the experiences of IQMs from ESB and NESB for other items.

Discussion

The main purpose of this e-survey was to investigate the experiences of IQMs while practising midwifery in Australia. The findings of this study support those reported in previous studies relating to the experiences of UK midwives. Moreover, similar findings were captured by those exploring the experiences of IQNs in a new foreign healthcare system, which were highlighted in an earlier paper by the authors (Javanmard et al, 2017).

Relocating to a new foreign healthcare system can be challenging, particularly when there is diversity in midwifery/nursing education and different ways of undertaking clinical procedures across different countries (Clayton et al, 2016 ; Bourgeault et al, 2011). Diversity in the role of a midwife between countries (Sidebotham and Ahern, 2011), and unpreparedness for working in new countries due to the diversity of midwifery practices (Davies et al, 2010), were supported by some of the respondents of this study. Data in this study showed nearly all the respondents (93.9%) reported some differences between midwifery practice in Australia and their country of midwifery qualification, and a third of them felt that they were not prepared to start practising midwifery independently.

Thus, a coherent approach to supporting IQMs in their journey to the clinical adjustment may be required to address this deficit. Furthermore, a lack of familiarity with local policies and guidelines, which may lead to a lack of recognition of IQNs' capabilities (Ho and Chiang, 2015; Xiao et al, 2014), was also supported by a third of the IQMs in this study. This factor is important to consider because the lack of recognition of IQM/IQNs' skills and experiences can impact on their self-esteem and confidence (Xiao et al, 2014; Higginbottom, 2011; Jeon and Chenoweth, 2007).

Sidebotham and Ahern (2011) highlighted that midwifery is well recognised to be an autonomous occupation in the UK

while in Australia it is not. Likewise, some UK midwives in New Zealand experienced a range of feelings from frustration to loss, due to the lack of autonomy they experienced while practising midwifery in New Zealand (Davies et al, 2010). Hildingsson et al (2016) added that midwives from Australia scored the lowest on domains of 'midwifery autonomy' and 'professional recognition', with midwives from Sweden scoring the maximum. Some IQMs responding to this e-survey also reflected similar frustration by highlighting that they had experienced 'medicalised midwifery' and a 'lack of authority in midwifery' in Australia. Along with the findings of this study and previous studies, it seems this matter may be worthy of research to assess and revise autonomy in midwifery in Australia.

Cultural pluralism is described as a 'societal condition in which minority groups within a society can maintain their distinctive cultural identities and values' (Kwan, 2018), and is recognised as a central factor for a successful multicultural healthcare environment (Higginbottom, 2011). Challenges in understanding the host culture's values and beliefs can lead to conflict due to misunderstanding (Clayton et al, 2016; Konno, 2006; Magnusdottir, 2005), and feelings of separation and not fitting into the dominant culture (Newton et al, 2012; Takeno, 2010). Consistent with the literature, 80% of ESB IQMs and most NESB IQMs in this study emphasised the diversity between Australian cultural workforce and their own home countries culture.

In the vein of Ho and Chiang (2015) and Larsen (2007), a sixth of IQMs in this study reported they had experienced discrimination. In addition, the possibility of not having the same opportunities for promotion in the new health workforce for IQNs (Alexis et al, 2007; Alexis and Vydellingum, 2004), was supported by 30 (45.5%) IQMs in this study. Moreover, it was evident that the vulnerabilities of IQMs from culturally and linguistically diverse backgrounds were higher than those from ESB, although it is acknowledged that this study reflects a small cohort of IQMs in Australia. Being vulnerable to these experiences could lead to experiences of cultural isolation, being silenced and feeling homesick (Jeon and Chenoweth, 2007).

Findings of this study were not too surprising given that other studies had identified that diversity in race, colour, culture and language are often triggers for inequity of opportunities and injustice due to ethnic identity for IQNs (Kawi and Xu, 2009; Smith et al, 2006). Thus, there is a practical need to facilitate adaptations by minimising discrimination and enhancing the support of IQMs.

Brunero et al (2008) identified that communication barriers, fear of making language mistakes and feeling embarrassed in front of peers and patients can also have a negative influence upon IQNs from NESB professional lives. Similarly, IQMs from NESB in this study also encountered the challenge of navigating between two different linguistic and cultural worlds. Even though NESB IQMs had achieved the English language proficiency requirements, they revealed how challenging it was to overcome the initial shock of adjusting to working in a new language (Deegan and Simkin, 2010; Hearnden, 2008). To enhance the effectiveness of

communication within a multicultural team and achieving intercultural understanding, the literature recommended that adequate language support for IQNs from NESB needs to be offered (Xiao et al, 2014; Jeon and Chenoweth, 2007). In contrast, the ease of adjustment process for IQMs from ESB may be justified by the common language.

Despite the highlighted vital role of transitional programmes for IQNs (Higginbottom, 2011), it has been argued by Bourgeault et al (2011) that transition programmes in Australia appear to concentrate mostly on orienting IQMs to the structure and organisation of the Australian midwifery system rather than bridging the gaps in competencies for practice. Similarly, half (n=16; 24%) of IQMs were not satisfied with the implementation and content of the programmes they attended. They held the view that the midwifery workforce did not offer sufficient transition programmes to update their skills into Australian midwifery care.

The strategies that have been recommended in the literature to support the transition of IQNs/IQMs included explaining the culture of the new country to IQMs/IQNs before starting employment (Bourgeault et al, 2011), training host colleagues to a better understanding of the meaning of a multicultural team, and organisation-sponsored social events (Zhou et al, 2011). Furthermore, structured workplace orientation programmes have been recommended as these can facilitate workplace transition (Tabvuma et al, 2015), as well as increase safety in the workforce (Curcuruto et al, 2016). These strategies may cause a smoother and more secure transition into the Australian midwifery workforce and enhance the recognition of IQMs' qualifications by peers. Feelings of belonging and fitting into the dominant culture are pivotal factors for a successful multicultural teamwork, can promote the understanding of mothers', babies' and families' needs, the provision of safe care, and ultimately, increase women's trust.

Limitations of this study

This is the first e-survey undertaken to investigate the experiences of IQMs in Australia. It is acknowledged that the results of this e-survey are not generalisable to the whole population of IQMs in Australia because of the small sample size and recruitment via third parties. Regardless, there was a wide variety of educational backgrounds, professional experiences and diversity in languages and cultures among respondents. However, challenges that may contribute

to IQMs transitional experiences have been highlighted. Moreover, the results of this study will be followed by a qualitative study to develop a deeper understanding of experiences of IQMs in Australia. Furthermore, future studies in different settings would result in more robust data, enabling comprehensive conclusions to be drawn.

In addition, the primary author of this study is an Iranian midwife who was able to ask other Iranian midwives to complete the e-survey. Therefore, it is also acknowledged that the inclusion of 13 Iranian midwives presents a bias that may be overcome by undertaking further research with a wider cross-section of participants.

Implications for practice and research

With the prediction of continued recruitment of potential IQMs, enhancing strategies to provide a smooth transition is necessary. This study highlights that a supportive work environment is needed to focus upon reducing environmental stressors, as well as structured mentorship programmes with clear expectations of supervision. In terms of future research, little is known about the perspective of host midwives and doctors who work with IQMs.

Conclusion

This phase one of a two-phased mixed methods study was intended to pose an initial look at the experiences of IQMs with a focus on the factors that contribute to their transition process into the Australian midwifery system. The findings, while limited in scope, provided some insights into the challenges that may impact on the experiences of IQMs practising in Australia.

Regardless of diversity in professional backgrounds and demographic characteristics, IQMs in this study were faced with a different culture-based work environment, complicated by different midwifery practice. Overall, diversity in midwifery practice and work-based culture, as well as the possibility of experience of discrimination and inequity of opportunity, can influence negatively on future IQMs' professional lives.

Issues highlighted can increase awareness and may assist the Australian midwifery workforce to review and address how IQMs need to be supported. A supportive work environment is critical to ensure that IQMs are given the same opportunities as others with attention to valuing diversity, sharing beliefs, and reducing discrimination.

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Integration of examination of the newborn into holistic midwifery practice: a grounded theory study

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Abstract

Background. The newborn infant physical examination (NIPE) was previously known and described as examination of the newborn (EONB) and came under the remit of medical doctors. NIPE has now been undertaken by midwives for more than a decade, and it is time to explore the outcomes in holistic midwifery practice.

Aim. To explore the factors that motivate midwives to undertake NIPE, post-registration midwifery course.

Objectives. To find out whether midwives use the newly learned skills in practice; to examine factors influencing midwives' ability to integrate NIPE into holistic midwifery practice and to identify the best ways to bring about change in midwifery practice.

Method. Using a grounded theory approach, 12 midwives and five heads of midwifery were interviewed. Data were collected through interviews and analysed using Strauss and Corbin's (1998) mode of grounded theory analysis. Ethical approval was obtained from the five participating NHS trusts.

Findings. The substantive theory of 'integration of the examination of the newborn into holistic midwifery practice' was generated from the data encompassing four key categories: knowledge and training acquisition; change in culture, perception and practice; philosophy of midwifery; and political and financial drivers. The majority of participants believe they were delivering holistic care to mothers and babies. The participants believed that it was not necessary to be an experienced midwife to undertake NIPE and that the training should be integral to the pre-registration midwifery curriculum. Their views indicate a belief that midwives do not need to be specialist or advanced practitioners to undertake NIPE.

Conclusion. The researcher argues that this small study contributes to a greater understanding of midwives' roles and responsibilities in NIPE. It provides insight and understanding into why midwives are motivated to undertake additional training to facilitate them in providing holistic care for mothers and their newborn babies, and disputes the notion perceived by some practitioners of the need to be an advanced or specialist practitioner to undertake this role.

Key words: Examination of the newborn (EONB), newborn infant physical examination (NIPE), holism, advanced/specialist practitioner/practice, evidence-based midwifery

Introduction

It is important to differentiate between the initial newborn assessment that is performed as a top-to-toe examination after birth on all newborn babies, in the UK most often by a midwife, and the more detailed newborn infant physical examination (NIPE), which should be carried out within 72 hours of birth. The NIPE looks to detect anomalies, including screening for problems with babies' eyes (cataracts etc), a comprehensive cardiovascular and respiratory examination, abdominal palpation, hip examination and, in boys, check for descended testes (Public Health England (PHE), 2018; McDonald, 2008a).

The main purpose of the NIPE is to identify any babies who may have a condition that requires further investigation and referral. It is this examination that requires additional training for it to be competently completed, and it is this examination that is referred to within this paper.

Background

Traditionally in the UK, the NIPE was carried out by paediatricians and general practitioners. Since 1998 universities in the UK have developed training programmes that enabled midwives, health visitors and advanced neonatal nurse practitioners (ANNP) to take on this role.

With increasing demands on doctors and the implications

of the working time directive (Department of Health (DH), 2009), it was recognised that the NIPE of the normal healthy term baby could be performed by these practitioners with the appropriate training (PHE, 2018; Davies and McDonald, 2008; NHS Quality Improvement Scotland, 2008).

For those medical required as a part of their role to undertake NIPE, their training is very variable compared with that received by midwives and ANNP, as is the maintenance of skills and competencies (McDonald et al, 2012). The NIPE course continues to be a popular post-registration course undertaken by midwives at a large university in south east England. Midwives are motivated to undertake the course for a variety of reasons: it enables them to provide holistic care for mothers and babies, they perceive it to be a natural extension of the midwife's role, and, as one stated, "because it is a really practical course to do" (participant 15).

While numerous universities provide training and online courses, and there are also many midwifery, medical and paediatric textbooks that discuss the physical EONB (Tappero and Honeyfield, 2018; Lomax, 2015; McDonald, 2008a), there were no agreed standards or processes, either for performing the examination itself or for the training required.

There was no national evidence-based guidelines until

NHS Quality Improvement Scotland published its best practice statement in 2008. PHE has recently (April 2018) published the revised newborn and infant physical examination (NIPE) standards, which are developed by the UK National Screening Committee (NSC) and are applicable across the UK.

Aim

The aim of this study was to explore the various factors that motivated midwives to undertake the NIPE post-registration midwifery course and to find out if midwives used their newly learned skills in practice

The objectives were to examine factors influencing midwives' ability to integrate NIPE into holistic midwifery practice and to identify the best way to bring about change in midwifery practice.

Literature review

A comprehensive literature review was undertaken based on the emerging data and data analysis, ensuring it was data-driven/theory-driven (Strauss and Corbin, 1998). Relevant literature was obtained from a variety of sources including primary and secondary literature and systematic reviews, published guidelines and DH policies, grey literature and electronic searching.

Limited studies were identified in the literature search, the most seminal study in relation to NIPE being *Routine examination of the newborn: the EMREN study*, which involved an evaluation of an extension of the midwife's role, including a randomised controlled trial of appropriately trained midwives and paediatric senior house officers (Townsend et al, 2004). Commissioned and published by the Health Technology Assessment Programme, this study is the most often quoted and recognised study in relation to NIPE.

Method

Grounded theory was originally developed for the social sciences by Glaser and Strauss (1967), and has been used in nursing research since the 1970s and in women's reproductive health and family research since the 1980s. Its focus has been mainly on practice and education. While there are now differing versions of grounded theory, all versions continue to explore theoretical and epistemological underpinnings in an attempt to explain social meanings and human behaviour. It is a methodology from which theory is generated (Licqurish and Seibold, 2011; Charmaz, 2010; Chen and Boore, 2009; Backman, 1999) and considers social and political conditions to understand people's experiences (Marcellus, 2005; Jeon, 2004). This grounded theory research study was based on Strauss and Corbin's (1998) interpretive research paradigm approach, with its emphasis on the development of theory and social processes.

The research study sought to determine what motivated midwives from five NHS trusts in the south of England to undertake continuing professional development training in NIPE and what influenced them to use their skills or demotivated them.

In addition, the study explored why heads of midwifery sent staff on the training programmes, and the ways in which they perceived the training had influenced clinical practice (Elliott and Lazenbatt, 2005; Chiovitti and Piran, 2003). The study's aim was 'not to test or verify an existing theory' (Lingard et al, 2008), but to develop a theory that fits with reality (Burns and Groves, 1993).

Ethical considerations

This study was part of a doctorate in clinical practice, therefore research governance approval and satisfactory ethical review was achieved with further approval from the five participating NHS trusts ethics approval panels.

In accordance with ethical approval all participants were sent an introductory letter and information sheet about the study, explaining why they had been approached and seeking their acceptance to participate. Explicit informed consent was obtained from the participants prior to the commencement of the study and then reiterated before the semi-structured interviews taking place. Confidentiality and anonymity was maintained.

All participants received a copy of their transcript and while a few responded with comments, all stated they were happy with the transcript.

Recruitment

Midwives with NIPE qualification were recruited to the study in two ways. Firstly, participants were recruited from those who had participated in an audit in 2006 (McDonald, 2008b) and who confirmed in writing at the time that they were willing to participate in further research, therefore the researcher was able to send them a letter asking whether they would be willing to participate in this research study.

Secondly, the researcher, as module leader for the post-registered NIPE course, had developed a database of NIPE mentors for a number of years (this was maintained by a university administrator with mentors' consent for inclusion). Mentors who had completed the NIPE course in the previous two years (2008-10) were invited to participate in the study.

This provided the researcher with a comprehensive representation of midwives from the varied demographic area of the east of England. The heads of midwifery participants were recruited from the five local NHS hospital trusts.

Research questions

All participants in the study were asked the following semi-structured questions:

- In your opinion why do you think midwives do/do not practise the NIPE?
- What do you know about the NIPE programme? (NIPE refers to the NSC's newborn infant physical examination programme)
- How do you audit practice?

The following prompts were then used if necessary, asking midwives questions, such as:

- Why did you do the course, initially?

Table 1. The coding of participants in the second column represents the five NHS Trusts. The total number of midwifery participants were: A – five; B – two; C – two; D – two; E – one

Participant No:	NHS Trust	Year in which course undertaken	Environment in which midwives work	Average number of examinations undertaken weekly	Other roles and responsibilities
1	A	2008	Hospital	2 per week	Yes
2	B	2010	Community	5-6 per week	No
3	A	2010	Hospital	7-14 per week	Yes
5	C	2008	Hospital	1-2 per week	Yes
6	D	2008	Hospital	4-6 per week	Yes
7	A	2009	Hospital	8-10 per week	Yes
8	A	2004	Community	1 per week	Yes
9	B	2004	Community	1 per week on average, sometimes more often.	No
10	C	2004	FMU	1 per week	No
14	C	2000	Hospital	Frequently, either examining or assessing	Yes
12	D	2000	Hospital	None	Yes – senior management
17	E	2006	Hospital	None	Yes – senior management

- How do you feel about undertaking the NIPE?
- How has it influenced your practice?
- What do you think are the plusses and benefits?
- What are the problems and how can we overcome these?
- How many examinations of the newborn do you undertake in any given week or month?

Heads of midwifery participants were given the following prompts if necessary:

- Why do you send midwives on the NIPE course?
- What are the potential outcomes for you?
- What can you do/what do you do to motivate staff to use their skills?

The research questions were designed to:

- Understand midwives' motivations to undertake the post-registered training
- Identify the factors that influence midwives to use or not use their skills
- Determine why heads of midwifery send staff on the NIPE course and how they perceive the training may influence practice
- Describe how heads of midwifery facilitate and support midwives who undertake the training
- Explore ways in which the skills the midwives have in NIPE assessment can provide a more holistic service to mothers and babies.

Setting and sample

The study was undertaken in the east of England in a county where all of the 17 participants were employed by one of the five NHS hospital trusts that were linked to this university.

Participants

Theoretical sampling: there were sufficient numbers and a range of participants to provide a full spectrum of variations in the phenomenon, which allowed for definitions and meaning to be grounded in the data (Glaser and Strauss, 1967). Twelve midwives participated in the study (10 were using their skills and two were not), plus five heads of midwifery. Of those midwives who participated in the study, their ages ranged from early 20s to late 50s, and their post-registration experience as a midwife ranged from 18 months to 29 years.

Demographic information determined that all participants had undertaken their midwifery education in the UK, the majority had trained and worked in different maternity units around the UK, and most had been working in the locality for up to 15 years. English was the first language of 16 of the participants, and no translation was required for the one participant whose first language was not English.

A summary of the midwives' (participants') profile can be found in Table 1. They were all dividing their time between midwifery clinical practice or management roles. Data include the year in which they completed the NIPE course, an indication of the average number of NIPE they completed weekly, plus the environment in which they worked.

The three participants who were based in a community setting are described in the table as 'community'. One participant worked solely in a freestanding midwifery unit (FMU), which is a stand-alone unit located some distance from the local NHS trust and is led by midwives without medical staff present. Each one of the five NHS trusts had one head of midwifery, who mostly undertook management

additional duties. During the time the interviews took place, two were nearing retirement and for the other three, recent strategic changes meant that their role and remit was evolving to include greater responsibility for other departments or directorates. Heads of midwifery are not included in Table 1. However, all trusts are represented in this study.

To maintain confidentiality and to ensure the participants could not be identified, detailed information regarding their specific additional roles and responsibilities have not been included in the table above.

Sampling

The researcher was cognisant of the need to attract midwives working in comparative places (different trusts and clinical environments) to maximise the potential for differences in concepts to be realised, therefore identifying approximately equal numbers of participants from each of the trusts was important but not a prerequisite.

What became apparent during the interviews was that the researcher had been able to attract participants from all relevant areas of the maternity services without realising or appreciating the significance until the interviews were taking place. The differences in the participants' experiences were almost certainly influenced by their place of work and length of experience as a midwife (only two of the 10 with additional roles were able to undertake significant numbers of examinations – participants 3 and 7).

For all participants the issue of time was an important consideration and impacted on the number of hours or days they had allocated to clinical practice where they had the opportunity to examine babies. This informed the discussions, the development of concepts and building of the theory, subsequently increasing the 'explanatory power' of the theory (Corbin and Strauss, 2008). Only two who agreed to participate were not utilising their skills: both were in senior management positions but maintained their registration and practice as midwives.

Data collection

Data collection in this study consisted of semi-structured audio-recorded interviews with each participant in the study (17 in total, and with their permission). Interviews were conducted face to face by the researcher over a six-month period, at a time and venue suitable to the participant (Wood and Ross-Kerr, 2006).

Following systematic data collection, data analysis and constant comparison of data, theoretical saturation was achieved (Willig, 2009), and the core category and an emerging theory, integration of NIPE into holistic midwifery practice, was identified. In addition to the audio tape recordings, note-taking, memoing and personal reflection of the researcher's own thoughts and impressions following the interviews took place.

The data were managed and analysed using the ATLAS.ti software package. However, following the first few steps of what is described by Corbin and Strauss (2008) as 'computer-aided text interpretation to facilitate analysis', the researcher complemented further analysis of

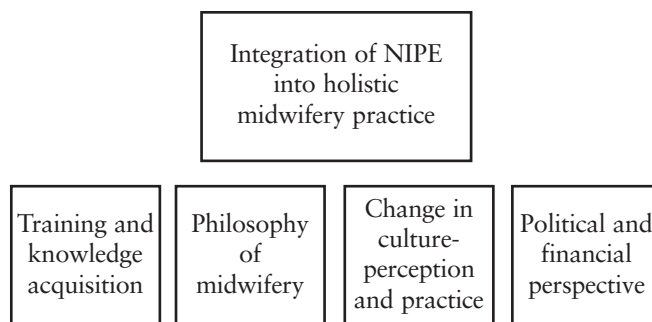
the emerging theory by using other creative tools, paper, pencils and diagrams.

Strauss and Corbin (1998) emphasised the importance of 'combined focus' to demonstrate rigour in which, ultimately, the reliability of data is based on the care, consistency and visibility of the research practice and reliability of analysis and conclusion. The use of semi-structured questions facilitating the participants in articulating their experiences, then checking the transcripts and sharing the findings with the participants, plus the use of quotes, made possible accurate reflection of what the participants said.

Combining critical reflexivity, memoing and diagramming to identify codes and categories, in addition to working closely with her supervisors and the participants, the researcher is confident that the rigour of this study has been maintained. Credibility, fit and relevance along with workability for this study has been demonstrated with detailed and accurate descriptions of the setting, participants and sampling, data collection and analysis (Strauss and Corbin, 1998).

Findings

The findings of the interviews identified a number of concepts that were subsequently amalgamated into one core category and four key categories. These and the implications for practice are discussed below.



Training and knowledge acquisition

Most participants discussed the differences in NIPE training for medical colleagues and midwives, expressing concern for what they perceived to be inadequate medical training in NIPE.

They suggested there should be increased opportunities for shared learning in clinical practice and the dissemination of good practice, for example, by peer observation and multidisciplinary mentor support. Midwives identified the importance of clinical updates for maintaining competency and the utilisation of NIPE skills to ensure confidence and competency.

According to the competencies framework for medical training, when this study was undertaken there was no requirement to undergo specific training in the NIPE infant. However, the RCPCH has since developed an NIPE training package in collaboration with the NSC, to provide consistency and quality in training for medical doctors. It has been revamped in line with safeguarding requirements and has moved to NHS Health Education England's (2018) e-LfH platform.

"I see junior paediatricians do the examination, whereas I had to do a course which for me lasted six months.

"They still see one, do one, and some of the skills that I actually see the junior paediatricians use are quite frightening" (participant 12).

Concern was raised by participants who, as midwives, are increasingly taking on responsibility for NIPE, specifically for healthy term newborns, and increasingly for those babies who were previously deemed to have high risk factors, as medical doctors will become de-skilled in NIPE for healthy term newborns and only examine babies identified with risk factors.

It was recommended that NIPE guidelines be written collaboratively utilising evidence-based practice, and local and NSC guidelines, as this promotes improved working relationships and acknowledgement of knowledge and skills.

Participants identified that increasingly their NHS trusts are allocating NIPE-trained staff to the wards to undertake EONB and to provide NIPE clinics to facilitate early discharge.

While NIPE was perceived by participants in the study to be "a natural extension of the midwife's role" (participant 4), at the time this research was undertaken it was mainly only possible through continuing professional development training.

Some midwives expressed concerns with integration of NIPE into the pre-registration curriculum, but most participants advocated that NIPE should be integrated into the pre-registration curriculum to facilitate midwives in providing holistic midwifery care (McDonald et al, 2012; Lumsden, 2002).

"I thought that, you know, that I had quite a good knowledge base beforehand. But this, you know, it's like Pandora's Box. It was just wow, why didn't I know this?" (participant 8).

In 2018 it is suggested that increasing numbers of UK universities are now adopting NIPE into their pre-registration midwifery curriculum.

Change in culture: perception and practice

The perception of participants in this study, and in the literature, was that there were many midwives with the NIPE qualification who were not utilising their skills (Clarke and Simms, 2012; Ball, 2012; Lanlehin et al, 2011; McDonald, 2008b).

However, the evidence provided to the researcher from NIPE leads within the five trusts indicated a significant number of midwives are motivated to undertake NIPE and are utilising their skills. The findings indicated that in the five NHS trusts within this study there were 170 midwives with the NIPE qualification, and of those 160 were utilising their skills.

The introduction of midwifery-led NIPE clinics, and of midwives allocated to undertake NIPE on a daily basis on the maternity wards, could arguably be said to have made a difference. The importance of this is also recognised in relation to potential support and mentoring for student midwives and medical doctors.

None of the five heads of midwifery had a clear idea of how many of their midwives had the NIPE qualification, but all recognised the potential implications for practice, specifically reducing length of stay for mothers and babies and improved patient satisfaction. All were conscious of the increased workload for midwives.

Two heads of midwifery in this study stated that they wished to have all their midwives on the postnatal wards with NIPE skills. One head of midwifery stated:

"I would like all of my community midwives to be examination of the newborn trained" (participant 11).

The importance of multidisciplinary working was mentioned by all participants and seen as integral to the midwives' role, in addition to the importance of detection and referral being within the midwives' scope of practice. A good example of this comes from participant 7, a very experienced midwife who mentors and supports midwives and maternity care assistants in the postnatal ward, and who is sought out by the junior paediatricians for expert advice and support. She stated:

"I am in contact with the paediatric team every day. They ask me questions. They ask me for reassurance as well" (participant 7).

However, acknowledgement of midwives' skills and knowledge by medical colleagues, and the authority to refer in relation to NIPE, was variable among participants. Although very experienced midwife participants felt able to question the practice and decision-making of junior doctors, their authority to complete documentation and refer to specialist practitioners was not permitted by some senior clinicians. This was an inconsistency within the trusts and an anomaly that needs to be addressed, ideally locally but more formally on a national basis by the NSC in discussion with the professional bodies.

The majority of participants made some reference to increased confidence after undertaking the NIPE course. As a result of the increased knowledge and understanding of the newborn, they also felt more confident to question medical colleagues' decisions and practice. Confidence in their ability to detect anomalies and increased competency in their practical clinical skills was also highlighted. Participant 5 stated:

"I am confident in my practice in as much as I have detected things in babies and then referred them on and been reassured that what I have detected has been proven. So, I think the more you keep doing it the more confident and competent you feel doing it" (participant 5).

Philosophy of midwifery

The concept and provision of holistic care was discussed by all participants in this study and identified as their aim. However, many participants commented on the changes that have taken place in the way they undertake NIPE in clinical practice, specifically with the introduction of midwifery-led clinics and midwives allocated to an NIPE off-duty rota. The perception for some was that they had moved from delivering holistic care for mothers and babies to a more opportunistic and fragmented

delivery of care (McDonald et al, 2012). All participants acknowledged that midwives' roles and responsibilities have changed, with increasing demands placed on them and their time, notably with the implementation of the working time directive (DH, 2009). Further changes to the midwife's role is anticipated with acknowledgement of the recommendations and implementation of the DH (2010a; 2010b) *Midwifery 2020* vision in England. However, in this study participants perceived NIPE to be in the realms of normal and not a specialist role.

"I think it would be a lot easier if everyone could do them because then there wouldn't be juggling, you know, everyone would be able to do them" (participant 9).

Political and financial drivers

Some of the participants in this study commented on the political changes that influenced the delivery of care, and all were cognisant of the emphasis placed in clinical areas to reduce the length of stay (DH, 2008). A few of the participants commented on the impact that midwives can have in reducing costs and the financial benefits associated with midwives performing NIPE.

"We do 4,800 deliveries a year here now, with 20 postnatal beds. You can't manage a service with delayed length of stay" (participant 13).

"You know, we used to have a situation where women would be kept in overnight because they couldn't do a baby check before they went, and that's a huge cost implication, keeping them in bed overnight" (participant 10).

The impact of a reduction in Health Education England and local funding for continuing professional development opportunities was not recognised or understood by the majority of participants.

While there is some recognition of the importance of audit among participants, none of the five NHS trusts in this study had robust auditing processes, so none were able to provide sufficient evidence to demonstrate the potentially significant cost savings to be made by midwives undertaking NIPE (McDonald et al, 2012). However, following the interviews, participants stated they would be looking into their auditing processes.

The emergence of the core category

All participants in the study felt there was a need to integrate NIPE into holistic midwifery practice (McDonald et al, 2012; Mitchell, 2002; Lumsden, 2002). They perceived it to be part of their role and responsibility as a midwife, and they stated that it gave them increased job satisfaction. But they were all clear that due to time constraints they had difficulty undertaking NIPE (Clark and Simms, 2012; Bloomfield et al, 2003).

Little or no mention is made in the literature regarding education and training, multidisciplinary working, the importance and implications for auditing of clinical practice in NIPE, or the increasing expectations placed on midwives to complete NIPE on babies previously undertaken by medical doctors (Lomax, 2015 McDonald, 2008b). However, all participants had been motivated to

undertake the training, some in their own time, some at a cost to themselves. They were cognisant that the numbers of staff being able to access training was diminishing and felt that this was to the detriment of the profession. Therefore, to ensure that midwives continue to undertake NIPE and achieve the skills and to ensure enhanced knowledge and understanding of the newborn, participants thought NIPE should be included within the midwifery pre-registration curriculum.

While some participants initially expressed that they had thought the NIPE should only be undertaken by experienced midwives, this perception had changed for all but one of them following the training.

"I think it needs to be a post-grad module that midwives, when they have had the opportunity to, to have more experience with handling babies. Then they can bring more to the course from their experience, and then they can say, yes, I've seen a baby do that" (participant 2).

The literature pertaining to advanced practice in midwifery is limited. Midwives as autonomous practitioners at the point of registration currently undertake responsibilities that are described in the literature as advanced practice. Therefore, there needs to be some clarification, consistency and recognition of what constitutes advanced practice in midwifery (Duke, 2012; RCN, 2012; DH, 2010a; 2010c; NMC, 2010).

Future research

An updated national survey of midwives with the NIPE qualification should be undertaken to determine how many midwives have NIPE skills countrywide and how many are utilising their skills or not (Hayes et al, 2003). This will provide evidence for the numbers of midwives available to support midwifery students in undertaking the training. It would provide an audit of practice and evidence to support the need for reciprocal respect and improved collaboration of care between doctors and midwives, as identified in the *Midwifery 2020* vision. In addition, it could provide evidence to support potential financial savings to NHS trusts.

Clinical auditing of practice can provide evidence of:

- How many midwives are undertaking NIPE compared with doctors
- Including NIPE at clinics
- Facilitate studies related to mothers' personal experiences (shorter length of stay) and satisfaction with midwifery models of care, and the quality of health promotion/public health information which is provided to mothers. Data specifically related to current referral processes and rates of referral may also facilitate the exploration of incidences of specific conditions and syndromes, which may then be explored from differing perspectives.

With the introduction of NIPE into midwifery curricula, a study to determine midwives' perceptions and practices of students with the training compared with those who have not had the opportunity to access training would be beneficial.

Discussion

Participants in this study came from five NHS trusts across the east of England. They were working in a range of clinical environments within the maternity services, providing the study with differing perspectives of midwifery models of care and different lengths of clinical experience.

The study provided evidence that more midwives with the NIPE qualification across the five NHS trusts in this study are utilising their skills than were previously considered to be doing so. It contributes to the theory that midwives perceive that 'integration of NIPE into holistic midwifery practice' facilitates them in delivering holistic continuity of care.

It is considered that midwifery students would benefit from increased and enhanced knowledge skills and understanding of the newborn throughout their training. Providing them with this enhanced knowledge and understanding of the newborn also enables them to give seamless, holistic care to mothers and babies, which ultimately may facilitate shorter stays for mother and baby, and improve maternal satisfaction in their care.

It is suggested that while students are under supervision and supernumerary, undertaking the NIPE training will build their confidence, encourage them to question, and ensure their understanding of accountability and the autonomous practitioner. Then at the point of registration, they are competent and confident to be able to undertake the examination of the 'normal, healthy' newborn.

The biggest challenges are finding time to undertake the NIPE and encouraging changes to clinicians' perceptions (Lane, 2012; Hunter, 2005).

The DH (2010a) identifies a need to challenge the current practice provision and develop midwives' roles to become leaders in the shaping and development of maternity services.

The implications for practice and for influencing policy are apparent from these data; greater collaboration is required among the policymakers, professional bodies and commissioners of maternity services to enact a change.

A change in the perception and identification of what constitutes normal midwifery practice to include NIPE needs to be made more explicit by professional bodies, as they clearly advocate the inclusion of NIPE into holistic midwifery practice (DH, 2010a; 2010b; RCOG et al, 2007). However, there is no requirement to include it into the midwifery curriculum, merely a recommendation (DH, 2010a).

The introduction of this education programme into pre-registration midwifery curricula is an opportunity to pave the way for integration into holistic midwifery practice as, if enough midwives have the skills, the concept of rotas and clinics may not be necessary.

Such knowledge and skills will enrich midwifery practice and enhance the role of the midwife. It expands midwives' knowledge, informs their decision-making and gives greater choices for women.

Conclusion

The evidence from this small study suggests that the integration of NIPE into midwifery practice should be part of all midwives' practice and not just the remit of a specialist/advanced practitioner. If this was to become the norm, it would free up doctors to care for more of the infants with high-risk factors.

The researcher has been delivering NIPE training since 1998 and has sought to integrate NIPE into pre-registration midwifery training. Since completing this research study, the researcher was able to facilitate the integration of NIPE into the pre-registration midwifery curricula at the study university.

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Knowledge, attitudes and future intentions towards breastfeeding among undergraduate students at a Jordanian public university

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Abstract

Background. The rates of breastfeeding in Jordan have decreased during the last few years, according to the last two Jordanian population and family health surveys. This decrease indicates a potential risk to the health of the infant and increases in the cost of healthcare for babies with more risk of infections. Studying the factors that affect intentions toward breastfeeding among young people who will become future parents may help to determine factors that impact on their decision making.

Aim. To describe students' knowledge, attitude, previous exposure and future infant feeding intentions.

Study design. A descriptive cross-sectional design was used. Data were collected using a structured self-administered questionnaire.

Participants. A sample of 418 undergraduate students attending a large university in the north of Jordan with a student population of 20,000.

Findings. The results of this study showed that students have adequate knowledge, a positive attitude and a high level of intent to breastfeed. Significant differences between males and females were reported, with males having more knowledge and a more positive attitude towards breastfeeding than females. Students of health majors had a higher knowledge about breastfeeding, and there was a significant correlation between attitude and knowledge toward breastfeeding among undergraduate non-health major students in the Jordan University of Science and Technology.

Implication. The results of the study provide new information about breastfeeding knowledge and attitudes among Jordanian higher education students. Further exploration of these attributes is necessary among the general population.

Key words: Breastfeeding, knowledge, attitudes, intention, student population, Jordan, evidence-based midwifery

Introduction

Despite all the benefits and recommendations about breastfeeding, breastfeeding rates are falling in countries, such as Brazil, Greece and Taiwan, and rising in others, such as the US and Australia (Abuhammad, 2016). The reasons for unstable trends in breastfeeding rates worldwide are associated with complex multi socio-cultural factors.

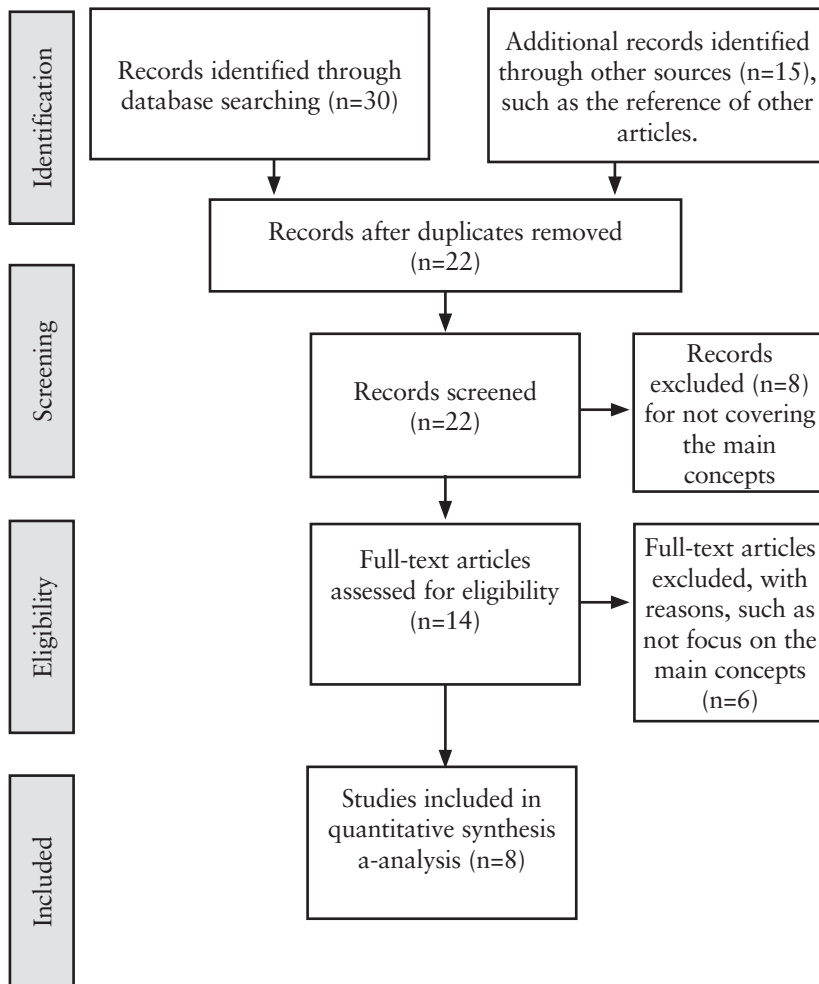
In developed countries most women do not continue breastfeeding for six months postpartum (Abuhammad and Johnson, 2018) as recommended by WHO and UNICEF (2003). In the US, the Centers for Disease Control and Prevention (2010) breastfeeding report indicated a gap between the targets of national programmes like Healthy People 2010 and the percentages of breastfeeding recorded: only 35% of infants are exclusively breastfed up to three months with only 44% of them having any breastmilk at six months. Jordan is not an exception: here, the rates of breastfeeding have decreased during the last few years, as demonstrated by the results of the last two Jordanian population and family health surveys. The percentage of exclusively breastfeeding mothers of infants aged six months decreased from 40% in 2007 to 20% in 2016 (Jordanian Department of Statistics, 2017). This decrease indicates an increased risk to the health of mothers and infants as babies may be more vulnerable to gastritis, otitis media or respiratory problems (Abuhammad and Johnson, 2018; Kavanagh et al, 2012), while mothers may be at an increased risk of breast cancer, hemorrhage

and obesity (Hamadneh et al, 2018). This will significantly increase the costs on the healthcare system. Since Jordan is one of the limited-resources countries this overload on the healthcare system will negatively affect the economy.

To address this situation, social information, social influence and behavioural beliefs about breastfeeding have been studied. The main reasons reported for not initiating breastfeeding or for giving up breastfeeding are negative attitudes among women, their partners, family members and healthcare professionals, lack of knowledge, low social support, employment, breastmilk insufficiency, and infant and maternal illness (Hamadneh et al, 2018; Vijayalakshmi, et al, 2015). The message about the infant feeding method is communicated to men and women through the mass media, popular culture, social networks and other channels. These sources of knowledge help shape attitudes towards the preferred infant-feeding method (Abuhammad, 2016; Saied et al, 2013).

College students have been considered an appropriate population in several research studies in Hong Kong (Tarrant and Dodgson, 2007), the US (Chang et al, 2012; Marrone et al, 2008), Jordan (AL-Ali et al, 2013) and Egypt (Ahmed and El Guindy, 2011). Previous studies indicated that attitudes towards breastfeeding start to form before pregnancy (Abuhammad and Johnson, 2018; Vijayalakshmi et al, 2015). Knowledge and previous exposure to breastfeeding are important factors in determining their intention towards

Figure 1. PRISMA for breastfeeding knowledge and attitude



breastfeeding (Abuhammad, 2016; Tarrant and Dodgson, 2007). Promoting breastfeeding as the normal way of infant feeding among young people may be the first step in raising the rates in the near future (Kavanagh et al, 2012).

Assessing young people's knowledge, attitude and previous exposure to breastfeeding may help to determine factors that affect the intention to breastfeed.

Literature review

A systematic and comprehensive literature review was undertaken to address the question: 'What are an undergraduate student's knowledge, feeling, and intention toward breastfeeding?' CINAHL, MEDLINE, PubMed, and the web was searched using the key words 'breastfeeding, attitude, feeling, intention and undergraduate students'. The inclusion criteria were studies published in English between 2007 and 2018. Papers were excluded if they were not focused on the main concepts and population of this study.

A decision about the choice of infant-feeding method is multifactorial as social, psychological, emotional and environmental factors have been found to be associated with future parental decisions. Psychosocial factors like the the body image of the mother pre-pregnancy have correlated with her confidence to initiate breastfeeding. Little attention

is given in the media to breastfeeding as the normal method of feeding a baby (Stuebe and Bonuck, 2011). Since the 1970s, especially in developing countries, formula-feeding companies have aggressively marketed their products as the normal and practical choice for families (Abuhammad and Johnson, 2018).

Few studies have examined infant-feeding knowledge among university students. In Jordan, no previous research examined the degree of infant-feeding knowledge, attitude, feelings and future intention among female and male university students. Two studies looked at the knowledge and attitude of female undergraduate students. However, in Kuwait, Ebrahim et al (2011) conducted a cross-sectional study examining the knowledge, misconception and future intention among female university students and found that participants' level of knowledge was good, especially relating to the benefits of breastfeeding.

The majority of participants were aware that breastfed infants are less susceptible to diarrhoea, vomiting, common colds, constipation and allergies when compared to formula-fed infants. They also reported that the breastfed infant had a calmer mood and more intelligence. The evidence concerning intelligence is debatable. In contrast low knowledge scores were reported in the area of benefits/recommendations for exclusive breastfeeding. Seventy-four per cent of students thought that optimal exclusive breastfeeding was for more than six months, 12.9% and 13.2% thought that it should be for four to six months and the remainder thought breastfeeding should be for less than four months. Low knowledge scores were reported when answering questions about the time to start breastfeeding, when to stop and what to do if they had a skin rash, fever or sore throat or mild medical condition (Ebrahim et al, 2011).

In Egypt, an exploratory descriptive study by Ahmed and El Guindy (2011) assessed the knowledge, attitude and perceived adequacy of breastfeeding education among female baccalaureate nursing students. Only 52% of participants demonstrated a moderate knowledge level. Half of the participants did not know what exclusive breastfeeding meant and about 85% did not know that breastfeeding is recommended for the first six months of life WHO and UNICEF (2003). However, most of the students agreed that breast milk alone provides enough nutrition for young infants and is the best feeding choice as it reduces gastroenteritis among newborns.

Tarrant and Dodgson (2007) conducted a cross-sectional study among undergraduate Hong Kong female and male university students, and found their overall knowledge about infant feeding was good though some believed that breastfeeding was painful and only half knew that bottle-fed

babies were more susceptible to illnesses than breastfed babies. They also found that students who intended to breastfeed had significantly higher knowledge levels than those who did not.

Tarrant and Dodgson (2007) indicated that knowledge level correlated to the level of education and was associated with an educational background. Accumulative evidence found a strong correlation between young people's attitude toward infant feeding methods and their future intention (Khoury et al, 2016; Kavanagh et al, 2012). The practice of breastfeeding has a religious basis in Arabic Islamic cultures. The Qur'an, specifically promotes breastfeeding and defines the suckling, weaning and rearing of infants (Qur'an, 2:233).

In a Kuwaiti study, the majority of female university students reported that breastfeeding was a religious duty. Those who said this also showed a higher intention to breastfeed (Ebrahim et al, 2011).

Kavanagh et al (2012) used a cross-sectional design in a convenience sample of 248 undergraduates attending two sections of an introductory nutrition class at a large research university. They found 16% (n=40) of participants did not know how they were fed as babies and 23% had not been breastfed at all. Most reported having witnessed breastfeeding before and or knowing someone who had breastfed (n=200, 76%). Students who were breastfed achieved significantly higher knowledge and attitude scores compared to those who were not breastfed. Most of the studies found a significant correlation between knowledge level and intention to breastfeed, with lower levels of knowledge about breastfeeding having a negative influence on breastfeeding intention. However, the attitude of young people can play a key in the future intention toward breastfeeding. Misconceptions, such as beliefs that 'breastfeeding is painful, disgusting and awful', can form negative attitudes that may influence the decision to breastfeed, leading to increased rates of formula feeding. The experiences of seeing someone breastfeeding and being breastfed as a baby were significantly associated with the level of knowledge and attitude.

Objectives

To assess knowledge and attitudes towards infant-feeding methods among students in the public university in Irbid to assess their intentions towards choice of infant-feeding method, and to explore the relationship between students' age, gender, knowledge, attitudes, feelings and intentions towards infant-feeding methods.

Design

The study was exploratory and descriptive using a cross-sectional design.

Settings

Data collection took place in the Jordan University of Science and Technology (JUST) in northern Jordan. The university comprises 12 facilities (medicine, nursing, applied sciences, agriculture, architecture and design, veterinary, computer and information technology, pharmacy, dentistry, engineering, science and arts, and graduate studies) and enrolls some 20,000 undergraduate students.

Table 1. Student distribution in each faculty

Current employment	Number of students in college	Frequency in sample	Per cent from sample size
Architecture	843	14	3.3
Engineering	5,508	91	21.8
IT	2,445	42	1.0
Medicine	3,478	59	14.1
Dentistry	1,880	32	7.7
Agriculture	930	15	3.6
Pharmacy	3,828	64	15.3
Nursing	983	17	4.1
Veterinary	387	7	1.7
Science and art	2,105	36	8.6
Applied science	2,452	41	9.8
Total	24,839	418	10.0

Sample

The population of the study was all Jordanian university students attending JUST. The sample size was estimated based on the total number of undergraduate students in the University (n=20,000). A sample of 385 would be sufficient for statistical confidence. By adding 10% to accommodate drop out, the desired sample size became 424 students. To ensure the best representation of faculties, proportionate stratified sampling was used: the number of students in each faculty was converted to a percentage then each faculty was represented in the sample based on its number of students related to the total students in university. The number of surveys distributed to all the major faculties in JUST based on this proportionate stratified sampling technique is shown in Table 1.

Instrument

Demographic characteristics and experience

The demographic section comprised of two parts. The first part asked four questions about gender, year of birth, faculty and the year of study at the university; the second part asked about previous exposure to breastfeeding through three (yes/no) questions: whether the participant had been breastfed when he/she was an infant; if he/she knew anyone who had been breastfed; whether he/she had witnessed breastfeeding before.

Breastfeeding knowledge and attitude scale

The breastfeeding knowledge and attitude scale is a structured self-administrated questionnaire developed by Pollock et al (2002) then modified by Tarrant and Dodgson (2007). The questionnaire subscales are focused on knowledge, attitude and intent. The subscales addressing knowledge and attitude of participants on breastfeeding involved 31 questions: 14 about knowledge and 17 about attitudes towards breastfeeding. Correct answers were scored 1 and incorrect scored 0, with a total score for the scale of 14. Attitude toward breastfeeding

was assessed by 17 questions that used a four-point Likert scale (strongly agree, somewhat agree, somewhat disagree, strongly disagree), with a total score for the scale of 56. The last section comprised two questions asking about the future infant-feeding intention of the individual, how they would feed their baby or support their partner in feeding. The questions were: do you intend to breastfeed your baby in the future/or to support your wife to breastfeed?; do you intend to feed your baby artificially in the future or to support your wife in formula feeding? The reliability of the whole instrument was Cronbach alpha=0.86. The internal consistency/reliability of knowledge subscale was .87, the attitude subscale was adapted from Tarrant and Dodgson (Cronbach alpha= .72), and the Cronbach alpha for intention scale was .67 (Hatamleh et al, 2018).

Ethical considerations

Institutional Review Board approval for the study was obtained from JUST. Participants' rights were ensured by: attaching each questionnaire with a sheet providing all the information about the research purpose and goals; voluntary participation, assurance of confidentiality and anonymity.

Data collection procedure

Data collection took place across the university buildings and colleges. To ensure a comprehensive distribution of questionnaires, data collection was carried out at different times of the day.

Results

Socio-demographic characteristics

The number of questionnaires returned to the researchers was (n=418) from (n=424). The majority of participants were female, 65.1% (n=272), 34.9% were male (n=146). Students were from nursing, medicine, veterinary, pharmacy, applied science and art, medical sciences, agriculture, engineering, architecture and IT.

For more information regarding demographic characteristics see Table 2.

Previous exposure to breastfeeding

Most students reported being breastfed when they were infants (n=373, 89.2%) and (95% CI 87.3, 91.1). The majority of students (n=401, 95.5%) and (95% CI 87.3, 91.1) knew someone who had breastfed and the majority (n=361, 86.4%) and (95% CI 83.2, 89.6) had witnessed breastfeeding.

The results are represented in Table 3.

Assessing knowledge about breastfeeding

Knowledge scores ranged from 62.6% to 94%, with a mean score of 9.3 (SD=13.3), indicating overall good knowledge levels in issues regarding breastfeeding.

Table 4 shows each question and the answers.

An independent sample T-test was conducted to compare male and female student's knowledge levels to detect any significant differences between genders. Men demonstrated a slightly higher knowledge about breastfeeding but there was no significant difference between genders (t=1.467, P< .143).

Assessing attitude about breastfeeding

Mean attitude scores were 2.62 (SD= .25), with a range from 1.76 to 3.60, indicating overall positive attitudes toward breastfeeding. These attitudes include: 1. Formula-feeding gives more freedom to the mother; 2. Breastfeeding makes breasts less attractive; 3. Breastfeeding would make my partner or me more attractive; 4. Babies enjoy breastfeeding more than formula-feeding; 5. Breastfeeding will help a mother feel closer to her baby; 6. Formula-feeding is more sanitary than breastfeeding; 7. Breastfeeding in public places is embarrassing.

Independent T-test results showed that there were significant differences in attitude between the two genders (t=4.32, p <.00), with males tending to have a higher positive attitude toward breastfeeding. See Table 5 for the frequency and percentage for each attitude question.

Intention toward infant feeding methods:

A higher proportion of students (80.6%) (95% CI: 76.4, 84.8) said that in the future they intend to breastfeed or support breastfeeding, compared to the students (15.1%) (95% CI: 12.0, 18.2) who said that in future they intend to bottle feed. This result may be explained by the theory of planned behaviour, which proposes that one of the factors that impact on behaviour is the emotions one holds toward that

Table 2. Demographic characteristics for the participants

Characteristics	n=418 (%)
Sex:	
Male	146 (34.9%)
Female	272 (65.1%)
Age (yrs):	
Less than or equal 22years	341 (81.6%)
More than 22 years	77 (18.4%)
Faculty:	
Health faculties	271 (64.8 %)
Non-health faculties	147 (35.2%)
Year of study	
Undergraduate year 1	108 (25.8%)
Undergraduate year 2	123 (29.4%)
Undergraduate year 3	47 (11.2%)
Undergraduate year 4	77 (18.4%)
Undergraduate year 5	63 (15.1%)

Table 3. Exposure to breastfeeding

Characteristics	Yes	95% CI
1. Were you breastfed when you were an infant?	373 (89.2%)	(87.3, 91.1)
2. Do you know someone who has breastfed	401 (95.9%)	(93.1, 98.7)
3. Have you ever witnessed a woman breastfeeding	361 (86.4%)	(83.2, 89.6)

Table 4. Knowledge scale analysis for breastfeeding

Question	Correct answers n (%)	95% CI
1. For a baby, breastfeeding is healthier than bottle-feeding.	275 (65.8%)	(61.2, 69.3)
2. The baby sucking on the mother's breast is painful.	253 (60.5%)	(56.7, 64.3)
3. Breastfed baby are smarter than babies who are not breastfed.	342 (81.8%)	(78.4, 85.2)
4. There is no difference between breast milk, cow's milk and soymilk.	311 (74.4%)	(71.1, 77.7)
5. Breastfeeding alone provides sufficient nutrition in the first few months of life for the baby.	332 (79.4%)	(77.2, 81.6)
6. Nicotine, caffeine, alcohol and medicine are passed from the mother's body to breastmilk.	354 (84.7%)	(82.3, 87.1)
7. Most women make enough breastmilk to adequately feed the baby.	284 (68.6%)	(65.1, 72.1)
8. The breastfeeding woman should avoid eating certain foods.	360 (86.1%)	(83.2, 89.0)
9. Babies who are bottle-fed have more illnesses than babies who are breastfed.	353 (84.7%)	(81.2, 88.2)
10. Breastfeeding helps prevent infections in the baby.	376 (90.0%)	(88.1, 91.9)
11. Breastfeeding helps protect babies from having allergies.	365 (87.3%)	(84.2, 90.4)
12. A woman who has small breasts cannot breastfeed.	260 (62.2%)	(58.4, 66.0)
13. Some babies have allergies to cow's milk.	323 (77.3%)	(73.3, 81.3)
14. Breastfeeding should be started as soon as possible after the baby is born.	395 (94.7%)	(91.4, 98.0)

behaviour (Abuhammad, 2016). This study indicated that the majority of students reported that breastfeeding makes a mother feel closer to her baby and they agreed that mothers of all socioeconomic levels should breastfeed their infants. See Table 6.

Discussion

Knowledge about infant feeding methods

The percentage of breastfeeding mothers has decreased in the last few years in Jordan according to the family survey (2016). This study aimed to explore some factors that affect decision making about breastfeeding among undergraduate students. Knowledge is one of the factors that previous studies

have found to correlate with the intention to breastfeed (Khasawneh, 2017; Al-Ali et al, 2013).

The results of this study showed that the level of knowledge about breastfeeding among undergraduate students was adequate and that there was no significant difference between knowledge and gender. Students knew that breast milk, cows' milk and soy milk are not the same and that breast milk alone can provide sufficient nutrition for the infant in the first months of life. Our findings are congruent with findings reported by Tarrant and Dodgson (2007), but lower than results reported in another international study (Ahmed and El Guindy, 2011).

Attitude toward breastfeeding

Students reported a positive attitude toward breastfeeding, with male students having a significant higher positive than female student. This is similar to that reported in previous study (Tarrant and Dodgson, 2007). Religion may be one of the factors that affects attitude toward breastfeeding. Jordan and most of the Middle East are Islamic countries, they follow instructions from the Qur'an and Sunnah. The Qur'an encourages breastfeeding and gives muslims specific instructions regarding the suckling, weaning and rearing of infants: 'Mothers shall give suck to their children for two full years for those who desire to complete the term,' (Qur'an, 2:233), clearly encouraging mothers to breastfed their infant for two years. In a Kuwaiti study, students reported breastfeeding as a religious duty (Ebrahim et al, 2011). This recommendation can form a positive attitude and encourage

Table 6. Intention toward breastfeeding

Future breastfeeding intention	All students n (%)	95% CI
In future do you intend to breastfeed or support breastfeeding?		
Yes	337 (80.6)	(76.4, 84.8)
No	15 (3.5)	(0.4, 6.6)
Not decided	66 (15.8)	(12.8, 18.8)
Do you have the intention to bottle-feed or support your wife to bottle-feed your infant?		
No	196 (46.9)	(44.2, 49.6)
Yes	63 (15.1)	(12.0, 18.2)
Don't know	158 (6.2)	(3.5, 8.9)

Table 5. Attitude scale analysis

Question	Frequency and percentage			
	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
1. Formula-feeding gives more freedom to the mother.	108 (25.8%)	186 (44.5%)	90 (21.5%)	32 (7.4%)
2. Breastfeeding makes breasts less attractive.	74 (17.7%)	130 (31.1%)	137 (32.8%)	77 (16%)
3. Breastfeeding would make my partner or me more attractive.	38 (9.1%)	144 (34.4%)	145 (34.7%)	85 (2.3%)
4. Babies enjoy breastfeeding more than formula-feeding.	13 (3.1%)	43 (1.3%)	127 (3.4%)	234 (56%)
5. Breastfeeding will help a mother feel closer to her baby.	7 (1.7%)	5 (1.2%)	35 (8.4%)	370 (88.5%)
6. Formula-feeding is more sanitary than breastfeeding.	37 (8.9%)	29 (6.9%)	116 (27.8%)	236 (56.5%)
7. Breastfeeding in public places is embarrassing.	138 (33%)	153 (36.6%)	62 (14.8%)	62 (14.8%)
8. Formula-feeding and breastfeeding benefit the child equally.	15 (3.6%)	52 (12.4%)	210 (5.2%)	140 (33.5%)
9. The decision of breastfeeding should be made by both parents and not just by the mother of the baby.	71 (17%)	71 (17%)	144 (34.4%)	126 (3.1%)
10. Breastfeeding is acceptable in public places.	208 (49.8%)	129 (3.9%)	51 (12.2%)	29 (6.9%)
11. I want my partner or myself to breastfeed my baby.	44 (1.5%)	88 (21.1%)	142 (34%)	130 (31.1%)
12. Only girl babies should be breastfed.	20 (3.6%)	31 (7.4%)	129 (3.9%)	240 (57.4%)
13. Babies who are breastfed get a better start in life.	15 (3.6%)	31 (7.4%)	129 (3.9%)	240 (57.4%)
14. Women of all educational levels should breastfeed their children.	10 (2.4%)	16 (3.8%)	100 (23.9%)	288 (68.9%)
15. Women of all socioeconomic class should breastfeed their children.	14 (3.3%)	19 (4.5%)	92 (22%)	292 (69.9%)
16. Breastfeeding is more convenient than formula-feeding.	28 (6.7%)	119 (28.5%)	143 (34.2%)	127 (30.4%)
17. I respect women who breastfeed.	10 (2.4%)	14 (3.3%)	72 (17.2%)	322 (77.0%)

breastfeeding. However, students have the same barriers toward breastfeeding that were reported in previous studies (Abuhammad, 2016; Tarrant and Dodgson, 2007), where embarrassment with breastfeeding in public was documented as the main reason for not initiating and sustaining breastfeeding. Moreover, previous exposure to breastfeeding was assessed through three questions: breastfed as an infant, knowing someone who breastfed, and witnessing breastfeeding. Most of the students had been breastfed when they were infants, and most of them knew someone who had breastfed, or had witnessed breastfeeding. This result is higher than reported by Tarrant and Dodgson (2007) where only third of participants reported having been breastfed as an infant, more than half knew someone who was breastfed and less than half had witnessed breastfeeding. Females had significantly higher exposure to breastfeeding than males in knowing someone

who had breastfed or having witnessed breastfeeding mothers before, whereas no significant differences were found with their answers about being breastfed as infants.

Assessing intention toward infant feeding methods

Respondents show a high commitment to breastfeeding. The majority of males intended to support their wives breastfeeding their infants and only a few students reported that they will support a decision to bottle feed. Most of the female students intended to try breastfeeding their future infants with only a small number supporting the choice of bottle feeding.

The findings of this study revealed that there were significant differences between genders and future intention, with females showing a higher intention to breastfeed than males. This contrasts with Tarrant and Dodgson (2007), where only 66% males and 59.8% of females intended to breastfeeding.

Studies made in Middle Eastern countries such as Jordan (AL-Ali et al, 2013) and Kuwait (Ebrahim et al, 2011) reported contradictory results to Tarrant and Dodgson (2007). They found no significant differences between genders. This may relate to the high percentages of breastfeeding still found in these developing countries compared to that found in other places of the world, and the high employment rates of women in countries like the US, China and Korea, which may inversely impact on rates of breastfeeding in these countries.

Conclusion

The overall knowledge, attitude, previous exposure, feelings and future intention among university students were adequate, with health major students reporting higher scores than non-health major students in terms of the main study variables. Male students had greater knowledge and more positive attitudes than females, while female students had higher positive feelings

and a higher future intention about breastfeeding. Despite the high percentages of intentions to breastfeed, feeling that breastfeeding is embarrassing in public is still considered the main concern for not initiating breastfeeding and choosing bottle feeding. The idea that breastfeeding restricts the mother's freedom has also been found to be associated with choosing bottle feeding. This research has been limited due to the lack of randomisation and geographical clustering. The sample was limited to students at university level who are well educated and from higher socioeconomic settings. Further research is needed to explore the influence of midwives and nurses, and the barriers they may pose when implementing a breastfeeding programme.

However, the study does provide new information that can be used to support a recommendation for the development of a national policy for the promotion of breastfeeding as the best way for infant feeding.

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Information for authors

Evidence Based Midwifery is published quarterly and aims to promote the dissemination, implementation and evaluation of midwifery evidence at local, national and international levels. Papers on qualitative research, quantitative research, philosophical research, action research, systematic reviews and meta-analyses of qualitative or quantitative data are welcome. Papers of no longer than 5000 words in length, including references, should be sent to: rob@midwives.co.uk in MS Word, and receipt will be acknowledged. Suitable papers are subject to double-blind peer review of academic rigour, quality and relevance. Subject area and/or methodology experts provide structured critical reviews that are forwarded to authors with editorial comments. Expert opinion on matters such as statistical accuracy, professional relevance or legal ramifications may also be sought. Major changes are agreed with authors, but editors reserve the right to make modifications in accordance with house style and demands for space and layout. Authors should refer to further guidance (RCM, 2007; Sinclair and Ratnaik, 2007). Authorship must be attributed fully and fairly, along with funding sources, commercial affiliations and due acknowledgements. Papers that are not original or that have been submitted elsewhere cannot be considered. Authors transfer copyright of their paper to the RCM, effective on acceptance for publication and covering exclusive and unlimited rights to reproduce and distribute it in any form. Papers should be preceded by a structured abstract and key words. Figures and tables must be cited in the text, and authors must obtain approval for and credit reproduction or modification of others' material. Artwork on paper is submitted at the owner's risk and the publisher accepts no liability for loss or damage while in possession of the material. All work referred to in the manuscript should be fully cited using the Harvard system of referencing. All sources must be published or publicly accessible.

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News and resources

RCM Awards shortlist announced

The shortlist for the 2019 RCM Annual Midwifery Awards has been published. As always, the awards will recognise the individuals, teams and projects in midwifery that are making a positive difference to the lives of women, families and newborns. The 12 awards promote best practice and world-class midwifery standards, showcase practice innovations and ground-breaking initiatives. The winners will be revealed at the awards ceremony on 5 March 2019 at The Brewery in London.

To see the nominees in each category and to book a place at the event, go to rcmawards.com/2019-shortlist

Wellbeing of Women research grants

Wellbeing of Women is now accepting applications for projects in basic science, clinical or translational research that look at pregnancy, birth and the postpartum period, including pre-term birth, miscarriage and fertility. Applications for research in to amniotic fluid embolism, menopause and midwifery are particularly encouraged this time. The work must be carried out in the UK or Ireland, and the upper funding limit is £200,000. To find out more, visit wellbeingofwomen.org.uk/apply-research-grants/

Mary Seacole leadership and development awards

As the new year approaches, individual midwives, nurses and health visitors in the England will once again have the opportunity to apply for one of the prestigious Mary Seacole Awards. Funded by Health Education England, awarded in association with the RCM, RCN, Unison and Unite, and supported by NHS employers, the awards offer health workers the chance to pursue a healthcare project that improves health outcomes for people from black and minority ethnic communities, and that contributes to personal development. Five new awards are announced each year in October. Applications for the next round of awards open on Monday 4 February 2019. For more details and to apply, go to nhsemployers.org/your-workforce/plan/diversity-and-inclusion/campaigns-and-events/the-mary-seacole-awards

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Dr Margaret McGuire, NHS Tayside, Scotland
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