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EVIDENCE BASED MIDWIFERY



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CONTENTS

- Editorial: Zika virus disease epidemic: the role of the midwife in mitigation. 39
Marlene Sinclair
- The evidence-based medicine problem in studies of pharmacological substances in pregnancy and childbirth. 41
Soo Downe
- Moving pictures: the inclusion of photo-elicitation into a narrative study of mothers' and midwives' experiences of babies removed at birth. 44
Wendy Marsh, Jill Shaawe, Ann Robinson and Jen Leamon
- The effect of intrapartum pethidine on breastfeeding: a scoping review. 49
Tanya Burchell, Samantha Coster and Ian Norman
- Determining the influencing factors of a caesarean section birth on breastfeeding. 57
Charlotte Fielder
- Exploring Nigerian obstetricians' perspectives on maternal birthing positions and perineal trauma. 64
Faith Diorgu, Mary Steen, June Keeling and Elizabeth Mason-Whitehead
- Information for authors, news and resources. 71

Zika virus disease epidemic: the role of the midwife in mitigation

Key words: Zika virus, research, infection, technology, social media, communication, evidence-based midwifery

Midwives are on high alert because we know the Zika virus can cause microcephaly and crosses the placental barrier at any stage of pregnancy. We have robust evidence to demonstrate it is transferred in seminal fluid (Atkinson et al, 2016); blood (Deckard et al, 2016); urine (Zang et al, 2016); saliva (Barzon et al, 2016) and breastmilk (Colt et al, 2016). Pregnant women are vulnerable and so are midwives as frontline professionals. The Zika virus was originally isolated in monkeys living in the Zika Forest in Uganda in 1947. A year later, it was evident in the African mosquito *Aedes africanus* and the first human case was reported in Nigeria in 1952 (Faye et al, 2014). The virus has been detected in short outbreaks since then, but it was not until April 2015 when the virus was confirmed in Brazil that the infection became a major global issue. 'Zika' has since become a household name and has captured the attention of people around the world, as it threatens the safety of every individual. There is no vaccine and no cure. However, I am confident we will find it and we know that the world's finest and brightest researchers are working on the case for us.

What can we do as midwives to help in this situation? I think the single most important behaviour we can engage in is reverting back to our training in cross-infection and to be even more vigilant in taking precautions and adhering to basic principles of preventing and containing cross-infection. Information sharing is key and enacting protocols for local management of emerging threats are the priority. In addition, we need to put effort into caring for our own health and wellbeing and maintaining a safe and effective workforce. The RCM has launched a campaign, 'Caring for You', aimed at improving the health, safety and wellbeing of midwives and MSWs (visit the RCM website for further details). We know we are facing an epidemic and a global emergency has been declared. The evidence is compelling and the European Centre for Disease Prevention and Control (ECDC) reported:

'Microcephaly and other fetal malformations potentially associated with Zika virus infection or suggestive of congenital infection have been reported in eight countries (Brazil, Cape Verde, Colombia, French Polynesia, Martinique, Marshall Islands, Panama and Puerto Rico)... and as of 14 May 2016, Brazil has reported 7534 suspected cases of microcephaly from all states and in the Federal District. Of these cases, 1384 are reported as confirmed cases of microcephaly, 207 of which had laboratory-confirmed presence of Zika virus infection. This is an increase of 96 suspected cases of microcephaly, and two confirmed microcephaly cases with laboratory confirmation of Zika virus infection since the last update on 7 May... Among the 7438 suspected cases of microcephaly, 273 intrauterine or neonatal deaths were reported. Of these, 59 cases were investigated and confirmed (microcephaly or central nervous system malformations)' (ECDC, 2016).

The ECDC (2016) reported that the Zika virus epidemic is now affecting EU member states within mainland Europe, EU

overseas countries and territories and outermost regions, via women or men who have travelled in countries where Zika is prevalent. With the internet and modern biotechnology, we can observe the concerted efforts of world leaders to synchronise efforts to mobilise resources and capacities to enable detection, rapid response and global communication. This is a time of crisis and it needs to be managed effectively without mass panic. It is essential for the public and, in particular, health professionals to be kept informed of new developments and given advice to enable appropriate interventions to be activated to keep vulnerable people in their care safe. Even though we do not have a vaccine or a cure, we need to remind ourselves of the AIDS crisis in the 1980s and how much progress we have made in its detection, management and containment.

Our technology should enable us to find the vaccines and medications much quicker and with the experience of managing Ebola, we have established knowledge, memory and patterns of effective working behaviours to enable us to be more confident in managing worldwide crises. It is a time when our global networks and internet access are of enormous value in communicating key messages, sharing resources and providing advice for pregnant women. Online resources are available and videos, podcasts and webinars are free. I have been impressed with the high quality of the freely downloadable infographics, which can be used for antenatal clinics, intranets, Facebook pages and social network sites.

Identifying resources and increasing access to them is something we can all do in this battle against a common enemy. If the public and health service workers in particular can see what we are doing individually, professionally, academically and collaboratively at local, national and international levels, this will reduce the burden of anxiety and lead to more public confidence in us.

The ECDC has been producing key public health documents for us and the latest of these was published on the 16 May on rapid assessment (ECDC, 2016). These documents are essential for midwives to read and use, as they provide us with the most up-to-date information on the history of the disease, transmission routes, the global infection rate, laboratory measures, latest scientific evidence, impact of the disease, prevention measures and surveillance techniques.

The data midwives need for themselves and for pregnant women are easily accessed from valid and reliable internet sources using any mobile device or computer and I would recommend we access this preparedness planning guide for disease transmitted by *Aedes aegypti* and *Aedes albopictus*.

Today, I imagined myself as a mother seeking information about Zika virus and did a quick Google search of the words 'Zika virus'. In three seconds, I had 56,000,000 results. The first 10 unique resource locators (URLs) are the most important for capturing the attention of the 'information seeker' and are highly prized and sought after. We know the

majority of us seeking information will not go past that first page and, therefore, the key information we require needs to be on that first page. Therefore, you will share my joy that the major bona fide public health resources were displayed on page one: first, the Centres for Disease Control and Prevention; second, NHS Choices; third, WHO; fourth, Wikipedia; fifth, BBC News; sixth Fit for Travel and the remaining sites were news items reporting individual athletes freezing sperm or boycotting the Olympics for fear of becoming infected by the Zika virus. However, I was a little disappointed not to see the recent communication by the RCM (2016) or the joint guidance by RCOG et al (2016) on the first page.

It is important for us to remember that the use of social media at a crisis time can be exceptionally valuable. We can use Facebook, WhatsApp and Twitter as vehicles to communicate key messages about the spread, prevention and management of Zika virus to pregnant women and the profession. The use of social media has potential to mitigate unnecessary fear and panic in the public arena. Midwives can use it positively to provide valid information and access to helpful resources and support services.

As we prepare for the summer holidays, we need to remember and remind women that the main transmission route for the Zika virus is a bite from the *Aedes* mosquito and prevention is still the most important factor that we can use in our defence. The mosquito is most active between sunrise and sunset, therefore, we need to advise pregnant women to use safe and effective mosquito repellents, cover their arms and legs and use mosquito nets at night. Simple measures like eating nutritious food, taking exercise and getting sufficient sleep have a key role to play in supporting our immune system to fight off infections and minimise the negative impact on our health.

The most recent advice from the ECDC advises pregnant women not to travel to areas with known widespread transmission and, if this cannot be avoided, they recommend strict adherence to the aforementioned safety measures. The ECDC and local governments provide maps showing the Zika transmission in the past nine months, so that pregnant women and travellers can check their potential exposure to the virus. We know the summer period will be a season of growth for the mosquito and the risk of infection is increased.

Therefore, providing women with key information on prevention is one of the most important contributions midwives can make to deter the harm from this global threat. Referring women to the ECDC updates and local government websites, such as the guidance section of gov.uk, for UK residents will help. We should develop a dissemination plan to ensure health promotion and disease prevention information is posted on every online and public portal and to maximise the knowledge level of every midwife about the key aspects of the disease, prevention measures and advice, all of which will contribute to the safety of the profession, pregnant women and the general public. This is not a time to bury our heads in the sand or shrug this off as just another scare. This is a time for concerted efforts to minimise harm, manage risk and collect as much data as possible to enable evidence-informed strategies and guidance to be developed as rapidly as possible.

We have facts about the Zika virus already, including its effect

on neural stem cells and human brain development leading to microcephalic infants. The WHO released a statement in 2016 based on the evidence from *in vitro* and *in-vitro* studies of the effect of the virus on neural cells leading to ‘microcephaly, Guillain-Barré syndrome and other neurological disorders’ (WHO, 2016). Research is underway to determine the effect of the virus at different stages of pregnancy and the longer term sequelae from infection in the early neonatal period. Case reports are essential for data capture and knowledge acquisition in these early days of mapping the virus may become part of the role of some midwives.

Until we have clear local guidelines, midwives should operate in a similar manner to dealing with the flu epidemic and minimise harm by early detection, isolation, self-protection, effective waste disposal, effective communication and accurate record-keeping. Very soon we will see new drugs, new vaccines, specific guidelines – including laboratory tests for confirmation of the disease – and more detailed guidance on containment and prevention measures. In the meantime, midwives need to continue to be vigilant in maintaining high standards of practice for prevention of cross-infection. These core principles are our best line of defence until we know more.

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The evidence-based medicine problem in studies of pharmacological substances in pregnancy and childbirth

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This paper is part of a series celebrating the contribution of professors to the midwifery profession. It is based on a presentation given at the Doctoral Midwifery Research Society Conference held in Belfast on 9 September 2015.

Abstract

This commentary paper addresses the issue of medication in pregnancy. The risk profile of most pharmacological substances used in pregnancy (over the counter and through prescription) is undetermined. Past experience of unexpected harmful consequences of antenatal prescription of drugs, such as diethylstilbestrol (DES), should act as a reminder that the longer term, cross-generational consequences of many pharmacological agents is not yet known. It is surprising that this situation has not been subject to more scrutiny, given the close attention to the harms associated with other drugs, such as nicotine and alcohol. This paper explores the potential issues and consequences of medication use in pregnancy, both for women who are generally healthy and for those with long-term chronic conditions, such as diabetes. It concludes by suggesting some possible solutions in situations where medication use is essential to maintain the wellbeing of the mother and baby.

Key words: Pregnancy, medication, evidence-based medicine, relationship-based care, chronic illness, evidence-based midwifery

The following quote from Schön is refers to the problem of so-called 'ivory towers' thinking (Kao, 2014), in which there is a gap between what seems to work in theory, and how it is enacted in practice:

'On the high ground, manageable problems lend themselves to solution through the application of research method and theory... [but] in the swampy lowland, messy confusing problems defy technical solution... [these are]... the problems of greatest human concern' (Schön, 1983: 14).

This situation is even more acute when there is little or no formal evidence to guide best practice, as is the case for medications in pregnancy.

Recently, in a review of 172 drugs approved by the US Food and Drug Administration (FDA) from 2000 to 2010, the authors noted that, for 168 of the 172 (97.7%), the risk in human pregnancy was 'undetermined'. For 126 (73.3%), there was no pregnancy safety data at all (Adam et al, 2011). This study used the four TERIS (Teratogen Information System) risk categories – none, minimal, small, moderate, or high – to assess changes in risk assessment for drugs approved between 1980 and 2000. For 468 drugs approved from 1980 to 2000, only 23 (5%) were changed a full risk category or more as a result of new evidence between 1990 and 2000.

This chronic lack of information means that evidence-based medicine, as it is usually practised, is almost impossible to apply in the area of medications in pregnancy. Among the few cases where evidence does exist, there are some findings that argue for extreme caution. One of these is diethylstilbestrol (DES). This is an oestrogen mimic, which was used between the 1940s and the 1970s to prevent miscarriage. Commenting on the results of their long-term follow-up study of women exposed to DES, which was published in 2011, the authors stated:

'In-utero exposure of women to DES is associated with a high lifetime risk of a broad spectrum of adverse health

outcomes' (Hoover et al, 2011: 1304).

These included infertility, spontaneous abortion, preterm delivery, loss of second-trimester pregnancy, ectopic pregnancy, pre-eclampsia, and stillbirth. As well as adverse outcomes around pregnancy and birth, there was a near doubling of the risk of breast cancer over the age of 40 in exposed women (hazard ratio, 1.82; 95% CI, 1.04 to 3.18).

These catastrophic effects were not restricted to the women themselves. Recently, in a summary of the growing trans-generational evidence in this field, Reed and Fenton comment on:

'A variety of birth-related adverse outcomes in... daughters [of exposed women] such as spontaneous abortion, second-trimester pregnancy loss, preterm delivery, stillbirth, and neonatal death. Additionally, children exposed to DES in utero suffer from sub/infertility and cancer of reproductive tissues' (Reed and Fenton, 2013: 134).

Indeed, the authors report that there is now emerging evidence from mouse models, and some small cohort studies in humans, of potential adverse effects on the offspring of exposed children (the grandchildren of the index women receiving DES), in both boys and girls.

This suggests an inter-generational epigenetic effect, in which some illnesses are a result of the activation or suppression of the action of certain genes (for example, as in the case of smoking and cancer). This effect has been extensively studied in terms of the Barker hypothesis, which proposed that critical events at specific times in pregnancy (such as malnutrition) can have long-term effects on adult-onset problems, including cardiovascular disease and type two diabetes (Lindblom et al, 2015).

More recent studies suggest that events during labour might also be important priming mechanisms for the neonatal immune system (Dahlen et al, 2013), and that extreme caution should be exercised to limit the potential for iatrogenic damage in the short and longer term.

As the DES scenario above indicates, one of the features of the epigenetic effect is that it can be heritable through generations, meaning that the impact of medication use in pregnancy and labour may manifest itself not only in the children of exposed women, but also in their grandchildren.

Despite this, Adam and colleagues note that, in the US, the majority of women take at least one prescribed medication during pregnancy (Adam et al, 2011). In some cases, this is necessary to avoid greater harms, as is the case for women with diabetes. However, alternative strategies to medication do exist for some outcomes. For example, three of the greatest concerns in maternity care are prematurity, maternal and neonatal infection, and maternal diabetes. One of the most effective, but most underused, non-pharmacological strategies for prematurity is midwife-led continuity of care.

The relevant Cochrane review notes that such schemes can reduce prematurity by 24%, and fetal and neonatal death after 24 weeks by about 16%. However, these findings do not seem to have resulted in widespread implementation of midwife-led continuity of care schemes for women at risk of prematurity. Instead, large sums of money have been spent on finding pharmacological solutions to the problem (Sandall et al, 2016).

Infection is a real concern in maternity care. However, given the growing global imperative to reduce antibiotic resistance, it is of equal concern that increasing numbers of women and neonates are being exposed to the prophylactic use of antibiotics in pregnancy, labour, and postnatally (Stokholm et al, 2013). More precise strategies for determining when antibiotics are required for individuals are essential to reduce the risk of antibiotic ineffectiveness for large numbers of people in the future (NICE, 2012). Given the immaturity of the fetal and neonatal immune system, careful use of antibiotics only when needed in the maternity population might be even more important than for other population groups.

Even if iatrogenic damage due to the overuse of medication to reduce or limit prematurity or infection can be limited, there will always be those with complicated conditions, such as insulin-dependent diabetics, for whom pharmacological treatment is imperative. For these women, and for their offspring, it is essential that good quality studies are undertaken to work out the minimum level of whatever medication is required to keep the primary condition under control, while also minimising the risk of later (expected or unexpected) damage in the mother and the neonate.

Such studies could usefully build on the genetic markers used in the general field of personalised medicine (Kitsios and Kent, 2012). Given the DES case, they should include follow up for at least one, and preferably more than one, generation. Such studies require a re-appraisal of the hierarchy of 'best evidence', which classically prioritises evidence from systematic reviews of randomised controlled trials (Petticrew and Roberts, 2003). Given the unique and complex interacting factors at play for many women with chronic conditions who are pregnant, especially in

the context of co-morbidities, randomised trials are very unlikely to be the optimum study design.

More nuanced and useful data is likely to be provided by studies that use the individual as their own control by alternating active and placebo treatments (so-called 'n-of-1-studies') (Lillie et al 2011), or by detailed observational cohort studies that take account of a wide range of personal and clinical factors.

Given that such long-term studies are only likely to generate results many years after the initial medication was taken, retrospective analysis of existing cohorts of women and babies where good quality data have been collected for generations is also an important focus for research efforts. Such studies would permit rapid insights into what the effects of current drugs might be into the future. The DES studies discussed above are examples of this kind of approach. Although these studies have limitations, in that follow up is not always complete, and drug regimes change over time, they offer important insights into what might work best where complex conditions exist.

As well as minimisation of the use of pharmacological agents through effective individualisation of care provision, there are simple approaches that have the potential to maximise the therapeutic benefit of drugs when they are given. Insights for this effect come from a study undertaken in two populations of diabetic people (Hojat et al, 2013). In the first group, 891 people with diabetes were studied, who, between them, were on the patient lists of 29 family physicians in the US. There were significant associations between physicians with higher scores on the Jefferson Scale of Physician Empathy (Hojat et al, 2001) and improved diabetic control in their patients.

In the second group, 242 Italian general practitioners and 20,961 of their diabetic patients were studied. An association was seen between higher physician empathy and lower incidence of acute metabolic complications that required hospitalisation. This suggests that there are approaches that can increase the effectiveness of medication, even for women who have medical complications. This could result in the need for lower doses, and, therefore, reduced risk of iatrogenic damage in the short and longer term. Getting medication right for every woman and baby who needs it goes a long way beyond the application of simple randomised trial data. Indeed, it is the very essence of evidence-based medicine, as Sackett and colleagues define it:

'Evidence-based medicine is the integration of best research evidence with clinical expertise and patient value... when these three elements are integrated, clinicians and patients form [an]... alliance which optimises clinical outcomes and quality of life...' (Sackett et al, 2000: 3).

Given the current lack of evidence for the balance between benefits and risk in terms of medication in pregnancy, birth, and the neonate, the mantra of 'first do no harm' might be especially relevant (Margolis and Franchino, 2016). This requires engagement with emerging techniques for understanding and responding to complex individual situations, taking into account a broad range of

evidence, from formal studies, to the therapeutic context in which medication is discussed and dispensed. Individual values, preferences, lifestyles, and circumstances are part of

this equation. Recent calls for more nuanced approaches to optimising health care provide a good basis for such a change (Johansson, 2016).

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See page 71 for submission information for authors.

Moving pictures: the inclusion of photo-elicitation into a narrative study of mothers' and midwives' experiences of babies removed at birth

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Abstract

Background. The last century has seen a renewed interest in the use of photographs as a means of generating data for social science research. However, despite being acknowledged as a potentially valuable tool for qualitative researchers, across a wide range of disciplines, photo-elicitation techniques have received little attention in social sciences research literature.

Aim. This paper examines the methodological dimensions and potential usefulness of photo-elicitation when combined with narrative inquiry as data generation tools for research within the health and social sciences. The context for the research was mothers' and midwives' experiences of babies removed at birth.

Methods. Four mothers and eight midwives took part in this research. Narrative inquiry incorporating photo-elicitation techniques was used to generate the data, with mothers being interviewed face to face and midwives taking part in focus groups. The images and audio data were collected, transcribed and analysed for emerging themes, contrasts and similarities. This research received a favourable ethical opinion by the University of Surrey ethics committee.

Results. Photo-elicitation supported the generation of contextual new knowledge and insights into individual experience that may have gone unnoticed had just conventional methods been used. It also facilitated a participatory approach to the overall research design and shifted the paradigm of power in the researcher-participant relationship, in favour of the participant.

Conclusion. Photo-elicitation in face-to-face interviews was perceived by participants as non-threatening and enabled active participation in the process. It generated new knowledge that may have gone unnoticed by verbal interview methods alone.

Key words: Narrative, photography, photo-elicitation, research, evidence-based midwifery

Introduction

This paper discusses the use of photo-elicitation (PE) alongside narrative interviews as an appropriate research tool for exploring mothers' and midwives' experiences of babies removed at birth. The introduction of photographs into narrative interviews and focus groups led to a greater understanding of an individual's experience. The researcher's rationale for undertaking this study was as a result of personal experiences of having provided midwifery care to this group of women. Such experiences generated a desire to further investigate mothers' and midwives' experiences of babies removed at birth, in order to develop a greater understanding of what it is that women need from midwives at this time and how best to support and enable them to tailor care to this group of women. This paper is from the reflective position of the researcher, considering the experience of using PE within this study, and assessing the advantages and limitations of its use.

Background

The last century has seen a renewed interest in the use of photographs as a data collection method for social science research (Rose, 2016; Banks, 2001; 1995; Emmison and Smith, 2001; Prosser, 1998; Hurworth and Sweeney, 1995). Accounts of incorporating photographs into research methodology were first introduced in the mid-1950s by photographer and researcher John Collier (1957). Collier

presented the concept of PE – using visual images within interviews. Collier (1957) and anthropology colleagues from Cornell University used photographs alongside in-depth interviews to examine how families experienced living in a multi-ethnic setting. Having initially collected data through surveys and in-depth interviews that had failed to identify significant themes, they decided to repeat the interviews with the inclusion of photographs that they themselves had taken, prior to the interview. They concluded that the introduction of photographs elicited longer interviews and produced richer data, in comparison to the interviews with participants that had not used photographs (Collier, 1967).

Collier's (1957) inclusion of photographs to promote dialogue and elicit information in interviews has been used in different subject areas and across a wide range of disciplines. For example, PE techniques have been used to explore attitudes of farmers to modernisation of farming communities in the US (Gates et al, 1976), the inadequacies of homeless shelters in an American neighbourhood (Suchar and Rotenberg, 1994), an evaluation of changes in towns (Chiozzi, 1989), and in many other topic areas, including ethnic identities (Gold, 1991), working with young children (Diamond and Hestenes, 1996) and enhancing memory retrieval (Ascherman et al, 1998).

Harper described PE as a 'simple idea of inserting a photograph into a research interview' (Harper, 2002: 24). Purposely selected photographs are used by the researcher

with the intention of eliciting thoughts from the participant; or more commonly, the research participants are asked to take their own photographs which are used to aid discussion in the PE interview (Rose, 2016).

It is also a technique that has been extensively used in the social sciences (Olliffe, 2007; Wang, 2003) and has been incorporated into a variety of methodologies as a way of exploring sensitive topics with vulnerable groups. Studies using this method have included children, individuals suffering from cancer and people who are struggling to come to terms with their gender (Snyder and Kane, 1990). In Clark-Ibáñez's (2004) study of inner city children, she provided the children with cameras and encouraged them to capture in image their day-to-day lives. It was found that this method not only empowered the children to bring their own perspective to the study, but enabled them to develop their own personal and social identities. However, as with any research method, there are always limitations in its use.

Implications of using PE

Rose (2016) says that the strengths to using PE within data gathering are threefold:

- Encouraging participants to explain the photographs means researchers have the opportunity to gain greater insight into an individual's experience (Rose, 2016).
- Photographs may stimulate participants to talk about things that are often viewed as normal parts of everyday life. Also, the reflexive effect of using photographs in interviews can lead to thoughts and feelings that have laid dormant (Harper, 2002).
- PE interviews promote collaboration and mutual trust between the researcher and participant. This collaboration can empower participants to become co-researchers as they share the images they have created and explain their meaning to the researcher in the interviews, they become the expert in their experience (Rose, 2016).

PE interviews

There is limited literature regarding PE interviews in social sciences research, yet it offers itself as a potentially valuable tool for qualitative researchers across disciplines.

According to Ruby (1995), Harper (2002) and Rose (2016), photographs themselves have no intrinsic meaning. The personal meaning and explanation of the image is assigned by the participant or researcher, dependent upon the type of PE used within the interview to promote discussion and prompt memory (Schulze, 2007).

Images can communicate human experience in an embodied way that differs from the spoken or written word. By the involvement of the participant explaining the image during the interview, the researcher is able to develop a meaningful understanding of the human experience (Harper, 2002). Bender et al (2001) and Collier (1967) also noted that feedback created by the photograph enabled researchers to get to the heart of the research, sharpen memory recall and keeping participants focused. Often photograph use in interviews evokes previously lost information, feelings and memories (Close, 2007).

Exploring experiences of babies removed at birth

Narrative inquiry was selected for this research exploring mothers' and midwives' stories of their experiences of babies being removed at birth as narrative inquiry is set in the experience of human stories of experience (Webster and Mertova, 2007). The addition of PE was chosen to ensure participants had every opportunity to share important information about their experience, acknowledging that PE enhances and deepens the data generated, enables participants to work in partnership with the researcher to share their experiences in a sensitive way (Padgett et al, 2013).

Use of narratives in research has been increasingly popular in human sciences (Andrews et al, 2008; Riessman, 1993) and provides researchers with a rich framework through which they can investigate humans' experience through stories. Holloway and Wheeler (1996) claimed that narrative inquiry is an effective method for the gathering of individual thought, feeling and experience that may not be revealed by more traditional methods. Narrative inquiry is grounded in interpretative hermeneutics and phenomenology and based on the belief that we are able to understand and give meaning to our lives through our stories (Andrews et al, 2008). This type of qualitative research realises this by collecting stories, written, spoken or visual, and focusing upon the retrospective meanings that individuals attribute to their experience. The ultimate purpose and value of narrative research is to facilitate the meeting of an individual's story with the reader, thereby creating an opportunity to engage with the experience in a meaningful way (Webster and Mertova, 2007).

Aim

The primary aim of this study was to explore mothers' experiences of having their babies compulsorily removed at birth and highlight any interventions or elements of care that may, or may not, have been helpful to them during their experience. It also aimed to explore midwives' experiences of providing midwifery care to these women at this time.

It was anticipated that this study would raise awareness of the challenges associated with providing care and emotional support for women whose babies have been removed at birth and contribute to the evidence base for best practice, in order that current care could be assessed, challenged and education and training developed, if necessary.

Method

Eight midwives and four mothers chose to take part in this research. The mothers were recruited through charitable organisations, rehabilitation groups and support networks that provide support and advice to birth parents that have had their babies, or children, removed from their care. A letter of introduction and a participant information sheet (PIS) was given to key workers, group leaders and facilitators to share with mothers whom they worked with. Following this, if the mothers wanted to participate, or ask further questions, they could contact the lead researcher directly. The mothers were aged between 29 and 35 years of age and all had experienced having at least one baby removed, at birth, within the last two years.

The midwives were aged between 34 and 48 and practising in either hospital or community settings across the south coast of England and had between one and 23 years of midwifery experience. All midwives recruited had provided midwifery care to mothers who had experienced a baby being removed at birth. The midwives were recruited by an email call for participants via research and children's workforce mailouts across the south coast of England. Those interested in participating, or who wished to request further information, were asked to contact the lead researcher directly.

Research process

A series of two narrative focus groups were arranged with the midwives, with two groups of three participants and one group of two. Three individual face-to-face interviews were conducted with each mother. Prior to the first focus group, demographical information was collected, the research process explained, consent gained and rapport was developed with the mothers. During the second focus group/interview, participants were invited to share their individual stories of having provided care to a woman whose baby had been, or was likely to be, removed at birth or having had their baby removed at birth.

After the second focus group/individual interviews, all mothers were asked to take photographs of what they felt most likely represented their thoughts and feelings of the experience they had shared. Minimal instructions as to what to take images of were given in order to minimise any control over what might be chosen. Participants were offered the use of a disposable camera to take the photographs, but all chose to use their own mobile phones for this purpose.

Over the next week, participants emailed the images they had taken back to the lead researcher for processing; these were returned to the participants for them to share, in whatever order they chose, at the remaining focus group/interview. This was done purposefully to offer participants the opportunity to change their mind about a particular photo, giving them the control to share only those images they were prepared to discuss and in the order they preferred. At the third focus group/interview, participants were asked to share the images they had taken and asked 'Can you tell me about the picture you have chosen to share?' This opening question was followed by the following prompts, if needed: 'Why did you take it?'; 'How does it represent your experience?'; 'Can you tell me about this part of the picture?'

Trustworthiness

An atmosphere of trust and sharing was sought for the midwives' focus groups through consideration of space, environment and provision of refreshments. This was successful as the midwives appeared comfortable in freely talking about their experiences and interacted and questioned each other in an inquiring and understanding way. This could be due to them all being midwives and, therefore, part of a cultural group. Trust was reinforced by numerous assurances of confidentiality and anonymity throughout the research process. Focus groups were conducted in a university setting away from the workplace. Mothers' interviews took place in

their homes, or in a suitably agreed neutral place, including a local park. With consent, all interview/focus groups were audio recorded and transcribed verbatim.

Ethical implications of using photographs in research

Particular, ethical implications need to be considered when using images in research (Harper, 2002; Pink, 2001). Pertinent to this study was the informed consent gained at the outset of the study, confidentiality and the potential for participants to become upset during the interviews.

Consent is key for researchers using visual methods, because anonymity cannot be guaranteed if individuals appear in photographs that are then disseminated and shared following the analysis of the data. In view of this, participants were encouraged not to take images of human subjects, or if they did, for them not to include their faces or distinctive marks such as tattoos/scars or significant geographic locations that might also have the potential for identification. All participants were given an information leaflet outlining the study and what was required. Written consent was gained from all participants prior to involvement, including permission to reproduce, share and disseminate the images in future publications and conferences.

Confidentiality is a basic ethical principal that is used within many professional settings, in particularly health care and law, and anonymity is one way in which confidentiality is preserved (Holloway, 2005). Participants in this study were made aware that the findings may be published in professional journals and that pseudonyms would be used to preserve anonymity. This was particularly important for the mothers in this study, fear of being recognised being something that they raised at the outset, with a great emphasis placed on remaining anonymous.

Confidentiality cannot be guaranteed within a focus group environment. However, all participants within the focus groups were registered midwives, bound by their professional code of practice (NMC, 2015) and, as such, were aware of the importance of confidentiality. Participants were also aware that while every attempt would be made to maintain confidentiality should during any part of the process it be disclosed by anyone that they or another person may be at risk of harm, this information would be shared in accordance with the NMC code of practice (2015).

All personal identifiable data collected during the course of this study was kept strictly confidential and in accordance with the UK Data Protection Act (Great Britain, 1998). In order to protect anonymity, each participant was assigned a pseudonym, so they are not identifiable in any of the written accounts that were transcribed. The audio recordings were only accessed by the research team and all tapes were downloaded and stored on a solid state hard drive that was stored in a securely locked cabinet. This will be kept for the duration of the research study then destroyed.

Due to the emotive nature of the research, it was a possibility that either the researcher or the participant might become affected by their involvement in the study or the subject matter. The plan was that, if this should happen in the field, the researcher would stop the interview/focus group

and offer immediate support. Also support networks for both groups of participants had been identified to provide further help if needed. During some of the interviews/focus groups participants did cry. When asked if they wanted to stop the interview/focus group at that time, all participants expressed the desire to carry on and share their stories. Despite gently offering additional opportunities to discontinue the interview at various points, no one accepted.

Data analysis

Data analysed included transcripts of audio recordings from six focus groups and eight face-to-face interviews with the mothers, observational field notes and 40 photographs. The significance and meaning of the images shared by the mothers and midwives through their narratives lay solely in the interpretation of what they represented to them about their experience of babies removed at birth. These interpretations and insights, shared within the focus groups and interviews through the dialogues, formed the narrative for formal analysis. Separate macro-analysis of the photographs was undertaken. This involved reading each participant's transcript while viewing the corresponding image. After this, all photographs were combined and analysed for similarities, differences and emerging themes. They were then cross-analysed with the written texts. This process is deemed to be a suitable approach, as it considers the written text and photographs independently and the relationships between them (Rose, 2016). All findings were discussed with the wider research team at each stage of the analysis process.

Contribution of PE interviews to this research

The overall findings of this research, undertaken as a PhD, are to be reported in another paper. However, there was evidence that research participants felt that the use of photographs had led them to share elements about their lives that they may not have done otherwise. For example: a participant wrote to me and said that she really would not have talked to the researcher about her faith, unless she had shared the picture of the rosary beads she sent to her baby via his foster carer during her interview. Furthermore, the quality of the findings evidence that the use of PE yielded a richer, deeper dialogue about research participants' experiences of babies removed at birth.

Limitations

The use of PE in narrative focus groups and interviews in this study were situated within a carefully planned research design, as such the influence of PE in this study may not be the same across other designs and contexts.

Another limitation was in the participants' understanding of what photographs to take to include within their second interviews. Verbal instructions and examples as to what could and could not be included were given, but despite this some images had to be excluded as they identified geographical locations and individuals. Provision of a handout reiterating the guidance around what to avoid might have increased the number of photographs that could have been included.

Collaborative and participatory design

Based on the principles of Paulo Freire's (1970) work with marginalised groups, the use of PE in interviews rejects the traditional models of power between the researcher and research participant and facilitates a more collaborative approach. Furthermore, undertaking research using PE techniques empowers participants and produces knowledge within a research relationship that may deepen over time (Liamputtong, 2011). Some participants commented on it as being cathartic. Use of photographs shifts the paradigm of power in the researcher/participant relationship heavily in favour of the participant by allowing individuals to engage in discussion about the images they have taken (Liamputtong, 2007). It empowers the participant – this is particularly important for those that society may have previously silenced. Empowering participants to produce images that they feel best represent their experience is considered to be undertaking research in partnership with participants rather than to them (Dickson-Swift et al, 2008). Involving participants in the interpretation of their images empowers them and gives them a greater voice in the research process (Harper, 2002). It is this very ethos that was central to the design of this research project.

Appropriate for sensitive subjects and vulnerable groups

PE interviews are perceived by participants as non-threatening and highly useful in researching subjects of a sensitive nature – a particular advantage in this study (Schulze, 2007). In addition, the photographs provided a neutral vehicle for sharing personal feelings and expressions, which required no need to maintain eye contact (Collier, 1967). Ensuring an equilibrium of physical proximity, intimacy and eye contact (Argyle and Dean, 1965).

It is also suggested that vulnerable people can often be excluded from research studies, particularly if methods include reading, writing or verbal fluency, meaning use of images is more inclusive than other methods (Aldridge 2012). The introduction of images into a research interview promotes critical discussion about the photographs they have taken and enables participants who are rarely in contact with those who make decisions about them to have a voice (Liamputtong, 2011).

Revealed a greater depth of data

The literature discussed earlier in this paper suggested that photographs evoke deep and meaningful memories that, when verbalised by participants, offer the researcher a unique insight that may not have been otherwise seen by using verbal methods alone (Padgett et al, 2013). This was clearly seen in this study by comparing the data that was shared in the first non-PE interview against the one incorporating the photographs. Elaborate and deeper accounts were observed in the PE interview and new information shared that provided a new perspective, not only to the participants' experience, but to the individual too.

Conclusion

This paper highlights how the use of photographs as a data generation tool significantly enhanced the communicative

and generative aspects of this research. Communicative because it enabled participants to express and convey meaning of their individual experience, and generative because it gave greater insight and a new understanding from the deeper perspective of the research participant. The use of photographs enabled the researchers to peel back the hidden layers and bore deeper into the human experience than would otherwise have been possible. The data collected was significantly enhanced by its use.

It is not suggested that the use of PE is more effective than conventional methods. However, by engaging the brain in a different way it undoubtedly draws a different response than that of direct interview questions alone. It embraces the

creativity and reflexivity of people and offers them the tools through which they can thoughtfully communicate their own meanings and understandings of their experience (Dickson-Swift et al, 2008).

It offered empowerment to the research participants, not only through the visual triggering of memories, but also from the construction of the images themselves. While it is acknowledged that there are limitations to its use in research, namely the ethical, moral and validity issues documented in the literature (Hurworth, 2003). It also provides a unique and creative opportunity to enrich research studies, trigger otherwise forgotten memories and lead to new knowledge that may have gone unnoticed by verbal interview methods.

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The effect of intrapartum pethidine on breastfeeding: a scoping review

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Abstract

Background. The *Lancet* series on breastfeeding announced that the UK has the lowest breastfeeding rate in the world. The influence of intrapartum pethidine on breastfeeding has been debated over many years, including studies suggesting that pethidine is detrimental to breastfeeding. Yet, in some NHS trusts, 66% of labouring women use pethidine.

Aim. The aim of this paper is to inform midwifery practice by reviewing the impact of pethidine on breastfeeding behaviour through identifying and reviewing published research studies that help to address the following question: What is known from the existing literature about the effect of intrapartum pethidine on breastfeeding?

Method. Searches of three electronic databases and references cited by retrieved studies were used to identify all relevant studies published prior to January 2016. A combination of the following MeSH terms and key words were used: parturition, infant, meperidine, breastfeeding, pethidine (and all of the alternative terms given to pethidine), sucking behaviour, rooting and alertness. Using inclusion and exclusion criteria, 347 studies were screened by title and abstract. As this is a scoping study, all types of research methods were included. A total of 24 research studies were identified as fulfilling the aim.

Results. The results indicate that intrapartum pethidine has a detrimental effect on sucking, breastfeeding duration and neonatal behaviour related to breastfeeding.

Implications. Healthcare practitioners should seriously contemplate whether the adverse effects of pethidine on breastfeeding should prevent its use as intrapartum analgesia.

Key words: Parturition, infant, meperidine, pethidine, breastfeeding, sucking, neonate, intrapartum, evidence-based midwifery

Introduction

The *Lancet's* recent series revealed that the UK, along with Saudi Arabia, has the poorest breastfeeding rate in the world, with <1% of women breastfeeding at 12 months (Cesar et al, 2016). The series suggests that delay in initiation of breastfeeding and a shortened duration of breastfeeding is influenced by many factors, including historical, socioeconomic, cultural, and individual factors (Rollins et al, 2016). However, the series does not discuss the effect of intrapartum drugs on breastfeeding. The aim of this paper is to inform midwifery practice by reviewing the impact of pethidine on breastfeeding behaviour.

Opioids are widely used for intrapartum analgesia with pethidine being the most commonly used opioid worldwide (Ullman et al, 2010). A fifth of UK women use pethidine or a similar drug for intrapartum analgesia, though the extent of pethidine use ranges from 5% to 66% between NHS hospital trusts (Care Quality Commission, 2015; Healthcare Commission, 2007). Although national guidelines and Cochrane reviews suggest that women should feel free to choose from a range of analgesia (NICE, 2014; Jones et al, 2012), there has never been a conclusive decision regarding the safety of pethidine for women and neonates.

A preliminary search of the published studies revealed that there was considerable variation in methods, outcomes and quality between the studies. Although this preliminary search did uncover randomised controlled trials (RCTs), the findings could not be pooled due to the disparity in their methods and reporting of outcomes; thus a systematic review was not viable. Nevertheless a scoping review is able

to identify and analyse studies with the same rigour as a systematic review, but is also able to provide a qualitative synthesis of findings from different types of research methods, providing the best available evidence that can be used to identify gaps in research and influence policies and practice. This review used a systematic approach to locate and select all studies that answered the question: What is known from the existing literature about the effect of intrapartum pethidine on breastfeeding?

Method

Three electronic databases were searched in January 2012 to identify relevant studies; MEDLINE (1964 to March 2012), EMBASE (1974 to week 11, 2012) and MIDIRS using MeSH terms and key words: parturition, infant, meperidine, breastfeeding, pethidine, alternative terms for pethidine, sucking behaviour, rooting and alertness. A subsequent search was conducted in January 2016. Flowchart 1, overleaf, shows the selection process. The inclusion criteria were:

- Study type: primary research that reported a relationship between intrapartum pethidine and breastfeeding outcomes
- Population: neonates whose mothers received pethidine during labour
- Intervention type: pethidine for women in labour
- Outcome: the effect of pethidine on breastfeeding
- English language.

The studies were classified as 'strong', 'moderate' or 'weak', according to the quality criteria for studies outlined by the Centre for Reviews and Dissemination (2009).

Results

The findings from the research studies are categorised into five outcome groups:

- Sucking behaviour
- Age at first suck
- Neonatal behaviour related to breastfeeding
- Initiation and duration of breastfeeding
- Pethidine alone or multiple interventions.

The first three outcome groups were devised with reference to the Infant Breastfeeding Assessment Tool (IBFAT), which was developed to assess neonates' breastfeeding competence (Matthews, 1988). This review's concluding outcome explores the studies to try and determine whether pethidine alone affects breastfeeding or whether additional interventions have a part to play.

Sucking behaviour

A total of 15 studies investigated sucking behaviour outcomes, including frequency, duration of sucking, pressure, and movement and accuracy.

Five studies explored the effects of pethidine on sucking frequency. Of these, three reported a significantly higher frequency of sucking within the control groups when compared to groups who received pethidine (Ransjö-Arvidson et al, 2001; Hafström and Kjellmer, 2000; Riordan et al, 2000). Wiener et al (1979) compared two groups of mothers who had received pethidine. In one of these groups, the neonates were given naloxone following birth. These neonates were found to have a significantly greater sucking frequency up to 48 hours following birth when compared to the neonates who were not given naloxone. Sanders-Phillips et al (1988) compared different doses of pethidine

combined with and without anaesthesia and found that higher levels of pethidine and anaesthesia resulted in a significantly reduced sucking frequency, as measured by an artificial feeding machine. Although once confounding factors between the groups (for example, birthweight) were controlled for, there was no difference between the group who had low anaesthesia and either high (100mg-150mg) or low dose (under 75mg) pethidine administration.

One of the two studies, which looked at duration of sucking, found a significantly higher proportion of the control group sucked for longer than the pethidine group (Ransjö-Arvidson et al, 2001). While Sanders-Phillips et al (1988) found that infants who received higher levels of pethidine and anaesthesia had a significantly reduced duration of sucking than those given lower doses of both medications ($p < 0.01$).

Wiener et al (1979) found that when they compared neonates who had been exposed to pethidine, with neonates who had had the effect of pethidine reversed by naloxone, the neonates that received the naloxone had significantly higher sucking pressure. Sanders-Phillips et al (1988) discovered an increase in analgesia (including pethidine) and anaesthesia did decrease neonates' sucking pressure, but the difference did not attain significance.

Nissen et al (1995) compared a group who received pethidine with a control and found that the pethidine group took a significantly longer time for sucking movement to begin ($p = 0.01$). Nissen et al's second study (1997) compared the effects of dose-delivery time interval (DDI) and found that a short DDI (1.1 hours to 5.3 hours) significantly lowered the sucking movement score compared to a long DDI (8.1 hours to 9.9 hours) at 15, 30 and 45 minutes following birth ($p = 0.04, 0.04$ and 0.05 , respectively).

Hodgkinson et al (1978a) found that sucking was significantly affected in the intervention groups that received pethidine at two, four and 24 hours following birth; though all women also had general anaesthesia for the birth. Hodgkinson et al's further research (1978b) also found that the pethidine group had the most depressed reflexes on observation, including sucking responses, compared to the control group. However, women in both groups had also received an epidural or general anaesthesia. Hodgkinson and Husain (1982) found a significant difference in sucking behaviour for days one, two and four, but not for days three and five. It was noted that the women in this study's intervention group had also received bupivacaine as well as pethidine. The study by Righard and Alade (1990) found that there was a significantly lower percentage of neonates in the pethidine group who sucked accurately compared with the group who had not been exposed to pethidine ($p < 0.05$). The remaining studies found no difference in sucking abnormalities associated with pethidine administration (Kuhnert et al, 1985; Busacca et al, 1982; Hodgkinson et al, 1979). The RCT by Busacca et al (1982) examined the incidence of neonates that failed the criterion for having an adequate sucking reflex within 48 hours of birth. No significant difference was found between the intervention and control group.

Flowchart 1. Selection process

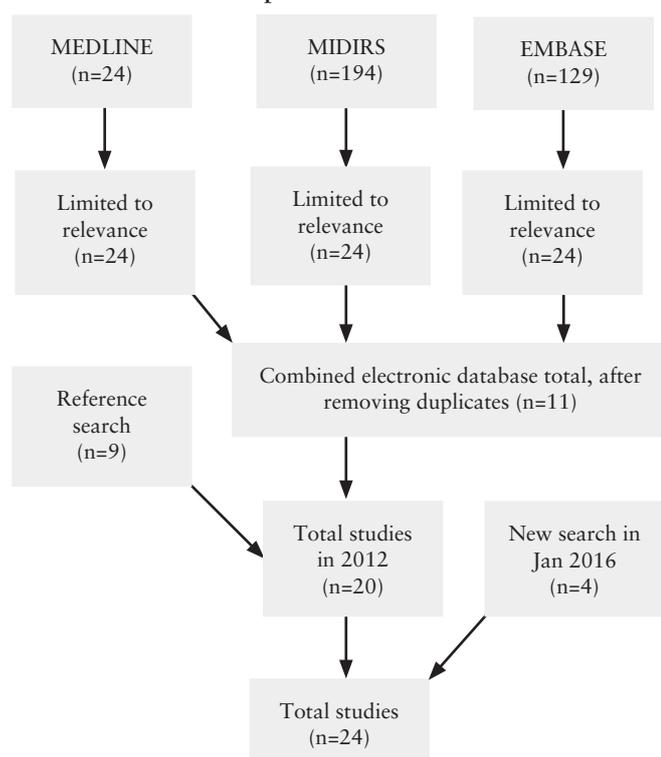


Figure 1. Forest plot of sucking accuracy

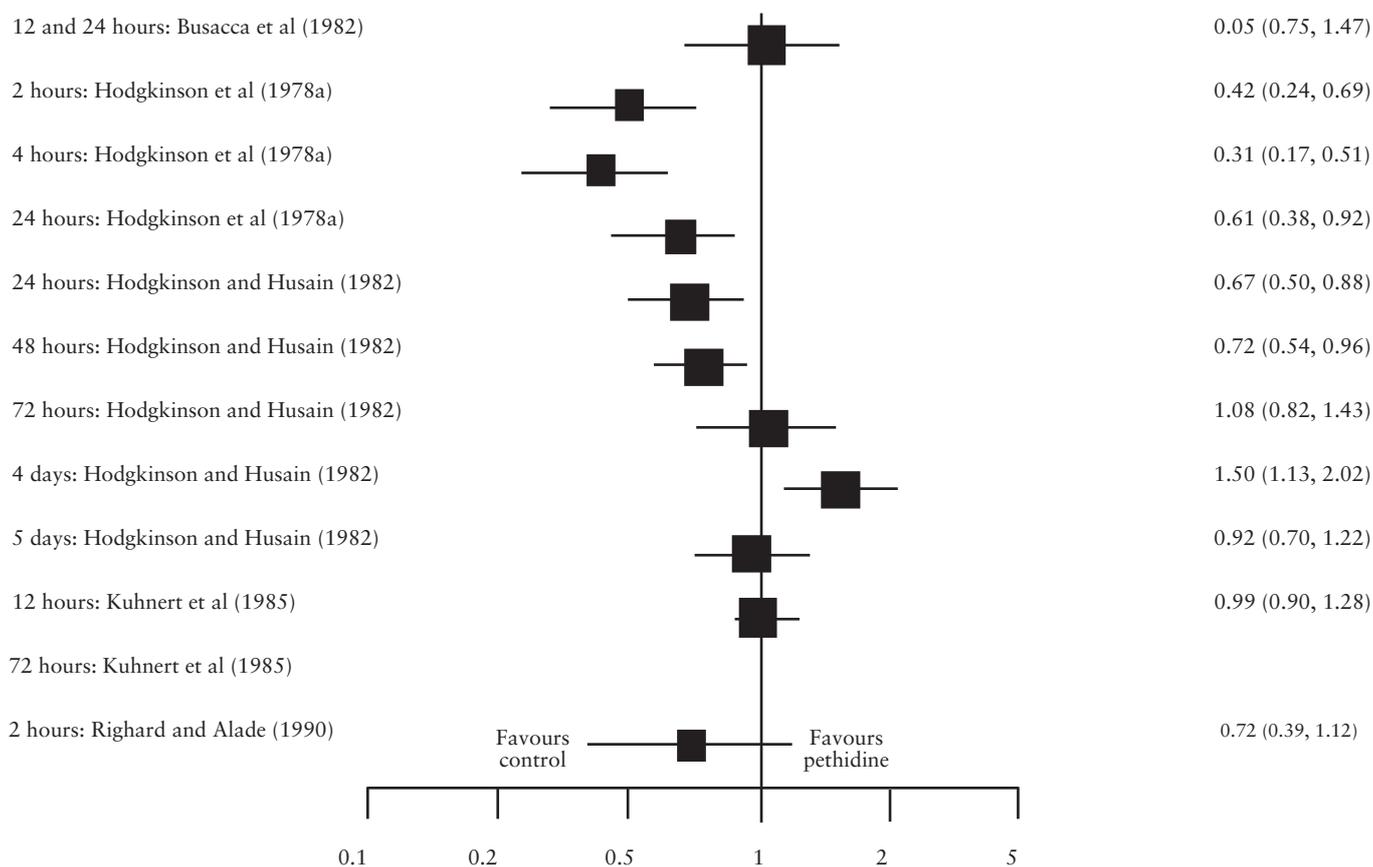


Figure 1 illustrates the difference between the intervention group (those who received pethidine) and controls (who did not receive pethidine) for five of the seven studies. Hodgkinson et al (1978b) does not report numerical results and Hodgkinson et al (1979) does not use a control, so both were omitted from the forest plot. A meta-analysis was not conducted due to heterogeneity between the studies.

Overall, the studies suggest that pethidine has a negative effect on sucking accuracy.

Age at first suck

All five studies that explore age at first suck found that significantly more neonates of mothers who had received pethidine did not breastfeed within the first two hours following birth compared with those who had not received pethidine (Ransjö-Arvidson et al, 2001; Cyriac, 1999; Nissen et al, 1997; 1995; Righard and Alade, 1990) ($p < 0.001$, $p = 0.01$, $p = 0.01$, $p < 0.01$, $p < 0.001$, respectively). However, none of them featured intervention groups that had received pethidine alone. Some of the samples had also received pudendal blocks, epidurals and promethazine.

Neonatal behaviour related to breastfeeding

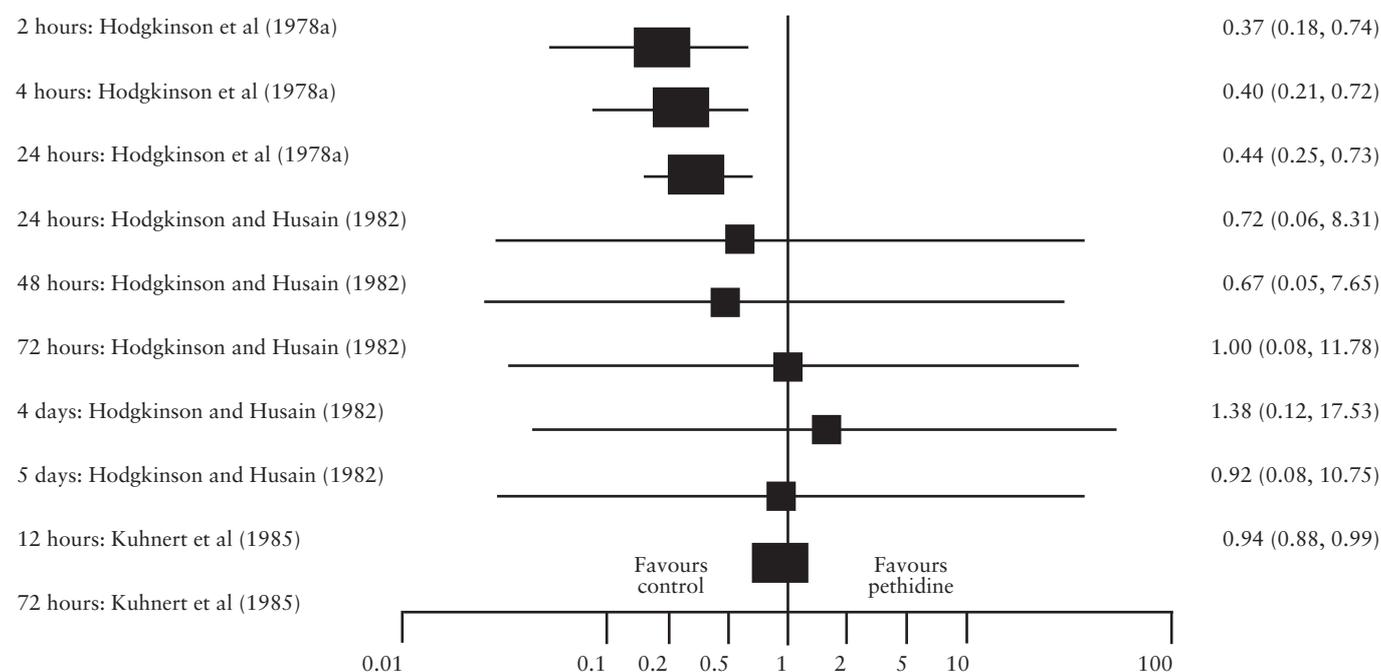
All five studies exploring neonatal behaviour outcomes for breastfeeding (alertness and rooting reflex) used a combination of Scanlon's test and the Brazelton's Neurobehavioural Assessment Scale (Brazelton and Nugent, 1995).

Three studies found that neonates of women who had received pethidine were significantly less alert following

birth, when compared to those whose mothers had not received pethidine. The studies observed neonates within the first two hours and at four and 24 hours ($p < 0.001$) (Hodgkinson et al, 1978a), days one and two ($p < 0.001$) (Hodgkinson et al, 1978b), and days one and five ($p < 0.01$) (Hodgkinson and Husain, 1982). Cyriac's (1999) study concurs with these findings for the first two hours after birth. It recorded that 50% of neonates in the pethidine group were fully awake, 26% were easily arousable, 18% were drowsy and 6% were in a deep sleep. This compares with the neonates in the control group, who were found to be 84% fully awake, 16% arousable, 0% drowsy and 0% in a deep sleep. Although Hodgkinson et al's (1979) study did not have a control, its findings were similar to that of Cyriac's (1999) study, as it found that only 53% of neonates in the pethidine group had high alertness scores.

Two studies found that pethidine significantly affected neonates' rooting reflex at two, four and 24 hours ($p = 0.005$, 0.002 and 0.002 respectively) (Hodgkinson et al, 1978a) and on days one and two ($p < 0.001$) (Hodgkinson et al, 1978b). Although Hodgkinson et al's (1979) study did not have a control, it did report that only 26% of neonates, whose mothers had received pethidine, had a high rooting performance score. Further studies by Hodgkinson and Husain (1982) and Kuhnert et al (1985) found no significant difference between the intervention and control groups with regards to the rooting reflex. Figure 2 summarises the findings of these studies on rooting reflex. Two of Hodgkinson et al's studies (1979; 1978b) have

Figure 2. Forest plot of high performance scores for rooting reflex



been omitted from the analysis because one research paper does not report results in a format that allows its data to be combined and the other does not use a control. A meta-analysis was not conducted due to heterogeneity between the studies. Overall, the studies suggest that pethidine has a negative effect on neonatal breastfeeding behaviour, notably reduced alertness and rooting reflex.

Initiation and duration of breastfeeding

Cyriac (1999) found that 74% of women who had not received analgesia were able to start breastfeeding within two hours following birth. This compares to only 48% of women who had been given intrapartum pethidine ($p<0.001$). Although the studies by Nissen et al (1997) and Bick et al (1998) did not have control groups for comparison, their results are similar to Cyriac's (1999) study as they found that 46% and 63% of women (respectively) who had received pethidine did not breastfeed for the first two hours. In addition, two further studies (Ransjö-Arvidson et al, 2001; Righard and Alade, 1990) also found that neonates in the pethidine group took significantly longer to initiate breastfeeding, when compared to the control groups ($p<0.01$ and $p<0.001$, respectively). In Cyriac's study (1999), primigravidae in the pethidine group took longer to establish breastfeeding than multigravidae who had also received pethidine. No difference between parity and establishment of breastfeeding in the control group was found. Adams et al (2015) found that pethidine did not affect the initiation of breastfeeding (92% of the intervention group initiated breastfeeding versus 94% of the control group: $p=0.2$).

Al Tajir et al (2006) did not find that intrapartum pethidine had an effect on breastfeeding in the first 24 hours when compared with a control group. However, one-quarter of the 221 women who initiated breastfeeding,

supplemented with additional fluids and lack of exclusive breastfeeding was found to be influenced by nationality rather than pethidine. Although Jordan et al (2009) do not single out pethidine when exploring the effect of opioids as a possible factor affecting breastfeeding at 48 hours, it can be assumed that pethidine is probably included, as it is the opioid most commonly used in labour. The study found a significant detrimental association between intrapartum opioids and breastfeeding at 48 hours ($p<0.001$).

Although Al Tajir et al (2006) did not find that intrapartum pethidine had an effect on breastfeeding at 24 hours following birth, there was an effect found at four weeks. Nationality continued to influence breastfeeding patterns, but women who received pethidine were significantly less likely to be exclusively breastfeeding at four weeks, compared to the control group ($p=0.02$).

At six weeks postpartum, two studies (Adams et al, 2015; Rajan, 1994) found that significantly more women from the control groups were breastfeeding compared to the women who had received intrapartum pethidine ($p=0.03$ and $p=0.01$, respectively). Studies by Halpern et al (1999) found no significant correlation between the length of breastfeeding and the use of opioids at six weeks. Riordan et al (2000) did not find an association between the length of breastfeeding and the use of opioids at six weeks either ($p=0.54$), but did find that women who had initially scored low using the IBFAT measuring tool breastfed for a significantly shorter period than those with higher scores ($p<0.001$). However, both studies had an intervention group in which women received intrapartum opioids and the results were not provided for individual opioids. The study by Fleet et al (2015) suggested that there were no significant differences between women who received fentanyl or pethidine in maintaining exclusive breastfeeding at six weeks. However, they did find that 24.4% of the pethidine group reported

an increase in difficulties in establishing breastfeeding after birth, with women reporting sleepy neonates, attachment issues and cracked nipples, compared to 7.5% in the self-administered fentanyl group ($p < 0.01$).

One study (Yousefshahi et al, 2013) revealed that at eight weeks postpartum nearly three times as many women were using formula in the control group (11%) compared to the pethidine group (4%). The findings were not significantly different ($p = 0.07$), but the authors suggest that this is due to the small sample size. With a larger sample, they expected to find that the pethidine group were significantly more likely to be breastfeeding at eight weeks than the control group. They attribute this to the fact that mothers who receive pethidine in labour experience psychiatric relief during labour and are therefore more likely to breastfeed. However, the authors of this study admit that there were major limitations to their study including most women not participating in the follow-up investigation.

At three months following birth, the interviews conducted by Bick et al (1998) found that out of the 41 of the 906 women interviewed who had received pethidine, 26 (63%) started breastfeeding, but only 13 (32%) were breastfeeding

at three months. Unfortunately no comparison was made with a control group and the women interviewed may have received additional analgesia. Although Al Tajir et al (2006) found that pethidine significantly affected breastfeeding at one month, there was no further significant association at six months.

Bai et al (2013) followed up mothers by interview at two, three, six and nine months. The study found that after controlling for confounding factors such as maternal age, parity and income, no significant impact of intrapartum interventions, including the receipt of pethidine during delivery, was found to either increase the risk of stopping breastfeeding or reduce the likelihood of exclusive breastfeeding. However, although pethidine alone did not impact on breastfeeding behaviour, women who experienced multiple interventions (induction, epidural, administration of pethidine and caesarean (CS) delivery) had a 7% increased risk of a shorter duration of long-term breastfeeding with each additional intervention.

Pethidine alone or multiple interventions

As many of the studies in this review also included other

interventions, it raises the question as to whether it is pethidine alone that is affecting breastfeeding or the combination of pethidine with other interventions. Table 1 shows the 20 studies in this review that compare pethidine with a control and outlines the number and type of interventions and whether any significant differences were found between the groups. A number of studies state that some births were by CS, but did not specify the type of anaesthesia administered. Therefore an extra intervention has been added to the table.

Three of the four studies that included pethidine alone, with no other interventions, found that pethidine had no significant effect on sucking reflexes at 48 hours (Busacca et al, 1982), sucking abnormalities at 12 hours and three days (Kuhnert et al, 1985), and breastfeeding duration and cessation for up to one year (Bai et al, 2013). The fourth study found no significant difference for breastfeeding on day one and at six months, but at four week, the women in the pethidine group were less likely to be breastfeeding ($p = 0.02$) (Al Tajir et al, 2006). A total of 14 studies, out of the 16 that had multiple interventions, concluded that pethidine had an effect on breastfeeding, while the remaining two studies found that pethidine had no significant effect (Yousefshahi et al, 2013; Halpern et al, 1999). However, one study (Halpern et al, 1999) had a sample with only one woman who received pethidine who may or may not have had an assisted vaginal delivery or CS with CS anaesthesia, and the second study admitted major limitations (Yousefshahi et al, 2013).

Table 1. The number of interventions and the effects on breastfeeding

Study	No of interventions	Interventions	Significant difference	Outcomes
Adams et al, 2015	3	P+E+AVD or CS	yes no	BF at six weeks and establishing BF
Al Tajir et al, 2006	1	P	yes	BF at four weeks
Bai et al, 2013	1	P	no	BF duration and cessation
Bick et al, 1998	3	P+AVD or CS+CS anaesthesia	yes	Establishing BF and BF at three months
Busacca et al, 1982	1	P	no	Sucking reflexes at 48 hours
Cyriac, 1999	1 or 2	P.Type of delivery is not mentioned	yes	Establishing BF
Hafström and Kjellmer, 2000	2	P+one woman had an E	yes	Sucking frequency and rhythm
Halpern et al, 1999	?3	P+?AVD or CS+CS anaesthesia	no	BF at six to eight weeks
Hodgkinson et al, 1978a	3	P+AVD+ anaesthesia	yes	Alertness and reflexes
Hodgkinson et al, 1978b	2 or 3	P+E+CS	?yes	Rooting, sucking and alertness
Hodgkinson and Husain, 1982	3	P+B+CS	yes	Rooting reflex, sucking and alertness
Jordan et al, 2009	1 or 2	P+?type of birth	yes	BF at eight weeks
Kuhnert et al, 1985	1	P	no	Sucking abnormalities at 12 hours and three days
Nissen et al, 1995	2	P+E or PB	yes	Sucking and rooting behaviour
Nissen et al, 1997	2	P+E or PB	?yes	BF at two hours
Rajan, 1994	2	P, E+AVD or CS	yes	BF at six weeks
Ransjö-Arvidson et al, 2001	2	P or E or B or a combination	yes	Establishing BF + breast-seeking behaviour
Righard and Alade, 1990	2	P+E	yes	Starting sucking + sucking abnormalities
Riordan et al, 2000	2	P+AVD	yes no	Lower sucking scores BF duration at six weeks
Yousefshahi et al, 2013	3	P, B+AVB or CS	no	Duration of BF at eight weeks

Key: P: pethidine; E: epidural; PB: pudendal block; B: bupivacaine; AVD: assisted vaginal delivery; CS: caesarean; BF: breastfeeding

The studies in this review indicate that there may be a correlation between the number of interventions and the effect on breastfeeding. However, as this was only explored as an outcome in one of the studies reviewed, it is essential for further studies to be conducted to confirm that pethidine alone has no effect on breastfeeding. Although pethidine alone may not affect breastfeeding, Adams et al (2015) discovered that women who receive intrapartum pethidine are more likely to need an assisted vaginal delivery ($p=0.002$). This assisted vaginal delivery would be an additional intervention leading to an increase in breastfeeding cessation by a further 7% (Bai et al, 2013). Therefore, even if pethidine is found to not directly affect breastfeeding, it may result in an increase of additional interventions and, consequently, indirectly reduce breastfeeding.

Limitations

This review and a recent Cochrane review highlight the paucity of RCTs that examine the effects of pethidine on breastfeeding (Jones et al, 2012). Conclusions drawn from non-RCTs may be challenged on grounds of selection bias, in which selection produces differences in prognostic characteristics related to the outcome between the control and intervention groups. Deeks et al (2003) compared the findings of RCTs with non-RCTs and found that non-RCTs are not always biased.

However, the study also revealed that due to systematic bias, the variables in a non-RCT can severely affect the validity of any findings and can cause different results for the same intervention. In observational studies, differences in the population, healthcare professionals' approaches or hospital practices prior to selection need to be considered. Of particular concern in these studies were the following issues:

- Lack of control groups
- Additional drugs being given during labour
- Assessors not being blinded to the intervention
- Exclusion of neonates from studies who were not considered 'healthy'
- Heterogeneous samples of mothers in terms of parity which are not analysed separately
- Additional interventions which are not analysed separately (birth by CS or assisted vaginal delivery)
- A number of other factors related to the neonates' postpartum behaviour were rarely controlled for, for example, the duration of labour, which is thought to be lengthened by pethidine administration (Thomson and Hillier, 1994).

Thus, the findings of this review are tentative and require confirmation by robust RCTs. However, the current dearth of RCTs that have looked at the impact of opioids may be in part due to the ethical issues associated with randomising women to different types of analgesia and the implications of restricting women's access or choice to different pain relief methods. This makes it a challenging process to keep the intervention and control groups clear of confounding variables.

Discussion

Overall the review suggests that pethidine may have a detrimental effect, whether directly or indirectly, on the sucking of neonates, namely reduced sucking frequency and duration, increased sucking inaccuracies and a longer time until the neonate's first suck and for sucking movement to begin. The review also suggests that pethidine could affect neonatal behaviour related to breastfeeding, reducing both alertness and the rooting reflex. Finally the review suggests that pethidine may have an effect on the duration of breastfeeding up to six months following birth.

There are, of course, a range of different variables which can influence the uptake and duration of breastfeeding in the first days of birth. Given this, Reynolds (2011) argued that the type of analgesia used can play only a minor role in the success of breastfeeding. However, among those mothers who want to breastfeed, or who are undecided, difficulties experienced initiating breastfeeding, including a failure to develop a successful latch, pain and discomfort, will all impact on the likelihood of breastfeeding continuing (McLeod et al, 2002). This review points to pethidine as one potential impediment to successful early feeding, impacting the neonates' ability to root and suck effectively.

Although the number of studies that have examined the impact of pethidine administration on breastfeeding at three and six months are limited, there is also evidence that early breastfeeding experience is related to breastfeeding duration. Studies suggested that breastfeeding duration up to three months is related to the timing of the first breastfeed and the extent of mother-infant contact in the 72 hours after birth (Lawson and Tulloch, 1995) and that those who experience problems within the first four weeks are significantly more likely to discontinue full breastfeeding by six months of age (Scott et al, 2006). In addition, poor or unsatisfying early breastfeeding experience has been linked to maternal postpartum depression (Watkins et al, 2011). The study by Bai et al (2013) also suggested that the additive effect of multiple intrapartum interventions, of which pethidine is one, may contribute to breastfeeding cessation in the longer term.

In this review, it was not possible to differentiate breastfeeding outcomes between studies with different administration routes as few of the studies compared different forms of pethidine delivery (intramuscular versus intravenous) directly and several studies did not state which form of pethidine delivery was used. In the UK, pethidine tends to be administered via intramuscular injection. Limited research has suggested that there is little substantive difference in the pain relief achieved by intravenous versus intramuscular (NICE, 2014). There was also very little data available with regards to different doses of pethidine and how often they might be administered, with minimal variation in dosages with the majority falling between 75mg to 100mg in total. Small sample sizes restricted any substantive analysis by dose. The few studies that examined pethidine dosage contained a mixture of different analgesia in the intervention groups. Further exploration is required to determine whether dose and administration route of

pethidine plays a role in the effect on neonates.

In terms of timing of administration, pethidine tends to be given by the midwife for painful ineffective contractions in the latent stage or to relieve pain at the end of the first stage of labour. Studies that examined DDI reported discrepant findings, with Nissen et al (1997) reporting that a short DDI (1.1 hours to 5.3 hours) significantly lowered the sucking movement score compared to a long DDI (8.1 hours to 9.9 hours) at 15, 30 and 45 minutes following birth. While Kuhnert et al (1985) found longer DDIs resulted in less optimal performance on the neonatal behaviour scale and more abnormal reflexes in the neonate. Similarly, Reynolds (2011) argued that due to the delayed effects of pethidine, the maximum fetal exposure occurs if pethidine is given to the mother three to five hours before delivery, while neonatal effects are lessened if it is administered within one hour of birth. In addition, the impact on the mother of receiving pethidine close to delivery needs to be considered. The study by Rajan (1994), for example, found that pethidine appeared to lengthen the second stage of labour, and that some women who were given pethidine close to delivery reported being too impaired to focus on their baby after the birth. Clearly the timing of pethidine administration is crucial for midwives in practice, but most of the studies in this review failed to provide information about the exact timing of pethidine administration and how this affected neonatal breastfeeding behaviour (Teimoori et al, 2011). In addition, the administration of naloxone at birth might reduce the effects of pethidine on the neonate, as suggested in the study by Wiener et al (1979). However, a Cochrane review found insufficient evidence to recommend the routine use of naloxone in neonates exposed to maternal opiate analgesia (Moe-Byrne et al, 2013).

In terms of efficacy, Reynolds (2011) suggested that using pethidine for pain relief is relatively pointless as

the dose needed to be truly effective would be at a blood concentration too high for the safety of the fetus. Equally significant is research that suggested the pain relief offered by pethidine from the mother's perspective may not be as great as midwives have previously assumed (Chamberlain et al, 1993). Alternatives may include diamorphine, which may provide greater pain relief (Wee et al, 2011), fentanyl, which provides as much pain relief as pethidine but has less negative effect on breastfeeding (Fleet et al, 2015), or entonox (nitrous oxide), which does not depress neonates' respiratory system. In addition to its superior safety, studies found that women receiving entonox had significantly less pain and were significantly more satisfied with the pain relief than women who were given pethidine (Teimoori et al, 2011; Holdcroft and Morgan, 1974).

Conclusion

Overall, this review strongly suggests that pethidine may have a detrimental effect, whether directly or indirectly, on breastfeeding for up to six months following birth. In light of this review and the low breastfeeding rate in the UK, healthcare professionals may wish to re-evaluate the use of pethidine in labour and consider whether its use should be continued. Particularly as *The Lancet's* key message clearly stated that: 'Success in breastfeeding is not the sole responsibility of a woman – the promotion of breastfeeding is a collective societal responsibility' (Rollins et al, 2016: 491). In the meantime, for those women who do receive pethidine, healthcare professionals need to be aware that these women may need more assistance and support to initiate and continue with breastfeeding. Antenatally, women should be provided with as much information as possible about the potential advantages and disadvantages of pethidine in labour to allow them to make an informed choice.

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Determining the influencing factors of a caesarean section birth on breastfeeding

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Abstract

Background. Although the Health and Social Care Information Centre (HSCIC) report that 26% of women in the UK currently give birth by caesarean section (CS), the subject of breastfeeding post CS is vastly understudied. In the latest UK infant-feeding survey (McAndrew et al, 2012), it was confirmed that although similar rates of breastfeeding initiation were found with women who gave birth vaginally or who underwent a CS, breastfeeding exclusivity was less common in the latter group, suggesting that an unknown factor was affecting breastfeeding exclusivity in this group of women.

Aim. The aim of this literature review was to explore how breastfeeding is affected by a CS birth, with the intention of formulating recommendations to improve rates of breastfeeding sustainment.

Methods. The research question: 'What impact does a CS birth have on breastfeeding?' was framed with the aid of the standardised search strategies: population, exposure, outcomes (PEO) and sample, phenomenon of interest, design, evaluation, research type (SPIDER). The research databases CINAHL, MEDLINE and ProQuest were strategically searched using a combination of search terms. CINAHL and MEDLINE produced 30 and 43 results, respectively, and ProQuest returned 340 papers. Eight papers were selected for inclusion following a review of the titles, abstracts and findings of the papers identified by the literature search and an additional paper was found through searching Google Scholar.

Findings. Pain is a significant barrier to breastfeeding success and women who reported higher levels of pain breastfed less often and were more prone to ceasing breastfeeding in favour of artificial milk supplementation. Pain also had a negative impact on women's breastfeeding experiences. Lack of education and support were identified as key factors in breastfeeding cessation and poor support was associated with the introduction of artificial milk supplementation. Women who did not receive antenatal breastfeeding education breastfed for a shorter duration than those who did.

Conclusion. Breastfeeding post CS is negatively impacted by post-operative pain and a lack of support resulting in an increase in the uptake of artificial milk supplementation and lower breastfeeding rates at six months postpartum.

Recommendations. Further research into the impact of a CS birth on breastfeeding is needed in order to conclusively answer the research question. The acronym 'PRESS' (Prepare, Relieve, Educate, Stimulate, Success) was created to formally amalgamate the recommendations to improve breastfeeding rates. Improved education for both women and midwives was the most significant recommendation in terms of its perceived impact on breastfeeding continuation rates. More qualitative research would also be welcomed to understand women's experiences of breastfeeding post CS and in particular for those women prone to CS because of a raised body mass index and those aged over 35.

Key words: Lactation, breastfeeding support, caesarean section, midwives, evidence-based midwifery

Background

In 2008, it was estimated that 1.4 million child deaths globally were a direct result of 'sub-optimal breastfeeding' where babies were not exclusively breastfed (Save the Children, 2013: 7). Furthermore, between 16% and 22% of newborn deaths could be prevented annually if all babies were breastfed within the first hour of life (NEOVITA Study Group, 2016; Save the Children, 2013). Caesarean section (CS) delivery impacts on breastfeeding exclusivity and delays initiation of breastfeeding (McAndrew et al, 2012). In the UK's latest infant-feeding survey (McAndrew et al, 2012), it was confirmed that although similar rates of breastfeeding initiation were found when comparing women who gave birth vaginally to those who underwent a CS, exclusive breastfeeding was less common in the latter group.

The HSCIC (2015) reported that the CS rate rose by 0.7% in the latest period of study between 2013 and 2014, meaning around 26.2% of UK women currently give birth

by CS. A rise in the birth rate of those over 40, levels of obesity and associated co-morbidities, including diabetes, are all said to be contributing factors to the escalation (Public Health England, 2016; HSCIC, 2015). The aim of this literature review was to explore the question: 'What impact does a CS birth have on breastfeeding?'

Method

The review started in May 2015. The research question was framed with the aid of the standardised search strategies: population, exposure, outcomes (PEO) and sample, phenomenon of interest, design, evaluation, research type (SPIDER). The SPIDER strategy was employed in order to further the formulation of search term generation aiming to improve rigour.

The research databases CINAHL, MEDLINE and ProQuest were strategically searched using a carefully selected combination of search terms and the application of relevant limiters or exclusion criteria.

The literature search was limited to papers published after 2005 to ensure the research was clinically up to date. Breastfeeding is a global issue and, as such, it was imperative that the literature search did not dismiss international papers. Due to the impracticalities of translation, however, papers not written in the English language were excluded. Boolean operators and truncation were used to advance and maximise

the search potential. CINAHL and MEDLINE produced 30 and 43 results, respectively, and ProQuest returned 340 primary research papers. Titles and abstracts were analysed for their relativity to the research aim and a shortlist of 33 papers was compiled. These were scrutinised further with the aid of inclusion and exclusion criteria (see Table 1).

Table 1. Literature search matrix: audit trail of search terms

Search number	Search term	CINAHL results	ProQuest results	MEDLINE results
S1	woman*	23,171	46,991	170,424
S2	women*	194,988	162,644	725,784
S3	S1 OR S2	210,130	179,937	865,038
S4	experience*	204,338	232,280	728,645
S5	view*	63,259	215,678	344,826
S6	S4 OR S5	255,975	354,664	1,044,591
S7	'operative delivery'	196	290	918
S8	caesarean*	3426	3784	15,100
S9	caesarean*	13,308	5321	47,976
S10	S7 OR S8 OR S9	14,208	8305	55,028
S11	barrier*	39,891	55,770	187,902
S12	prevent*	482,059	228,086	1,764,262
S13	reduc*	229,679	235,103	2,447,879
S14	challenge*	84,697	128,795	384,797
S15	impact*	137,398	163,135	616,642
S16	S11 OR S12 OR S13 OR S14 OR S15	829,712	432,989	4,618,302
S17	breastfeed*	8973	10,000	15,280
S18	breast N1 feed*	17,207	1496	31,282
S19	lactat*	11,336	11,403	172,434
S20	infant N1 feed*	4509	1519	3927
S21	S17 OR S18 OR S19 OR S20	29,826	20,139	204,205
S22	S3 AND S6 AND S10 AND S16 AND S21	38	927	62
Limiters	2005-present	30	544	43
Limiters	English	N/A	N/A	N/A
Limiters	Study	N/A	N/A	N/A
Limiters	Exclude: general information, dissertation/thesis, commentary, case study, news, correspondence, review, interview and editorial	N/A	340	N/A

Qualitative and quantitative research was welcomed within the literature review, however, research that lacked focus and strayed from the aims of this paper were excluded, along with secondary research papers. Following this process, a total of eight papers were selected. One further research paper (Albokhary and James, 2014) was found using Google Scholar and, having met the inclusion and exclusion criteria, it was included in the review. Of the final nine papers (see Table 2), three were of qualitative methodology and six were quantitative in nature. The qualitative research was critically analysed using the Critical Appraisal Skills Programme (CASP) (2013). The quantitative research was examined using an adapted version of 'The Rees model for critiquing quantitative research' (Glasper and Rees, 2013). During the appraisal process, themes naturally assembled through constant and contemporaneous comparison of the papers. Thematic development was aided through the use of colour coding and grouping. As a result of this in-depth process, three significant themes emerged:

- Post-operative pain
- Lack of support
- Artificial milk supplementation.

Results

Breastfeeding initiation and maintenance rates were impacted by post-operative pain following a CS which, when combined with a lack of professional and personal support, resulted in increased rates of artificial milk supplementation in breastfeeding women.

Post-operative pain

Post-operative pain as a barrier to breastfeeding post CS was reported by all but one (Baxter, 2006) of the nine authors, illustrating that pain is a persistent inhibitor to breastfeeding in women who have undergone a CS.

Karlström et al's (2007) study in Sweden reported that one-third of the 60 women sampled who had undergone a CS suggested that the pain caused by the wound inhibited breastfeeding to a 'very large extent' (Karlström et al, 2007: 434). Furthermore, women who experienced birth complications were more likely to cease breastfeeding as a

result of post-operative pain (Brown and Jordan, 2013).

Women in Karlström et al's (2007) study reported incision pain post CS based on a 10-point visual analog scale (VAS). A VAS score of four or above was considered to be at a level where pain relief should be offered. It was found that women suffered high levels of pain post CS. A total of 83% of women who underwent an emergency CS and 74% of women who had an elective CS reported a VAS score of between four and 10.

Wound pain was reported to affect basic functioning post delivery: '[It was] too painful to lift and carry baby' (Baxter,

2006: 292); 'I hated breastfeeding because it hurt to try and sit up' (Beck and Watson, 2008: 233). One woman described the pain to be 'absolute agony' and not something she could forget (Tully and Ball, 2014: 714-5). These experiences are backed up by the findings of Karlström et al (2007), who identified that 62% of women reported their ability to breastfeed their babies was hindered by post-operative pain. Brown and Jordan (2013) suggested that antenatal breastfeeding intention does not predict breastfeeding rates at discharge from hospital. In Tully and Ball's (2014) study of 115 women, only 73% who had intended to breastfeed did so exclusively in the immediate postnatal period.

Women who had described an antenatal intention to breastfeed but fed their babies artificial milk from birth had low levels of commitment, which was compounded by maternal tiredness and incision pain post CS (Tully and Ball, 2014).

Brown and Jordan (2013) studied the relationship between the classification of delivery, complicated or uncomplicated, and the reasons for women discontinuing breastfeeding. Perceived difficulty, post-operative pain and pressure from others were reported to be the greatest influence on women's decisions to forego breastfeeding in favour of using artificial milk. This is backed up by findings of McGrath and Phillips (2009), where pain and pressure from others were

Table 2. Final nine papers

	Title and author	Method	Location	Sample size	Year of publication
1	Maternal accounts of their breastfeeding intent and early challenges after caesarean childbirth (Tully and Ball, 2014).	Qualitative/ interview	UK	75+40	2014
2	Does caesarean section have an impact on the successful initiation of breastfeeding in Saudi Arabia? (Albokhary and James, 2014).	Quantitative/ questionnaire	Saudi Arabia	60	2014
3	Impact of birth complication on breastfeeding duration: an internet survey (Brown and Jordan, 2013).	Quantitative/ cross-sectional survey	UK	284	2013
4	A cross-sectional analysis of the effect of patient controlled epidural analgesia versus patient controlled analgesia on post-caesarean pain and breastfeeding (Woods et al, 2012).	Quantitative/ case-note review	US	621	2012
5	Elective caesarean delivery: does it have a negative effect on breastfeeding? (Zanardo et al, 2010).	Quantitative/ telephone questionnaire	Italy	2137	2010
6	The breast or the bottle? Women's infant-feeding choices in a subsequent birth after a previous caesarean section (McGrath and Phillips, 2009).	Qualitative/ interview	Australia	20	2009
7	Impact of birth trauma on breastfeeding: a tale of two pathways (Beck and Watson, 2008).	Qualitative/ storytelling	New Zealand	52	2008
8	Post-operative pain after caesarean birth affects breastfeeding and infant care (Karlström et al, 2007).	Quantitative/ questionnaire	Sweden	60	2007
9	Women's experience of infant feeding following birth by caesarean section (Baxter, 2006).	Quantitative/ questionnaire	UK	289	2006

common reasons cited for breastfeeding cessation.

Woods et al (2012) studied the relationship between types of patient-controlled pain relief and women's pain post CS, as well as its effect on breastfeeding frequency and initiation in the US. No significant difference was found between the method of analgesia and the time to first breastfeed, however, a negative correlation was found between average total pain score and number of breastfeeding sessions.

Lack of support

Lack of support, as well as lack of preparation, for CS delivery was found to affect women's perceptions of their ability to cope with the pain experienced; this then fundamentally affected their breastfeeding (Woods et al, 2012; Karlström et al, 2007). Much of the evidence from the research studied implied that a lack of support was a common denominator in women who had ceased or struggled to breastfeed (Tully and Ball, 2014; Brown and Jordan, 2013; Baxter, 2006).

Research by Zanardo et al (2010) found that timely support during the immediate postnatal period is integral to women's breastfeeding success. Baxter (2006) reported that 6% of 289 participants in her study ceased breastfeeding following a CS because of poor help received on the postnatal ward. The help offered to women was described to be prone to 'conflicting advice' and 'shift changes' (Baxter, 2006: 292) which negatively impacted on the women's ability to breastfeed.

Tully and Ball (2014) highlight the implications of no overnight visiting for women's partners. Mothers in their study (Tully and Ball, 2014) struggled to breastfeed during the night because of a lack of help while also commenting that women were scared or hesitant to buzz for help from midwives. Women turned to artificial milk supplementation instead of pressing their buzzer for breastfeeding support in order better care for themselves (Tully and Ball, 2014).

This is supported by findings from McGrath and Phillips (2009), who found that artificial feeding was started to allow mothers a break to relieve tiredness.

Brown and Jordan (2013) found that while mothers who gave birth via CS did breastfeed for a 'significantly shorter duration' (Brown and Jordan, 2013: 833) than women following a vaginal birth, mothers who ceased breastfeeding for reasons of lack of support, breastfed for a longer period of time than those who terminated breastfeeding as a result of difficulty or pain. Additionally, Brown and Jordan (2013) found no significant difference between mothers who gave birth vaginally or via CS who reported lack of support.

Women in Beck and Watson's (2008) study highlighted the importance of evidence-based teaching and support. Women in this study (Beck and Watson, 2008) recalled their resentment of hands-on teaching techniques that were adopted by staff caring for them, finding it to be a violation of their dignity.

One participant felt that her breasts no longer belonged to her because the support received involved healthcare

workers 'grabbing [her] breasts' (Beck and Watson, 2008: 234) rather than opting for a hands-off technique and woman-centred approach. One participant recounted:

'Why do it [breastfeed] when to learn and to do it invites assistance from health professionals, and if you even touch my body again, or touch me like that, I am going to kick you...' (Beck and Watson, 2008: 234).

This illustrates the negative way breastfeeding support was seen by some women following a CS.

Nevertheless, not all women perceived postnatal breastfeeding support as negative. Women in McGrath and Phillips' (2009) study recalled the help from midwives in relation to breastfeeding as supportive, while Baxter (2006) stated that 60% of 146 participants found support from staff to be sufficient; Tully and Ball (2014) also noted that most women considered midwives as supportive.

Artificial milk supplementation

The WHO recommends exclusive breastfeeding for the first six months of a baby's life (WHO, 2016). Early introduction of artificial milk supplementation following a CS was reported by all nine authors. Baxter (2006) suggested that one reason for the high number (47%) of artificial feeds given to breastfeeding babies in their study was women's perception of insufficient milk supply.

Mothers who had experienced a previous CS who subsequently underwent another gave the reason that mixed feeding was successful last time (Tully and Ball, 2014), while other breastfeeding mothers admitted to choosing artificial milk overnight in order to get more sleep (Tully and Ball, 2014).

CS delivery impacted on breastfeeding duration throughout the immediate six months postpartum. Women who underwent a CS delivery were less likely to exclusively breastfeed at seven days, three months and six months postpartum compared with those after a vaginal birth (Zanardo et al, 2010). In relation to breastfeeding rates in the postnatal period, when comparing method of CS delivery, elective or emergency, women who underwent an emergency CS were more likely to cease breastfeeding sooner than those who underwent a planned caesarean. These results are supported by the findings of Brown and Jordan (2013).

Much of the research illustrated the commonality of women not initiating breastfeeding within the timeframe of one hour postpartum, as recommended by WHO et al (2009). In their study of 60 women, Albokhary and James (2014) found that mothers who gave birth via CS were 93% more likely to not breastfeed in the first hour following birth than women who gave birth vaginally.

When comparing types of delivery, women who underwent a CS were 12 times more likely to suffer delayed initiation of breastfeeding over 24 hours postpartum (Albokhary and James, 2014). A total of 40% of the sample of 60 women who had undergone a CS did not initiate breastfeeding within 24 hours postpartum (Albokhary and James, 2014). Woods et al (2012) reported that the mean time from birth to initiation of breastfeeding in their total sample of 621

women was 249.3 minutes or 4.16 hours; some three hours over the WHO recommendations.

Skin-to-skin contact is positively associated with breastfeeding success (Robiquet et al, 2016). In the research conducted by Albokhary and James (2014), the majority of babies were cared for in a separate healthy baby nursery away from their mothers. This is similar to the circumstances described in Zanardo et al's (2010) study. In addition to this, mothers who had skin-to-skin contact following their deliveries did not have extended contact with their newborns (Albokhary and James, 2014). The longest period of skin-to-skin contact achieved was by 1% of the sample (Albokhary and James, 2014) who had between 11 and 15 minutes of contact – 45 minutes shorter than the time recommended by WHO et al (2009). CS delivery impeded women's ability to experience immediate and prolonged periods of skin-to-skin contact with their newborn consequently leading to poor breastfeeding initiation rates and higher rates of artificial milk supplementation in this group of women (Albokhary and James, 2014).

Reasons for artificial milk supplementation post CS are not limited to the lack of skin-to-skin contact following birth. Tully and Ball (2014: 717) found that women ceased breastfeeding and supplemented feeds with artificial milk for a number of reasons: in an attempt at 'satiating [the] infant', as a result of a lack of support, to minimise wound pain involved with breastfeeding, and as a result of a lack of knowledge about colostrum and early infant satisfaction. This supported earlier research by McGrath and Phillips (2009), who found that breastfeeding mothers quickly turned to artificial feeding when obstacles occurred such as lack of support, lack of enjoyment, perceived pressure,

post-operative pain, lack of sleep and if the baby was in the neonatal unit. Women post CS perceived newborns to be more settled on formula milk and ceased breastfeeding due to fears of an inadequate milk supply (Brown and Jordan, 2013).

A link between maternal perception of inadequate milk supply and the uptake of artificial milk was reported by several authors (McGrath and Phillips, 2009; Beck and Watson, 2008; Baxter, 2006). The perception of insufficient milk supply was the most commonly cited reason for breastfeeding cessation within 18 weeks of birth, with 29.2% of a group of 89 women agreeing (Baxter, 2006). In Beck and Watson's (2008) study, women described traumatic birth experiences as having affected their milk supply or their perception thereof. Women who initially breastfed their babies but gave up when faced with difficulties described a sense of not having enough breastmilk for their babies (McGrath and Phillips, 2009).

Furthermore, participants in Tully and Ball's (2014) study believed that they had an insufficient milk supply because they were unaware of normal nocturnal feeding habits and the importance of night-time breastfeeds. An association between frequent waking and poor milk supply was made by mothers who lacked sufficient knowledge on breastfeeding physiology and this impacted on breastfeeding rates.

Discussion

Following this systematic literature review, it is evident that no one single factor affects breastfeeding post CS. The combination of poorly medicated or unexpected post-operative pain and a lack of support from both professionals and partners overnight was found to be associated with artificial milk supplementation in breastfeeding women. Lack of breastfeeding physiology and newborn behaviour knowledge in relation to breastfeeding also contributed to women's breastfeeding demise.

Pain was found to be associated with lower rates of breastfeeding initiation and continuation. Women's experiences of breastfeeding were impacted by the pain they experienced post CS. Not only was it established that pain reduced women's experiences of breastfeeding, but it also proved significant in its effect on breastfeeding duration through the quantitative research findings (Albokhary and James, 2014; Brown and Jordan, 2013; Woods et al, 2012; Zanardo et al, 2010; Karlström et al, 2007). Women who experienced more pain post CS reported less frequent breastfeeding sessions in the first 48 hours postpartum (Woods et al, 2012).

Figure 1. Press for success

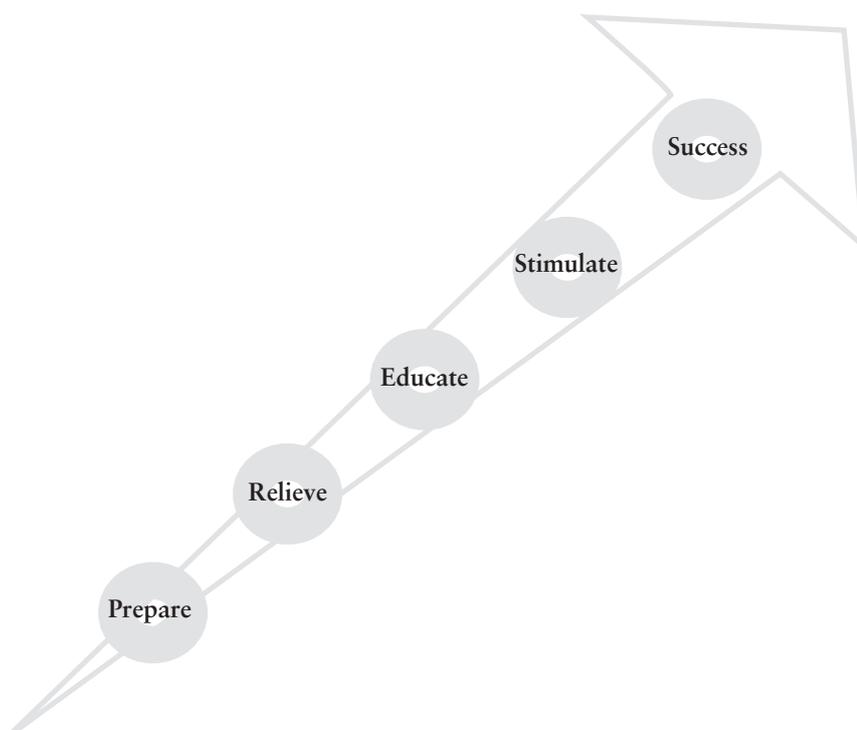


Figure 2. Breakdown of 'PRESS' stages

'PRESS' for success	
P	repare women for a CS birth, including tailored antenatal education relating to breastfeeding post CS.
R	elieve pain post CS to improve breastfeeding initiation and maintenance rates.
E	ducate women on the physiology of lactation and the importance of night-time breastfeeding. Promote effective pain management through educating midwives on the negative correlation between pain and number of breastfeeding sessions.
S	timulate – remind women of the importance of stimulating their breasts through regular breastfeeding sessions (including overnight) and the consequences of artificial milk supplementation on breastfeeding longevity.
S	uccess with exclusive breastfeeding of all infants until aged six months following a CS of mothers who wish to breastfeed.

Although no other study looked specifically into breastfeeding frequency, increased breastfeeding sessions over a 24-hour period could be argued to be associated with breastfeeding success. If less pain was seen to be attributed to more breastfeeding sessions, then more pain can be positively associated with breastfeeding cessation. This idea is supported by the findings of Woods et al (2012) and Karlström et al (2007). These findings help to illustrate the importance of careful pain management post CS in order for breastfeeding rates to improve.

Artificial milk supplementation was a significant issue in many maternity hospitals within the study (Albokhary and James, 2014; Tully and Ball, 2014; Brown and Jordan, 2013; Zanardo et al, 2010; McGrath and Phillips, 2009; Baxter, 2006). This is backed up by results from the latest UK infant-feeding survey (McAndrew et al, 2012), which found that although initiation rates of breastfeeding were similar in women post CS to those who delivered vaginally, 24% of breastfeeding mothers who underwent a CS mixed their infants on discharge from hospital, compared with 16% of mothers who delivered vaginally (McAndrew et al, 2012). Inadequate knowledge on the physiology of lactation, a lack of skin-to-skin contact following CS births, as well as poor support for women to breastfeed during the first hour postpartum and beyond, was found to affect rates of artificial milk supplementation (Albokhary and James, 2014).

The definition and need for support varies from one breastfeeding woman to the next. Support is not limited to that offered by professionals, but also encompasses the partner's role in breastfeeding support. Women in Tully and Ball's (2014) study reported difficulty in breastfeeding overnight when partners were sent home. Improved support for women breastfeeding overnight needs to be considered to ensure that breastfeeding women make the decision to cease or forego a breastfeed in favour of artificial milk, following, and not instead of, receiving support.

The negative way that breastfeeding mothers viewed

postnatal support from some health professionals in Beck and Watson's (2008) study highlights the importance of the availability of support from well-trained professionals. Some women were hesitant to press their buzzer for help from healthcare professionals as a result of the care they received (Beck and Watson, 2008).

Recommendations

The following recommendations aim to improve the rates of exclusive breastfeeding in the first six months following CS, as recommended by the WHO (2016). Although it is evident from the findings that breastfeeding post CS is impacted in a multitude of ways, the recommendations fall under one principal category: education – for both midwives and parents.

Timely and appropriate support was found to be influential in women's breastfeeding success (Tully and Ball, 2014; Brown and Jordan, 2013; Baxter, 2006). Women in Beck and Watson's (2008) study were clear that hands-on support was not effective, left women traumatised and influenced higher rates of artificial milk supplementation. Annual mandatory training for midwives exemplifying evidence-based practice relating to support and techniques for women breastfeeding post CS is strongly recommended. Within this training, 'hands-off' techniques for assisting women struggling to breastfeed must be taught to midwives to ensure that women receive support that promotes learning and upholds women's dignity and respect (NMC, 2015).

Early introduction of artificial milk following a CS was reported by all nine authors (Albokhary and James, 2014; Tully and Ball, 2014; Brown and Jordan, 2013; Woods et al, 2012; Zanardo et al, 2010; McGrath and Phillips, 2009; Beck and Watson, 2008; Karlström et al, 2007; Baxter, 2006). A lack of skin-to-skin contact and inadequate knowledge regarding the milk supply contributed to the high rate of artificial milk supplementation that was apparent in breastfeeding women. Targeted education for both women and healthcare professionals is recommended to improve these figures. Midwives must enable early skin-to-skin contact where clinically feasible following a CS and prompt support with breastfeeding must be available for all women. Furthermore, it is recommended that women are educated on the physiology of lactation and the importance of regular breast stimulation in the form of breastfeeds and hand expression where necessary. This will help to ensure adequate milk supply and improve breastfeeding rates following discharge from hospital.

Pain was found to be negatively associated with breastfeeding success. While pain isn't completely avoidable

post CS, improving awareness of the significant association between pain and breastfeeding demise would enable better support for women attempting to breastfeed. Midwives would benefit from being educated on the importance of good pain relief and its positive association with improved breastfeeding exclusivity and longevity through teaching sessions and improved guidelines.

With 26% of the childbearing population currently at risk of giving birth by CS (McAndrew et al, 2012), it would be beneficial if all women were educated antenatally on how a CS may affect breastfeeding. Additionally, it is recommended that this teaching should empower women to be mindful of alternative breastfeeding positions to relieve wound pain. Information relating to the consequences of artificial milk supplementation and lack of breast stimulation overnight should be taught to women to ensure that they are aware of the influence these have on breastfeeding longevity. An informed choice or decision is something that all women should be afforded.

It could be argued that only once education has been provided can a woman be said to be basing her decision to ask for a bottle or for support with breastfeeding on informed choice. Figure 1 was created with the intention of simplifying

the above recommendations. The acronym 'PRESS' (Prepare, Relieve, Educate, Stimulate, Success) (see Figure 2) was thought appropriate in that women on postnatal wards were found to be hesitant to press the buzzers to ask for help with breastfeeding (Tully and Ball, 2014).

Conclusion

While post-operative pain, lack of support and artificial milk supplementation have been shown to impact on a woman's ability to breastfeed post CS, it is unlikely that this review alone has conclusively answered the research question. Due to the size and nature of this review, a larger study is recommended to allow the impact of CS on breastfeeding to be more widely understood.

In addition to this, more qualitative research on women's experiences of breastfeeding post CS would be encouraged, as it was found that there has been more quantitative than qualitative research into this subject. There is a well-established link between both obesity and increased maternal age and CS delivery (Public Health England, 2016; McAndrew et al, 2012) and views from these groups of women and their breastfeeding journey following a CS would add depth to our knowledge of the subject.

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Exploring Nigerian obstetricians' perspectives on maternal birthing positions and perineal trauma

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Abstract

Background. Evidence recommends encouraging expectant mothers to adopt birthing positions that will assist them in having a normal physiological birth. Upright birthing positions have been shown to have good birth outcomes and assist women to give birth normally. However, adopting the lithotomy position with legs flexed and supported with hands has become an entrenched clinical birthing practice in Nigeria and is associated with an increased risk of a routinely performed episiotomy. Hospital protocols have supported this medicalised approach to how women give birth, with little regard to woman-centred care. Nevertheless, Nigerian obstetricians' perceptions and experiences on birthing position and perineal trauma have received minimal recognition and research.

Aim. To explore perceptions and experiences of Nigerian obstetricians regarding maternal birthing position and perineal trauma following childbirth, and to gain insights as to whether obstetricians' clinical decisions and practice were influenced by evidence.

Methods. A descriptive qualitative study was conducted involving a purposive sample of eight obstetricians recruited from two referral hospitals in the Niger Delta region of Nigeria during November 2014. Data were collected using an interview schedule and a thematic analysis was undertaken. Data analysis was guided by Braun and Clarke's (2006) six-stage thematic framework. Interviews were transcribed in full and categorisation of the data achieved with several in-depth readings of the transcripts. Data saturation was reached with the facilitation of the second focus group interview as no more emerging themes were identified. The study obtained ethical approval from the health and social research ethics committee at the University of Chester in the UK, and also from the study hospitals in the Niger Delta region in Nigeria.

Results. Six participants were doctors undertaking obstetric specialist training and two were consultant obstetricians. The following core themes emerged: entrenched practice, lack of insight for evidence, embracing woman-centred care and professional dominance. An overall finding demonstrated a willingness to support mothers in their choices of birthing position and involved reflections on the indications for an episiotomy and incidences of perineal injuries. The findings also indicated that the obstetricians were prepared to consider woman-centred care in relation to birthing position and perineal trauma.

Conclusions. This study has enabled some Nigerian obstetricians to reflect upon their perceptions and experiences of their clinical decisions and practices concerning birthing position and perineal trauma. Their current practice was frequently not supported by evidence. However, it emerged that there was a willingness to listen to women and adopt clinical birthing practices and perineal care that would respect choices based on contemporary evidence. Adopting a woman-centred approach would also enable Nigerian midwives working in the two study hospitals to support women to give birth in a position of their choosing and reduce the risk of a routinely performed episiotomy.

Key words: Qualitative research, birthing position, perineal trauma, episiotomy, obstetricians, evidence-based midwifery

Background

Normal physiology of labour and birth is driven by the innate human ability of both the woman and fetus (Cheyney et al, 2014). This is enhanced by supportive care and low technology techniques that assist the normal biological process of birth (Romano et al, 2010). Historically, women have recognised and instinctively used the natural laws of gravity and adopted upright positions without the constraints that often accompany the medical model for labour and birth. Obstetricians and midwives can play an important role in supporting women to adopt different birthing positions and also in reducing the incidence of performing a routine episiotomy. A woman-centred approach that enables women to adopt positions they find comfortable can contribute to a positive experience of birth, and, as reported by Nieuwenhuijze et al (2013), a positive experience contributes to a woman's sense of accomplishment, self-

esteem, feelings of competence and wellbeing. Upright birthing positions for labour and birth are safe practices that promote the normal physiological process of birth (Romano and Lothian, 2008). Adopting an upright birthing position takes advantage of gravity to help the fetus descend into the pelvis (Gupta et al, 2012; Steen, 2012; Simkin and Ancheta, 2011). Some researchers have found that the intensity of contractions is greater in an upright position, with a shorter first stage of labour and birthing time and reduction in the need for augmentation (Thies-Lagergren et al, 2013; Gupta et al, 2012). It has been reported that fewer interventions and episiotomies are performed when women adopt upright positions, although the incidence of second-degree perineal lacerations appears to increase (Gupta et al, 2012; de Jonge et al, 2010).

As childbirth has become more medicalised, in middle- to high-income countries, it is common for women to be

constrained during labour and give birth in the lithotomy position (when a woman during childbirth is on their back, with hips and knees flexed and thighs apart). At present, the lithotomy position is a routinely accepted birth position in many African hospitals (Mwanzia, 2014). In Nigeria, obstetric and midwifery care is regimented and institutionalised, obstetricians and midwives are educated and trained to facilitate women giving birth in the lithotomy position and this, along with the routine use of episiotomy, is commonly practised, which is clearly not based on contemporary evidence. The influence of obstetricians is crucial when decisions about what is accepted as safe practice for childbirth are made in a hospital setting. However, there is a lack of research available that has explored obstetricians' views and experiences relating to maternal birthing positions and perineal injuries (Hodnett et al, 2012; Hanson, 1998). This research was undertaken to address this deficit and was included in a component of a mixed-methods study (Diorgu et al, 2016).

Aims

The aims of this study were firstly, to explore the perceptions and experiences of some Nigerian obstetricians regarding maternal birthing position and perineal trauma following childbirth. Secondly, to gain insights as to whether obstetricians' clinical decisions and practice were influenced by research evidence.

Method

This study used a descriptive qualitative approach as one component of a mixed-methods study. Undertaking qualitative research enabled the researchers to gain an understanding of obstetricians' views and experiences of maternal birthing position and perineal trauma, which cannot be captured through a quantitative approach (Smith et al, 2013; Rennie, 2012).

The study involved eight obstetricians who were selected through purposive sampling. A total of 10 obstetricians were approached by the first author (FD) and agreed to participate in the study. However, only eight of these obstetricians were available to participate in either of the two focus group interviews. Data were collected via focus group interviews during November 2014 using a semi-structured interview schedule which included some socio-demographic questions and open-ended questions relating to the study aims. Key questions included:

- What are your views about lithotomy (the lying on the back) position women often use during childbirth?
- How does this position help or not help women with birth?
- What are your views about women having a choice and using upright positions during labour and birth?
- Can you describe what it is like to facilitate a birth with the aid of an episiotomy?
- What is the evidence to support the benefits of performing an episiotomy during childbirth?

The focus group interviews were facilitated by FD and recorded via a digital tape recorder. Participants were identified by the use of codes. Data analysis was guided by

Braun and Clarke's (2006) six-stage thematic framework. Interviews were transcribed in full and categorisation of the data achieved with several in-depth readings of the transcripts. Data saturation was reached with the facilitation of the second focus group interview as no more emerging themes were identified (see Figure 1 and Figure 2, overleaf).

Ethical considerations and research governance requirements were met. The study obtained ethical approval from the health and social research ethics committee at the University of Chester in the UK, and also from the study hospitals in the Niger Delta region in Nigeria. All participants signed an informed consent form following a detailed explanation about the study. The focus group would be recorded but individuals' identifications would be protected by the use of coding numbers. Also, they had the right to withdraw from the study at any time (Steen and Roberts, 2011).

Results

Among the eight study participants, six were resident doctors undergoing specialist training in obstetrics/gynaecology and two were obstetric consultants. Two participants confirmed that they had more than 10 years of experience in obstetrics and gynaecology, four had more than five years and two had less than five years. Equal numbers of participants represented study hospital one and two. The analysis of the transcripts resulted in the following core themes relating to birthing position emerging: 'entrenched practice', 'lack of insight for evidence', 'embracing woman-centred care' and, for perineal trauma, 'professional dominance'.

Entrenched practice

Exploring obstetricians' knowledge and understanding of birthing positions and perineal trauma is important as this gives insights into current clinical practice and whether maternity care is supported by evidence. Interestingly, when participants were questioned about their views regarding birthing position, all stated that the lithotomy position was the only birth position practised in the two study hospitals and that it had become accepted as routine practice. Six of the participants discussed and agreed that the lithotomy (sometimes referred to as dorsal) position was the most suitable birth position as it was convenient for both women and their birth attendants:

"Dorsal position is our standard practice here, more so in this environment, lying down position is like what we are used to. This is the practice our senior colleagues here handed over to us" (D4).

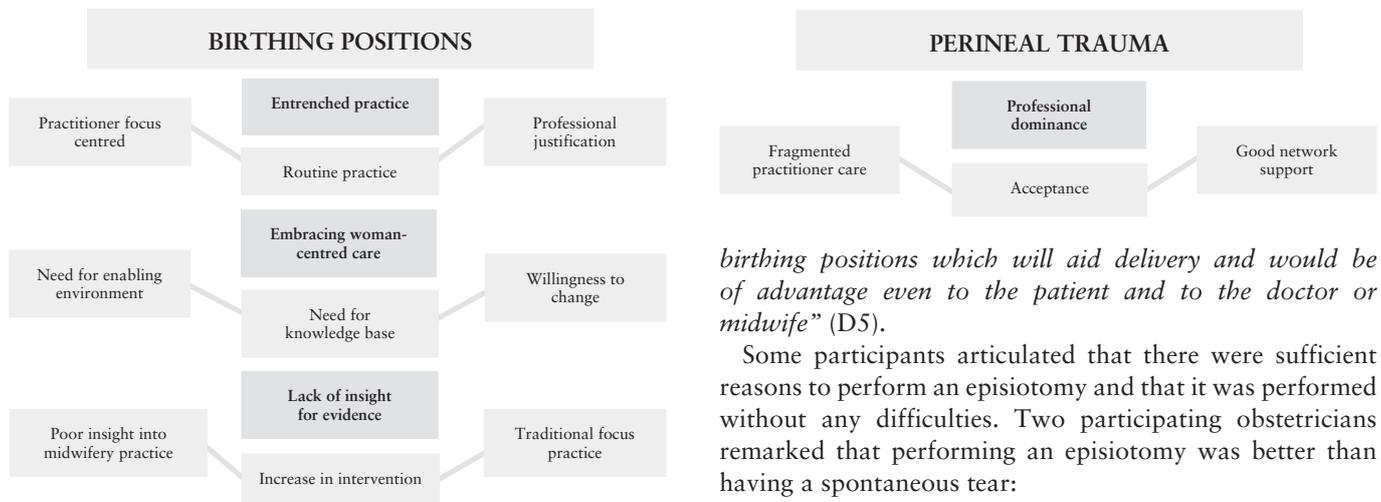
"Lithotomy position is the commonest position women use in our centre. It has become so entrenched. It is usual to assume that the patient is going to adopt it and when they are also giving birth without being told, they already know, so they adopt it" (D1).

"...then if the membranes have been ruptured also and the fetal presenting part is still high, the lying position keeps your mind at rest to ensure the patient may not have cord prolapsed. Lying on the back is a convenient position for us" (D6).

Figure 1. Initial thematic map (themes and sub themes within)



Figure 2. Final thematic map showing the three main themes in birthing positions and one theme in perineal trauma



The acceptance of the lithotomy position for birth as standard practice was clearly articulated and, until now, the participants had not reflected upon or challenged this. While the participants acknowledged the importance of evidence-based practice to assist them in making clinical decisions to provide best care, their responses indicated that decisions and care undertaken in the two study hospitals were based on a 'practice norm'. It was evident that the participants' clinical practice was in alignment with a medicalised model of care, but it was not based on contemporary evidence. However, it became apparent during the focus group discussions that most of the participants viewed birthing position and routine use of episiotomy from the perspective of hospital standards, as well as being influenced by their own personal philosophies and preferences.

Lack of insight for evidence

Knowledge and awareness of evidence in support of birthing positions and perineal outcome is vital when highlighting 'best practice'. Studies have associated supine position during childbirth with negative consequences and increased risk of perineal injuries (Hodnett et al, 2012; Albers and Borders, 2007; Hastings-Tolsma et al, 2007). This theme relates to perceptions of both birthing position and perineal trauma. When participants were asked about their perspectives concerning perineal trauma when supporting women during childbirth, the majority (six) assumed that an episiotomy prevents a perineal tear. With regards to the birthing position, five participants expressed uncertainty on the effectiveness of an upright birthing position. One participant reported that by taking part in this study enabled her and other participants to know that other birthing positions existed and are supported by evidence:

"We have not tried any other method so far to know and to be able to compare whether it is less favourable for delivery or not, since we now know about other birthing positions. It is only when we have tried all of them that we can tell which is most appropriate" (D8).

"Our participation in the study has really enabled us to know that women can take different labour positions and

birthing positions which will aid delivery and would be of advantage even to the patient and to the doctor or midwife" (D5).

Some participants articulated that there were sufficient reasons to perform an episiotomy and that it was performed without any difficulties. Two participating obstetricians remarked that performing an episiotomy was better than having a spontaneous tear:

"...but it is better to give episiotomy than for you to allow the patient to have a perineal tear" (D6).

"...when you are giving episiotomy most times because they are already in so much pain you do not have problem giving it. Usually it is easy giving it. Basically episiotomy is [...] it is a very good practice, very good practice instead of allowing the woman to have a perineal tear we give episiotomy. It is even very easier to repair" (D2).

Prior to participating in this study, none of the participants promoted the use of upright birthing positions during labour and birth, despite good evidence of the benefits to women.

What resonates in these quotes is that some obstetricians appeared not to be up to date with current available evidence in relation to birthing positions and perineal outcomes and that they had strong beliefs. Poor knowledge of evidence was identified as a theme, as it emerged clearly during the discussions around birthing position and perineal trauma.

Embracing woman-centred care

This theme emerged when there was discussion about providing women with choices that would help them to give birth. It was noted that participants were now considering ways to enable women to make choices regarding birthing positions. Six participants remarked that they would "allow" or "oblige" women to choose their birthing positions. Four participants indicated that the provision of an "enabling environment" would be a challenge. Two participants talked about the provision of helpful devices to aid women to adopt upright positions and also help obstetricians and midwives to provide care that enabled the use of different birthing positions:

"I told you before that we are used to having one position which is allowing them to lie in dorsal position but now we have been told that there are other positions that may even be better. If the women so choose those positions, we will oblige them so that we will have a basis for comparing the new and the old with the previous ones" (D5).

"...so that the women will now have an opportunity of options, because they will choose, those who want traditional position method would be allowed, those who want the new method can try them and let us see the

benefit. By the time the people who are using the methods give testimonies of their success, the traditional method of lying down will die a natural death. Or somebody will try this method in one birth and may wish to try another in another pregnancy. So there is variety. I am not sure that we will lump everybody into a particular method. People will now have an opportunity to make a choice" (D2).

Some participants commented on women who had fixed expectations about birth and the positions in which they wanted to give birth. Six participants stressed the importance of preparing women during the antenatal period to consider the use of upright birthing positions and provision of special training of health professionals in the use of upright birthing positions. In addition, these participants expressed that increasing awareness and preparing both women and health professionals are vital for a change in clinical practice to take place:

"The new birthing positions as proposed offer clear advantage than the dorsal position that we use. Why not after due counselling of the patients, if they opt for it, we will oblige them" (D6).

"There is something I will suggest to you, we have thought about having some facilities that will enable the position to be sustained, it will be better to provide them. If there are some of those things that they have over there [overseas], they can be provided for us here, all those things if we have them, some women if not for any other thing but a curiosity, they might use [...] [all laughed], but they are not here. That is the problem" (D4).

"What we need is awareness, the awareness has to be created and the enabling environment provided, so we can start using the new method [...] I am sure everybody would want to try something new as it is better, more convenient and easy for women" (D7).

This theme refers to the notion that some participants were considering the "old fashioned" way to give birth as expressed during the focus group discussions and, therefore, support women to innately adopt alternative birthing positions. Most of the obstetricians clearly showed a willingness to support women in their choices of birthing positions near completion of the focus group discussions. The most frequently mentioned challenges reported were lack of experience in supporting women to give birth in upright positions and the need for a good knowledge base to support a change in their clinical practice. It was noted that participants were now considering ways to enable women to make choices regarding birthing positions and how to create an "enabling environment".

Professional dominance

From the interview data, it is apparent that the obstetricians instilled a professional dominance relating to the clinical care of episiotomies. It was acknowledged that midwives had the clinical skills to perform an episiotomy, but did not repair the episiotomy incision. Perineal repair was viewed as within the role of the obstetricians and not the midwives:

"The repair of the episiotomy depends on the indication for the episiotomy and the nature of the episiotomy. If it

is a simple episiotomy that is not wide, the house officer that is the least doctor can repair, but if it is a condition where there are things like sickle cell disease, heart failure, very high-risk patients, may be a registrar can repair it. But generally [midwives] do not usually repair episiotomy in our centre here, they don't repair yes. But they can give but they do not repair" (D2).

"The midwives give, but they don't repair. We [doctors] can give and can repair... and we use the opportunity to train the younger doctors to acquire the skill of repair of episiotomy, so that is what we do here" (D3).

This theme clearly shows that there was a clear demarcation of the role of obstetricians and midwives concerning who can perform and repair an episiotomy.

Discussion

Cumulative evidence has associated a lithotomy position during childbirth with negative consequences and increased risk of perineal injuries (Hodnett et al, 2012; Albers and Borders, 2007; Hastings-Tolsma et al, 2007; Gupta and Hofmeyr, 2004). In contrast, studies suggest that upright birthing positions, such as squatting, sitting, standing, kneeling and hands and knees positions, assist in reducing the incidence of perineal trauma and vaginal injuries (da Silva et al, 2012; Gupta et al, 2012; RCM, 2012). In the UK, guidelines suggest that women should be encouraged to give birth in upright positions (NICE, 2007). In addition, studies have looked at the benefits of different birthing position and two meta-analyses studies found that most women preferred upright compared to a supine birthing position (de Jonge et al, 2004; Gupta and Nikodem, 2000). Despite international recommendations and strong evidence of benefits associated with upright positions, the findings in this study demonstrated that participants accepted a lithotomy position as being culturally and institutionally adopted as 'the norm' and so standard practice. This finding is in agreement with Okonta (2012) who found a supine position routinely used in Africa. The history and acceptance of different birthing positions varies in low-, middle- and high-income countries. A lithotomy position has never had any scientific evaluation before its introduction and only since the late 1980s has research been undertaken to evaluate different birthing positions (de Jonge, 2007; Reid and Harris, 1988). In some parts of the world, the upright position is still commonly used, especially in areas where Western medicine has not been introduced. Nevertheless, in Western countries, such as Europe and Australia, where the medicalisation of childbirth prevails, a high proportion of women continue to give birth in a supine position (de Jonge et al, 2011; Dahlen et al, 2007).

Routinely giving birth in a lithotomy position and the use of episiotomy to prevent spontaneous perineal tears highlights the cultural medical norms and regulations of the study hospitals. This study demonstrated the influence of workplace culture upon obstetricians' clinical practices and their decisions were based on a medical model. Similarly, other studies have reported the working environment exerts a significant influence in determining preference of maternal

position in labour (de Jonge et al, 2008; Freeman et al, 2006). Therefore, the impact of the birthing environment, as well as the model of maternity care influenced by the medicalisation of childbirth, is considered to be influential on obstetric clinical practice.

Accepting and not challenging entrenched and practice norms not based on evidence appeared to demonstrate a lack of knowledge of current evidence. In practice, evidence-based knowledge assists in the provision of high-quality care to mothers and babies. Rather than their decisions for care being based on clinical opinions and personal belief that then become standard practice, yet may not be beneficial to a mother or her baby, practitioners need to use evidence to inform the care they offer. To apply evidence-based practice in the provision of maternity care, obstetricians need to keep themselves up to date with current available evidence.

Notably, in this study the obstetricians showed some willingness to be adaptable to change and were considering informing and allowing women to adopt upright positions. This is encouraging, as this acknowledges a woman-centred approach to maternity care which is in line with evidence-based practice as scientific literature justifies the need for a change in birthing practices. A woman-centred approach that incorporates holistic aspects (emotional, social, and cultural) of care promotes quality care that recognises a woman as a subject, not as an object, thus moving from the medicalisation of childbirth to a respectful model of care for normal birth (Binfa et al, 2013; Wilson and Sirois, 2010). Woman-centred care focuses on the woman's needs, preferences and values (Leap, 2009). Consideration has also been given to the role of the healthcare provider in a woman's birth experience (Wilson and Sirois, 2010) and to how women can be supported psycho-socially during the perinatal period (Warriner et al, 2011).

In line with this approach, the findings of this study recognise that most obstetricians interviewed showed a willingness to listen to women and support them in their preferred choices of birthing position. This suggests a consideration of woman-centred care. However, some doctors emphasised some factors that may stand as barriers to facilitating births in upright positions, such as "*lack of an enabling environment*" and "*limited resources*", in addition to the need for the provision of training in the use of upright birthing positions.

Goer and Romano (2012) noted how such barriers for receiving and providing optimal care need to be overcome. This resonates with an appreciative inquiry approach for change in attitudes, belief and practices (Cooperider et al, 2003). Participants were trapped in a vicious cycle of entrenched birth practices that were not based on evidence. However, during the participation of this study, group discussions assisted participants to reflect upon their attitudes and beliefs and critically review birthing practices in their clinical working environment. This enabled participants to move forward and consider birth from the woman's perspective rather than from their own and so embrace a positive cycle of change.

Strengths and limitations

Consent to undertake the study was required from the study hospitals and obstetricians. It was anticipated that gaining consent would create a barrier to recruitment. However, this was not the case and both the hospital ethics committees and obstetricians supported the undertaking of the study. The number of participants in the study was small, but matches the parameters suggested for qualitative research. Even though only eight obstetricians participated, data saturation was achieved. This confirms scientific evidence that has demonstrated that data saturation can occur with a group size of six to 12 participants (Guest et al, 2006).

The use of audiotapes provided a unique opportunity to accurately analyse the perceptions and experiences expressed regarding the use of birthing positions and perineal trauma during childbirth. Participants were aware of the recording of the focus group interviews and this may have influenced their communication. However, they were assured of anonymity and how the tapes would be used and stored and who would have access, as voice recognition was a concern, even though codes were used.

It is considered unlikely that they did not discuss their views and experiences honestly. The participants were all from eastern Nigeria and recruited from one particular region of Nigeria that does not have a high multi-ethnic population; it is, therefore, likely that inclusion of a more diverse group of obstetricians, such as those from different ethnic and cultural backgrounds, would uncover different perspectives. These participants' views and experiences can provide a deeper understanding of some Nigerian obstetricians' perceptions and beliefs upon which they make clinical practice decisions.

Conclusions

Initially, the obstetricians' views and experiences of birthing practices were clearly influenced by their education and training, and an entrenched medical model of maternity care had been adopted and accepted at the two study hospitals. However, in the process of undertaking this study, awareness and practices not based on evidence were challenged, and a change in the views of the obstetricians participating in this study was observed. A change of view that involved critical thinking and an acceptance that some adaptation for birthing practices were being considered, such as enabling women to adopt different positions during labour and birth and that this may result in less routine episiotomies being performed, was a positive outcome.

There was a clear willingness among obstetricians to change and incorporate clinical practices that benefitted women based on contemporary evidence. This resonates with what is commonly referred to as the change that occurs within an appreciative inquiry approach when people move from being trapped in a vicious cycle to a virtuous cycle.

It is vitally important that obstetricians adopt a woman-centred approach and work collaboratively with midwives, in order to ensure that this approach becomes accepted and practised when they are supporting women during their childbirth experiences.

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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-blinded 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 Ratnaike, 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

Leadership scholarships open

The Florence Nightingale Foundation is now accepting applications for its leadership scholarships for 2016-17. These include general leadership scholarships for midwives, nurses and allied health professionals in the UK. There are scholarships for BME midwives and nurses, emerging leaders and leaders working in specialist fields. The foundation has also launched a new award – the Aspiring Nurse Directors Leadership Scholarships. The closing date for receipt of applications for all leadership scholarships is 15 August. For more information and to apply, visit florence-nightingale-foundation.org.uk

RCM conference speakers announced

A number of top researchers and academics will be presenting at the RCM Annual Conference 2016. Among those taking to the stage will be Professor Mary Renfrew, Professor Mavis Kirkham and Professor Michael A West, head of thought leadership at The King's Fund. The two-day conference will be held at the Harrogate International Centre on 19 and 20 October. It will feature an array of national and international speakers from within and beyond maternity care. Hot topics will be debated through a series of keynote, plenary and concurrent sessions and there will be a conference exhibition. Early bird bookings are open until 16 July. For more information and to book a place, visit rcmconference.org.uk

Apply to research for patient benefit programme

The National Institute for Health Research is inviting researchers to submit proposals to its research for patient benefit programme. These should be related to the day-to-day practice of health service staff and should be concerned with having an impact on the health or wellbeing of patients and users of the NHS. It welcomes applications on a wide range of issues and aims to fund high-quality research that will be directed at achieving benefit for NHS users in England. For more information and to apply to the programme, visit nih.ac.uk/funding-opportunities

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Dr Margaret McGuire, NHS Tayside, Scotland

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Professor Cathy Warwick, RCM chief executive

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CONTENTS

- Editorial: Zika virus disease epidemic: the role of the midwife in mitigation. 39
Marlene Sinclair
- The evidence-based medicine problem in studies of pharmacological substances in pregnancy and childbirth. 41
Soo Downe
- Moving pictures: the inclusion of photo-elicitation into a narrative study of mothers' and midwives' experiences of babies removed at birth. 44
Wendy Marsh, Jill Shawe, Ann Robinson and Jen Leamon
- The effect of intrapartum pethidine on breastfeeding: a scoping review. 49
Tanya Burchell, Samantha Coster and Ian Norman
- Determining the influencing factors of a caesarean section birth on breastfeeding. 57
Charlotte Fielder
- Exploring Nigerian obstetricians' perspectives on maternal birthing positions and perineal trauma. 64
Faith Diorgu, Mary Steen, June Keeling and Elizabeth Mason-Whitehead
- Information for authors, news and resources. 71